

SYRACUSE METROPOLITAN TRANSPORTATION COUNCIL

2050

LONG RANGE TRANSPORTATION PLAN

2020 Update



Moving Towards a
Greater Syracuse



SYRACUSE METROPOLITAN TRANSPORTATION COUNCIL

2050 LONG RANGE TRANSPORTATION PLAN

September 2020



This document was prepared with financial assistance from the Federal Highway Administration and the Federal Transit Administration of the U.S. Department of Transportation through the New York State Department of Transportation. The Syracuse Metropolitan Transportation Council is solely responsible for its contents.

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RESOLUTION
SYRACUSE METROPOLITAN TRANSPORTATION COUNCIL
POLICY COMMITTEE

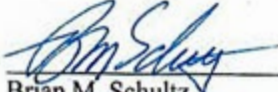
September 23, 2020

- WHEREAS,** The Syracuse Metropolitan Planning Area (MPA) contains a complex, multimodal transportation system, which must be maintained in a relative state of good repair to preserve existing infrastructure, increase safety, increase security, enhance integration and system connectivity, promote efficient system management and operations, increase accessibility and mobility, support economic vitality, protect/enhance the environment, improve resiliency and reliability, and enhance travel and tourism; and
- WHEREAS,** The Syracuse Metropolitan Transportation Council (SMTC) has been designated by the Governor of the State of New York as the Metropolitan Planning Organization (MPO) responsible, together with the New York State Department of Transportation and the Central New York Regional Transportation Authority as the area's public transportation operator, for the comprehensive, continuous, and cooperative transportation planning process for the Syracuse MPA, including the preparation of the Long Range Transportation Plan; and
- WHEREAS,** Current Federal Metropolitan Planning Regulations (23 CFR Part 450) mandate that MPOs review and update their Long Range Transportation Plans at least every five years in attainment areas, such as Onondaga County, to confirm the transportation plan's validity and consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period to at least a 20-year planning horizon; and
- WHEREAS,** The 2050 Long Range Transportation Plan 2020 Update contains a variety of goals, objectives, performance measures, and targets that are utilized to advance the concepts contained within the plan, guide transportation planning, and capital investments; and
- WHEREAS,** The 2050 Long Range Transportation Plan 2020 Update was developed collectively by the SMTC Central Staff and the SMTC Planning Committee, including coordination and consultation with Federal, State, and Tribal land management, natural resources, environmental protection, conservation and historic preservation agencies, and other interested parties as appropriate; and been made available for public comment; and
- WHEREAS,** All public comments received have been evaluated, addressed as appropriate and documented as an appendix to the report; and
- WHEREAS,** The SMTC Policy Committee is the policy making body of the MPO having the authority to adopt the 2050 Long Range Transportation Plan 2020 Update.

**Adoption of the 2050 Long Range
Transportation Plan 2020 Update**

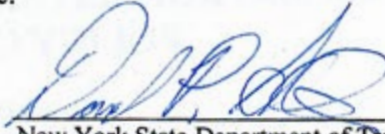
SMTC Policy Resolution No. 2020-02

NOW THEREFORE BE IT RESOLVED, that the SMTC Policy Committee hereby adopts the 2050 Long Range Transportation Plan 2020 Update.



Brian M. Schultz
Chairperson
SMTC Policy Committee

Date: September 23, 2020



New York State Department of Transportation
Secretary
SMTC Policy Committee

Date: September 23, 2020

Executive Summary

The Syracuse Metropolitan Transportation Council is the state-designated Metropolitan Planning Organization (MPO) for the Syracuse area, responsible for administering comprehensive, continuous, and cooperative transportation planning. Creation of a Long Range Transportation Plan (LRTP) is one of the core functions of every MPO. The LRTP spells out a vision and goals that guide annual transportation planning activities and capital funding within the MPO's jurisdiction.

The 2050 Long Range Transportation Plan – *Moving Towards a Greater Syracuse* - was adopted in 2015 and was the first entirely new long range plan prepared by the SMTC since 1995. Federal rules require that the SMTC update the LRTP at least every 5 years. This document is the first update to the 2050 LRTP. The goals and objectives remain mostly unchanged since 2015. The 2020 update includes newer demographic and economic data where available, and describes progress made on the regionally-significant projects that were identified in 2015, and remain priorities today. To develop the 2050 plan and this update, the SMTC drew upon other plans and planning processes that have recently been prepared for Central New York, as well as recent SMTC studies. As the SMTC programs federal transportation dollars toward the reconstruction of the region's transportation infrastructure over the next 30 years, the goals and objectives in this plan will serve as its guiding principles.

This LRTP was prepared in keeping with the requirements of the Fixing America's Surface Transportation (FAST) Act, signed into law in 2015. The FAST Act includes a requirement that states and MPOs track and periodically measure specific aspects of their transportation facilities and how they perform, like pavement conditions, accident rates, and traffic congestion, and make progress in improving them.

The LRTP Update includes a system performance report with all of the Federally-required performance measures, plus additional measures tailored to local planning goals. The SMTC will provide updates to this report every five years. Measuring performance provides valuable insight into where to direct limited resources to achieve targets and advance national goals.

This plan does not specify an outcome for the I-81 viaduct. The New York State Department of Transportation (NYSDOT) is currently progressing The I-81 Viaduct Project through an environmental review. Once a decision is made, the SMTC will update this LRTP to reflect the chosen option for the future of I-81. This plan identifies three other regionally significant projects: an enhanced transit system, a regional trail system, and an inland port. The Syracuse Metropolitan Area Regional Transit Study Phase 1 (SMART 1), which was completed by the SMTC in 2018, identified Bus Rapid Transit in mixed-traffic on two corridors as the locally-preferred alternative for enhanced transit. This Update also notes progress on the regional trail network, and recent investments to expand capacity at the DeWitt Rail Yard. This LRTP acknowledges that specific proposals and funding sources for I-81 construction and for major additions to the transit system have not been identified yet.

Funding sources, generally, will play a major role in whether or not the region is able to make significant progress in improving its performance measures. A total of nearly \$3.30 billion is expected to be available for capital projects on Federal-Aid eligible roads and our transit system through the year 2050, including federal, state, and local funds. The SMTC anticipates needing a total of \$3.26 billion to both maintain and improve the existing highway and transit systems, with the bulk

of this funding (about 88 percent) going to maintenance. (This \$3.26 billion estimate does not include funding for either the I-81 Viaduct Project selected alternative or an enhanced transit system.) Given the maintenance needs of the existing system, limited financial resources, and the fact that our existing road system generally operates very well, we do not anticipate spending significant funds to substantially expand the existing transportation system beyond the efforts noted above at this time.

Our projections indicate that, for the most part, the existing transportation system will continue to serve the region's population well. Over the next 30 years demographic and economic growth is expected to largely continue along lines established in previous decades, although more population growth is expected in the City of Syracuse than in the recent past. Existing commuting trends based on single-occupant vehicles are likely to continue. But the 2050 LRTP also envisions a region of robust villages and town centers anchored by a revitalized and growing City of Syracuse, connected by roads, trails, bike lanes, and an enhanced transit system. By pursuing the goals and objectives in this plan, and utilizing them to prioritize which transportation projects are funded, we will move toward a greater Syracuse region.

Chapter 1: Introduction

1.1 ABOUT THE SMTC

1.1.1 OVERVIEW

The Syracuse Metropolitan Transportation Council is a state-designated Metropolitan Planning Organization, responsible for administering comprehensive, continuous, and cooperative transportation planning. The Council's planning jurisdiction, called the Metropolitan Planning Area (Figures 1.1 and 1.2), covers Onondaga County and portions of Madison and Oswego counties. As the Metropolitan Planning Organization for the Greater Syracuse Metropolitan Area, the SMTC, as directed through federal metropolitan transportation planning policy, acts as a clearinghouse where long-term and immediate transportation planning decisions are made for the region. These decisions are made through a committee structure that uses models of consensus building and cooperative decision making. The committees are made up of "member agencies" from the local, county, state, and federal level that have a vested interest in the planning and function of the transportation system. The SMTC also provides an opportunity for citizens to participate in the discussion of specific transportation issues.

1.1.2 HISTORY OF MPOS

Current federal surface transportation legislation requires that an MPO exist for every urban area within the U.S. with a population of at least 50,000 people. This basic definition of an MPO was first established in the Federal Highway Act of 1962. (The SMTC was established in 1966.) Although MPOs had existed since the 1960s, the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 substantially increased the role of the MPOs in the transportation planning process. Along with the Clean Air Act Amendments of 1990

The SMTC is a Metropolitan Planning Organization, or MPO, and is responsible for transportation planning in Onondaga County and portions of Oswego and Madison counties.

Every urban area in the U.S. with a population of at least 50,000 has an MPO.

The current federal surface transportation law, the FAST Act, emphasizes performance-based planning for MPOs and their member agencies.

and the Americans with Disabilities Act (ADA) of 1990, ISTEA ushered in a new era of transportation planning that emphasized alternative modes of travel, intermodal connectivity, environmental sustainability, preservation of existing infrastructure (since the Interstate Highway System had, essentially, been completed by that time) and the interactions between land use and transportation. ISTEA also called for increased public involvement in the transportation planning process.

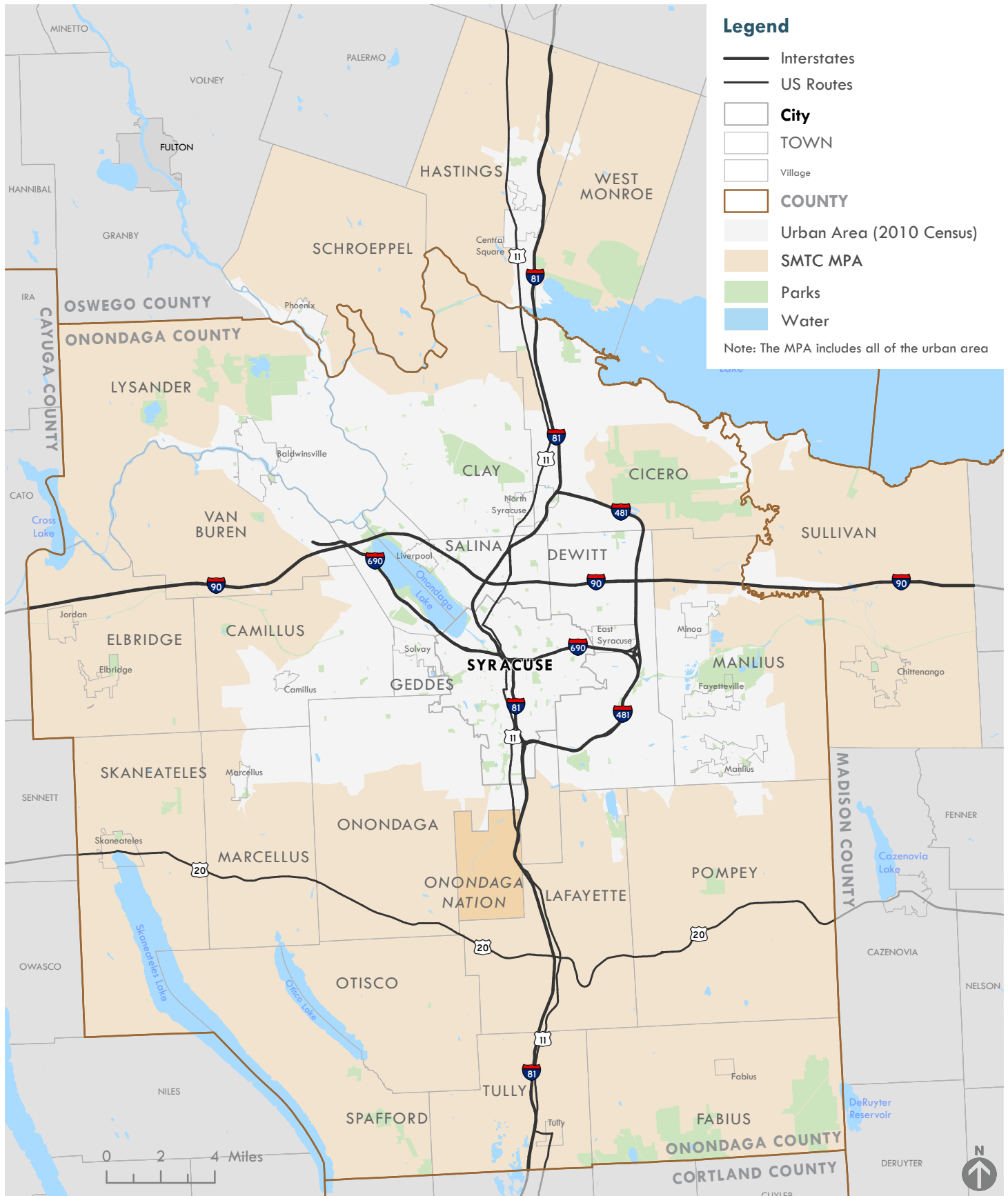
Since the passage of ISTEA in 1991, there have been four additional federal surface transportation laws passed: the Transportation Equity Act for the 21st Century (TEA-21) in 1998; the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005; Moving Ahead for Progress in the 21st Century (MAP-21) in 2012; and the Fixing America's Surface Transportation (FAST) Act in 2015. Each new law has modified the requirements placed on MPOs, while maintaining the essential elements and philosophy introduced in ISTEA. The most recent transportation legislation, the FAST Act, maintained the same basic planning factors of the previous legislation, but brought new requirements for performance-based planning reflecting a general move towards increased accountability for publicly-funded programs. The performance-based approach requires the establishment of measureable objectives, associated performance measures and targets, and monitoring of progress over time. The FAST Act is set to expire on September 30, 2020.

1.1.3 CORE FUNCTIONS OF THE MPO

All metropolitan planning organizations fulfill three core functions, embodied in three guiding documents: long range planning through the Long Range Transportation Plan; an annual program of transportation planning activities through the Unified Planning Work Program; and administration of federal surface transportation funding through the Transportation Improvement Program.

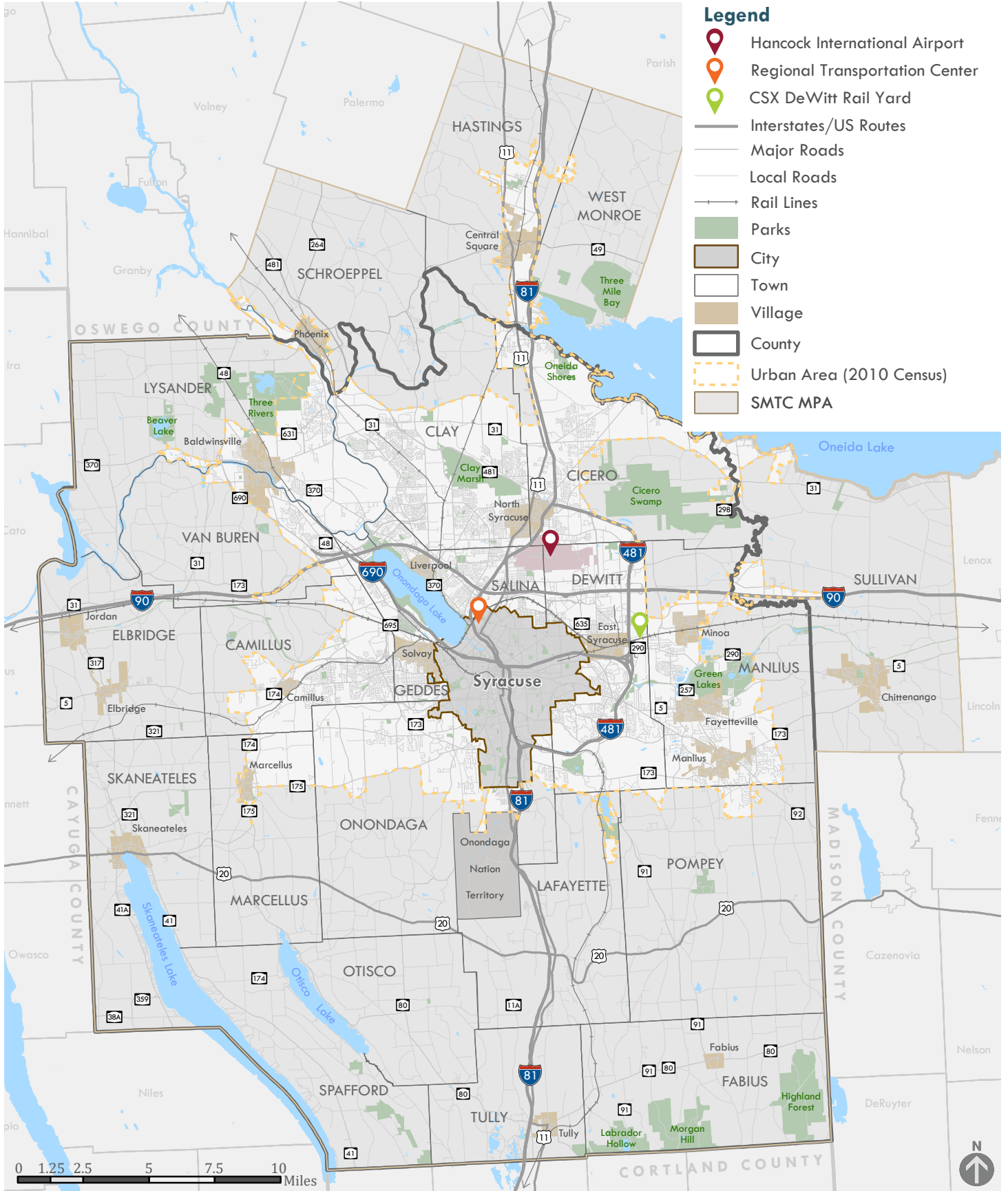
Long Range Transportation Plan. The Long Range Transportation Plan (LRTP) guides transportation planning and investment over a period of at least 20 years. The LRTP describes the existing land use patterns, economic conditions, demographics, and transportation system conditions in the planning area; identifies future transportation

FIGURE 1.1: THE SMTC METROPOLITAN PLANNING AREA (MPA)

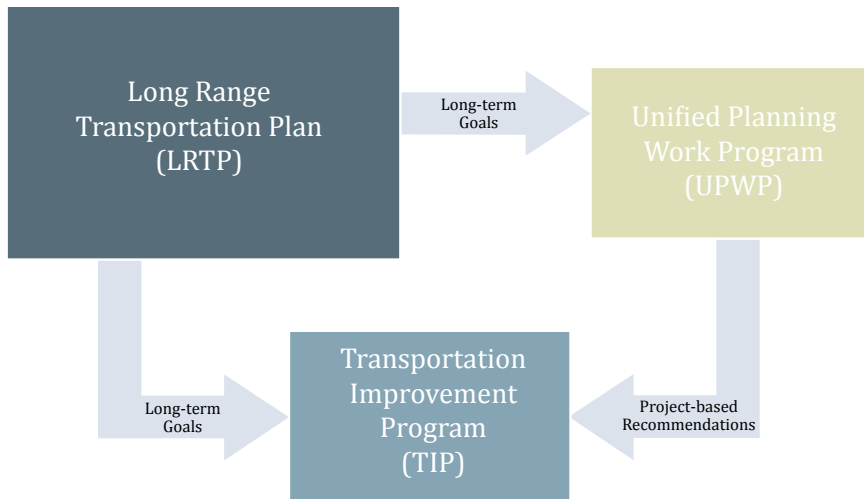


Data Source: SMTC GIS, 2019

FIGURE 1.2: KEY TRANSPORTATION PLANNING FEATURES WITHIN THE SMTC MPA



Data Source: NYSDOT, 2012



The SMTC has three core functions, embodied in three guiding documents: long-range planning through the LRTP, an annual program of transportation planning activities through the UPWP, and administration of federal surface transportation money through the TIP.

system needs; and sets goals and objectives for future transportation planning and investment. A financial plan must be included in the LRTP, illustrating how the MPO intends to carry out the policies or projects identified in the LRTP with the resources that are reasonably expected to be available over the life of the plan. The SMTC’s LRTP is created by staff and an advisory committee of member agencies, along with input from the public, and is approved by the Policy Committee. The LRTP must be updated every five years.

Unified Planning Work Program. The Unified Planning Work Program (UPWP) lists annual transportation planning activities that are to be undertaken in the Syracuse Metropolitan Planning Area in support of the goals established in the LRTP. In short, it is an outline of the transportation planning activities that will be conducted by the SMTC and its professional staff over the course of one year. The UPWP includes both on-going activities, such as traffic data collection and Geographic Information Systems (GIS) work, as well as short-term (usually 12-24 months) individual planning studies for a sub-area of the MPA, such as corridor studies, parking studies, and bicycle and/or pedestrian studies. Maintenance of the LRTP and the Transportation Improvement Program (see below) are required elements of the UPWP; additional projects are selected from proposals made by member agencies and municipalities. The UPWP is updated annually.

Transportation Improvement Program. The Transportation Improvement Program is the five-year list of specific capital projects

SMTC Policy Committee Members

U.S. Department of Transportation

- Federal Aviation Administration*
- Federal Highway Administration*
- Federal Transit Administration*

New York State

- Department of Environmental Conservation
- Department of Transportation
- Thruway Authority
- Empire State Development

Onondaga County

- Office of the Executive
- Legislature
- Planning Board

Madison County

- Board of Supervisors*

Oswego County

- Legislature*

City of Syracuse

- Office of the Mayor
- Common Council
- Planning Commission

CNY Regional Transportation Authority

CNY Regional Planning and Development Board

CenterState Corporation for Economic Opportunity

Onondaga Nation*

* = Non-voting advisory agency

for which federal funds are anticipated. Required by federal law, the TIP represents the transportation improvement priorities of the Greater Syracuse Metropolitan Area. The list of projects is multi-modal and includes highway and public transit projects, as well as bicycle, pedestrian, and freight-related projects. The TIP represents the translation of recommendations from the LRTP and the UPWP. The projects are evaluated to assure consistency with the goals and objectives established in the LRTP.

1.1.4 MEMBER AGENCIES AND COMMITTEE STRUCTURE

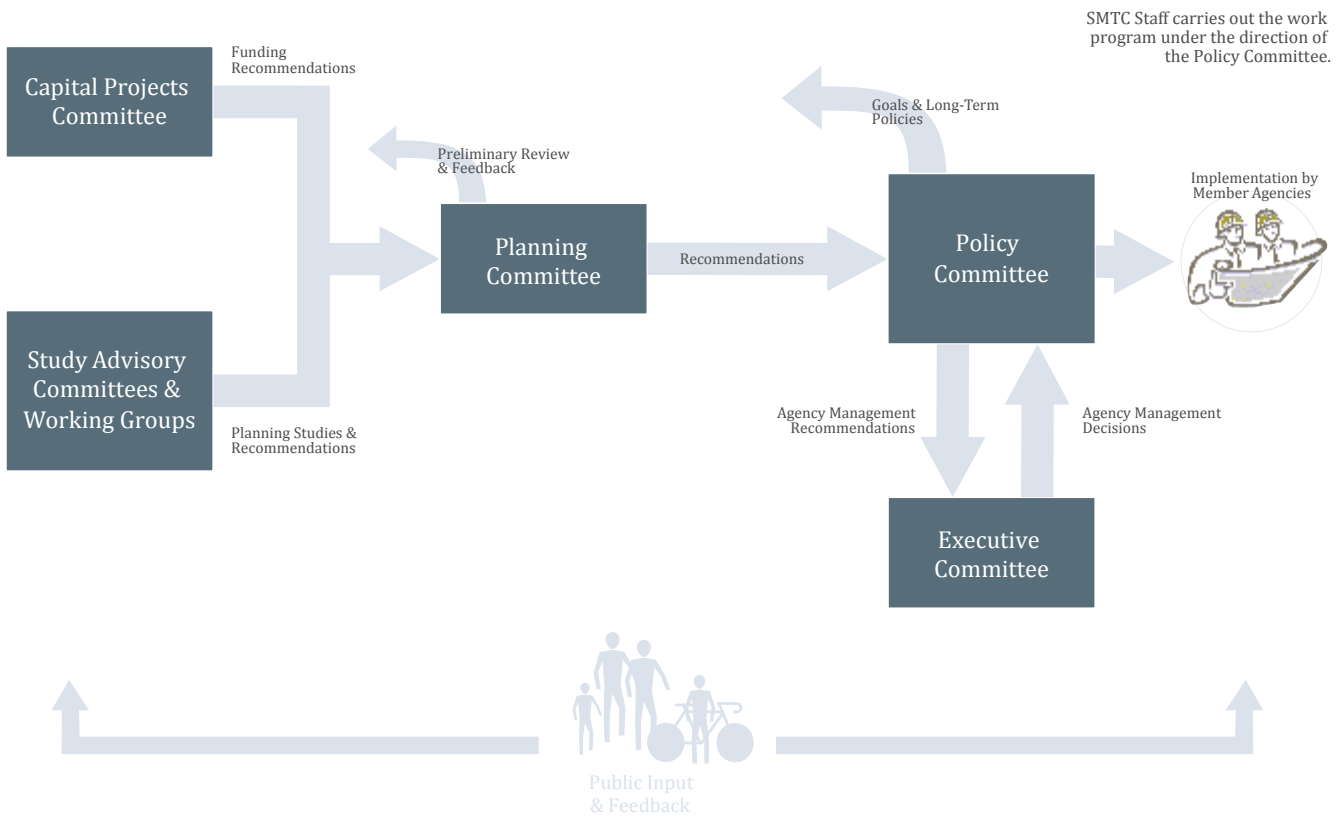
The SMTC consists of federal, state, regional, county, and city offices and organizations, collectively referred to as the SMTC's "member agencies." Representatives from these member agencies participate in various SMTC committees. There are three standing committees that are responsible for decision making: the Policy Committee, the Planning Committee, and the Executive Committee. Each committee has a defined membership and purpose. The Policy Committee is the final decision-making body for the council.

Just about every study that the SMTC conducts (save for some minor technical analysis tasks) includes the formation of a Study Advisory Committee specifically for that project. The Study Advisory Committees generally consist of interested Planning Committee members and may, on occasion, include representatives of other community organizations whose input is deemed integral to the completion of the study.

1.1.5 MPO FUNDING

The federal funding that the SMTC administers (through the TIP) for transportation-related capital projects in our planning area comes primarily from the federal Highway Trust Fund (HTF). The majority of the money in the HTF comes from the federal gas tax, which has been set at 18.4 cents per gallon (24.4 cents per gallon for diesel fuel) since 1993. Annual revenue from gas taxes is on the order of \$36 billion.

Before money from the HTF can be used to reimburse states for project costs, Congress must pass, and the President must approve, legislation authorizing the use of funds. These authorization bills govern how transportation funds are used for several years at a time and include rules pertaining to what programs will be funded and how



The SMTC operates with three primary standing committees (Policy, Planning, and Executive), plus a Capital Projects Committee and various study-specific committees and working groups. Representatives of the SMTC member agencies comprise the committees.

Roles of the SMTC Committees

Policy Committee

- Establishes goals and long-term policies.
- Approves and adopts the UPWP, TIP, and LRTP.
- Reviews and acknowledges completion of planning studies.

Planning Committee

- Monitors progress of planning studies.
- Approves scope of work for planning studies.
- Established by the Policy Committee and composed of professional/technical representatives.

Executive Committee

- Manages administration within the SMTC.
- Coordinates with the SMTC Director, who manages SMTC staff.
- Consists of Planning Committee members.

Capital Projects Committee

- Managed by SMTC staff.
- Reviews, prioritizes, and recommends projects to be funded with federal transportation dollars to the Planning Committee.

Study Advisory Committees and Working Groups

- Managed by SMTC staff.
- Provides guidance throughout planning studies.

The future of the Highway Trust Fund

The Highway Trust Fund is intended to provide a dedicated source of revenue for federally-funded surface transportation projects. Historically, revenue from the taxes associated with the fund (primarily gasoline and diesel fuel taxes, plus a few other related excise taxes) have been sufficient to cover the expenditures on the surface transportation system. However, improvements in fuel economy and a stagnant gas tax since the early 1990s have resulted in declining revenues.

The Congressional Budget Office (CBO) has projected that the HTF would face a shortfall of \$189 billion by 2030, if taxes credited to the fund remain as-is and funding for highway and transit programs keeps pace with inflation. With the current federal authorization for highway programs set to expire on September 30, 2020, discussion about options to fund future highway programs is timely.

For more information see the CBO's May 2020 document "Reauthorizing Federal Highway Programs: Issues and Options," available online at <https://www.cbo.gov/publication/56346>.

transportation planning and environmental review activities will be conducted. The FAST Act is the current funding authorization law. It set funding at over \$305 billion for fiscal years 2016 through 2020.

The SMTC, as with all MPOs, does not own or maintain any infrastructure. The SMTC facilitates the development of the TIP, which lists the capital projects that will be undertaken by the facility owners that are members of the SMTC. The SMTC's current 2020-2024 TIP includes projects totaling nearly \$385 million over 5 years.

The SMTC's annual planning budget (for activities to be completed by staff or consultants, as listed in the UPWP) is approximately \$1.2 million. These planning funds have historically been provided through a small set-aside from the total capital funding authorized in the current surface transportation legislation (typically around 1 percent of the total funding).

1.1.6 OTHER FUNCTIONS OF THE SMTC

In addition to the core functions previously discussed, the SMTC completes a number of other activities and documents for our region:

Congestion Management Process (CMP). A CMP is required by federal legislation in each metropolitan area with an urbanized-area population greater than 200,000 people (also known as Transportation Management Areas or TMAs). The urbanized area within the SMTC's planning area includes 412,317 people (2010 Census) and therefore qualifies as a TMA. The FHWA defines a CMP as a "systematic approach to addressing congestion through effective management and operation." This process aids in identifying locations that may need improvements to relieve congestion. The CMP is an on-going process that should be completed in advance of a Long Range Transportation Plan. The SMTC completed the most recent CMP report in 2019.

Functional Classification system review. Functional classification is the process by which roadways are grouped into various categories according to characteristics such as design, connectivity, relation to surrounding land uses, and anticipated traffic volumes. Functional classification is an integral component to determining eligibility for receipt of federal transportation funding assistance. MPOs have the

responsibility to examine the transportation network within their planning area to ensure roadways are appropriately classified. This review process typically occurs subsequent to the release of a decennial Census urbanized area; however, revisions can occur to the system at any time. The State Department of Transportation is responsible for establishing the procedures by which modifications to the transportation system classifications should be submitted. The SMTTC Policy Committee approves any change to the functional classification system before transmittal to the State Department of Transportation and then to US Department of Transportation for final approval.

Coordinated Public Transit-Human Services Transportation Plan. Transportation legislation mandates that projects selected to receive Federal Transit Administration Section 5310 funds (Elderly Individuals and Persons with Disabilities) must be included in a locally developed, Coordinated Public Transit-Human Services Transportation Plan, or Coordinated Plan. A Coordinated Plan identifies the transportation needs of individuals with disabilities, seniors, and people with low incomes, provides strategies for meeting the local needs, and prioritizes transportation services for funding and implementation. The Coordinated Plan is developed with direct participation and involvement from seniors, individuals with disabilities, representatives of public, private and nonprofit transportation and human services providers, and other members of the public. The Coordinated Plan is updated every four years.

Title VI reporting and Environmental Justice analysis. Title VI of the Civil Rights Act of 1964 prevents discrimination by government agencies that receive federal funds. As recipients of federal funds from the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA), the SMTTC and its member agencies are subject to Title VI requirements. The current Title VI circular, FTA C 4702.1A, includes guidance on conducting metropolitan transportation planning and states "...MPOs should have an analytic basis in place for certifying their compliance with Title VI." To fulfill this regulation, the SMTTC completes a demographic profile of various socioeconomic groups, including low-income, minority, seniors, Limited-English Proficient (LEP), and persons with disabilities relying on decennial Census and

For more information...

SMTTC has many resources available on our website at www.smtcmpo.org including:

- Latest versions of our TIP, UPWP, and LRTP
- Traffic counts for intersections and road segments throughout our planning area
- Final reports from past studies
- Maps, including our Bicycle Suitability Map and Waterway Destinations and Services Map
- Announcements about public meetings or other public involvement opportunities.

No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. – Title VI of the 1964 Civil Rights Act

Each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States. – Executive Order 12898

American Community Survey data. The SMTC also completes a Title VI self-certification provided by the New York State Department of Transportation. The SMTC published a joint Title VI & LEP Plan in 2015.

Environmental Justice (EJ) requirements stemmed from Title VI of the Civil Rights Act. In 1994, President Clinton issued Executive Order 12898 stressing the provisions of Title VI and stating in short that each federal agency shall make EJ a part of their mission. In 2002, the FHWA requested that the SMTC produce an EJ analysis report. Since that time, four reports, including the most recent one in 2018, have been completed. The EJ report evaluates whether capital and planning activities have been disproportionately distributed amongst the EJ target populations, which include the minority and low-income populations as well other identified underserved populations. The most recent analysis found that UPWP projects and activities going back as far as 2013 and projects from the 2014-2018 TIP and 2017-2021 TIP are not known to have been disproportionately distributed amongst the EJ target populations.

Data collection and analysis. The SMTC collects, stores, and analyzes a variety of data for our region. The SMTC provides a variety of services to the member agencies to assist with their own planning. Some notable current and past activities include:

- Collection and compilation of an extensive assortment of traffic count data.
- Mapping capabilities using Geographic Information Systems (GIS).
- Maintenance of Bridge and Pavement Condition Management Systems and publication of an accompanying report on an annual basis.
- Publication of an updated Bicycle Suitability Map, a resource used by residents throughout our region, in 2020.
- Publication of a Waterway Destinations and Services Map in 2011.
- Maintenance of a regional travel demand model. This is a computer model that is used to determine the expected future travel conditions on major roads in our region based on projected population and employment changes. SMTC staff and member agencies employ this model for a variety of studies.

1.1.7 PUBLIC PARTICIPATION AND COMMUNICATIONS

Public participation is a key component to the success of any planning process. As required by federal legislation, the SMTC maintains an agency-wide “umbrella” Public Participation Plan and also creates individual Public Involvement Plans for specific projects. The SMTC provides an opportunity for citizens to participate in the discussion of specific transportation issues and encourages public participation via a variety of avenues such as public meetings, surveys, questionnaires, workshops, and open houses. The SMTC also conducts studies to gauge citizen desires, completes technical corridor reviews, and utilizes multimedia educational tools. The SMTC’s public meetings are held in ADA-accessible facilities, and in transit-accessible locations whenever possible. Translation and interpretation services, including American Sign Language, or other accommodations to facilitate participation are available upon request, and this is indicated on public meeting notices.

The public can access SMTC’s study reports and other publications from the agency’s website at www.smtcmpo.org. Public meeting notices are posted to the website as well. The website was completely revamped to a more modern and user-friendly format in mid-2019, and has averaged over 500 viewer “sessions” (during which a user might visit multiple pages on the site) per month since launch. Staff contact information is available on the website, and the agency maintains a general e-mail address (contactus@smtcmpo.org). The SMTC also has an online interactive, ArcGIS map gallery that is accessible from the website and includes information such as pavement ratings and TIP project locations; this site has averaged over 400 views per month over the past year. The SMTC maintains a Facebook page, which currently has 193 “likes.” SMTC typically posts project updates and other information one to four times a month.

The SMTC publishes a newsletter, *Directions*, typically two to four times each year. The newsletter includes summaries of recently completed studies or recently approved scopes of work, and announcements about upcoming public involvement opportunities. The newsletter is distributed in hard-copy to approximately 4,250 physical addresses and electronically to approximately 600 e-mail

Public participation is vital to the transportation planning process. SMTC uses a variety of methods to engage the public in transportation planning for our region.



Three public meetings were held in 2016 and 2017 for the Syracuse Metropolitan Area Regional Transit Study Phase 1. Attendees could view display boards, interact with SMTC and Centro staff, and provide feedback on various aspects of the study.

Contact us anytime!

Location:

126 North Salina Street
Syracuse, NY 13202

Phone: 315-422-5716

Fax: 315-422-7753

E-mail: contactus@smtcmpo.org

Online at www.smtcmpo.org

We are also on Facebook!

The 2050 LRTP is the first entirely new long-range transportation plan created by the SMTC since 1995.

2050 LRTP Update Study Advisory Committee members

- Centerstate CEO
- Central New York Regional Planning and Development Board
- Centro
- City of Syracuse Department of Engineering
- City of Syracuse Department of Public Works
- City of Syracuse Planning Commission
- Empire State Development
- Federal Highway Administration
- Federal Transit Administration
- Madison County Highway Department
- Madison County Planning
- New York State Department of Transportation
- Onondaga County Department of Transportation
- Onondaga Nation
- Oswego County Community Development
- Oswego County Highway Department
- Syracuse-Onondaga County Planning Agency

addresses. These mailing lists have been compiled over many years primarily from sign-in information provided at public meetings and SMTC staff interactions with the community, and include a mix of individual members of the public and representatives of a variety of community organizations.

1.2 ABOUT THE LRTP

Creation of the LRTP is one of the core functions of every MPO. It is based on projections of growth and travel demand, coupled with financial assumptions and public input. The LRTP enunciates a vision and goals that guide annual transportation planning activities and capital funding in the Metropolitan Planning Area.

1.2.1 THE EVOLUTION OF SMTC'S LONG RANGE TRANSPORTATION PLAN

This document is the first update to the 2050 Long Range Transportation Plan – *Moving Towards a Greater Syracuse*. The original 2050 LRTP (published in 2015) was the first entirely new plan generated by the SMTC since 1995, when the 2020 Long Range Transportation Plan was created in response to the planning requirements of the Intermodal Transportation Efficiency Act (ISTEA) of 1991. The original 2020 LRTP goals and objectives were created through brainstorming sessions with a Visioning Committee and were framed around ISTEA's 15 “planning factors,” which addressed enhancing mobility for all users, safety, environmental sustainability, economic development, land use, and facility preservation.

The 2020 LRTP was updated in 1998, 2001, 2004, 2007, and 2011. These updates were not designed as independent documents, but as supplements to be used in conjunction with the original 2020 LRTP. The updated documents reviewed emerging transportation and demographic trends and responded to incremental changes in the federal legislation, but did not substantially alter the goals and objectives developed for the original plan in the early 1990s. The 2050 LRTP, and this update, includes new goals and objectives in response to recent changes in federal legislation and other recent planning efforts in our region. The current plan also encompasses a slightly larger area than the 2020 LRTP and its updates, as the SMTC's Metropolitan

Planning Area expanded farther into Oswego and Madison counties based on the 2010 Census.

1.2.2 PLANNING PROCESS AND PUBLIC PARTICIPATION

Development of the 2050 LRTP began in 2012 with the establishment of the Study Advisory Committee (SAC). All member agencies received a mailed (hard-copy) invitation to participate on the SAC. The SAC met 9 times during the development of the 2050 LRTP.

As in all SMTC activities, public participation is critical to the successful development of the LRTP. Major public outreach activities for the 2050 LRTP included the following:

- An online survey focused on the proposed goals and objectives for the new 2050 LRTP, which was conducted in December 2014/January 2015 and garnered 380 responses. (See Appendix B)
- A series of four open-house style public meetings in April 2015 to present existing demographic and infrastructure conditions, review the survey results, present financial analysis, and elicit feedback from the public on additional transportation issues and opportunities. One of these meetings was held in downtown Syracuse, and the other three meetings were held in suburban locations. A total of 38 people attended the meetings. The meeting materials were also made available on the SMTC's website starting in mid-April 2015, and website traffic increased notably in April compared with the previous six months. (See Appendix C for a full summary of these public meetings.)
- A final public meeting in August 2015 to review the draft plan with the public (see Appendix E) and a 30-day public comment period from August 4 through September 3, 2015 (see Appendix F). Eighteen people attended this public meeting, and 14 individual comments were received via mail, email, or online comment form during the public comment period.

Although the SMTC utilized a variety of means to advertise public meetings in 2015 (including press releases, published legal notices, email blasts, hard-copy flier distribution at various locations including the Centro Hub and county libraries, and SMTC's Directions newsletter), attendance at these meetings represented a very small fraction of the MPA population. The online survey was more successful in eliciting

Consultation with Tribal Nations

The FHWA is working with MPOs and the NYSDOT to consult with Tribal Nations in the transportation planning process. This includes the Onondaga Nation within the SMTC MPA. The Onondaga Nation is a non-voting advisory member of both the SMTC Planning Committee and Policy Committee, and, therefore, is sent all correspondence that is provided to these committees such as meeting notices and summaries of studies. The Onondaga Nation was included on the LRTP Study Advisory Committee (SAC) both for the 2015 process and the update process in 2020 and was sent all electronic and hard-copy correspondence directed to the SAC. The Onondaga Nation was also included on the list of land use management and environmental regulatory agencies that received notification, by mail, of the availability of the draft LRTP for review in 2015 and again in 2020.

public response, though still a small response rate as compared to total population. (This experience, coupled with the COVID-19 situation as noted below, also informed the decision to focus on online public engagement and a direct-mailed LRTP-specific newsletter during the 2020 update process.)

The required update process for the 2050 LRTP began in January 2019. The original SAC was reconvened (though individual representatives changed, the organizations involved remained the same) in April 2019. A subset of the full SAC formed a “future projects/ financial plan working group,” consisting of NYSDOT, OCDOT, Centro, and City of Syracuse representatives; this group met in June 2019 and was consulted throughout the development of the financial analysis component of the LRTP.

Planning, and associated public engagement, is an on-going process. Since the original 2050 LRTP was adopted in 2015, the SMTC has conducted numerous studies to examine issues that are important to residents in our planning area. These studies have also yielded significant public input over the past five years, all of which is considered in our LRTP update; see insert below for more details.

Due to the COVID-19 public health emergency that the country (and the world) was facing beginning in March 2020, the SMTC was prevented from conducting in-person public outreach throughout the spring and summer of 2020 leading up to the adoption deadline for

Public engagement in SMTC studies since 2015

The Syracuse Metropolitan Area Regional Transit Study Phase 1 (SMART 1) – which recommended a Bus Rapid Transit (BRT) system for the region – included three public meetings in Downtown Syracuse in 2016 and 2017, multiple focus group meetings, and a series of popup meetings at bus stops. See Sections 2.4.3 and 4.4.3 for more information about the SMART 1 study. SMTC also conducted two surveys for Centro in 2017: a mailed survey for people who do not currently use the bus, and an in-person survey on Centro buses. Both of these surveys received over 1,100 responses. The Work Link study examined

access to jobs in the region, and included a series of focus group meetings, stakeholder meetings, a survey, and a public meeting. More information about the Centro surveys and the Work Link study can be found in Section 4.4.3. Many recent SMTC studies – and public engagement efforts – have focused on bicycle and pedestrian mobility concerns; for a listing of all these studies see Publications > Planning Studies > Bike/Ped Planning on the SMTC’s website, www.smtcmpo.org. Section 4.4.4 also discusses bicycling and pedestrian facilities in our region.

this plan (September 30, 2020). Therefore, other avenues for public involvement had to be utilized.

In May 2020, the SMTC produced the *2050 LRTP Update Newsletter*, which was mailed in hard-copy to over 4,000 addresses. An electronic version of the newsletter was available on the SMTC's website, and the link was emailed to over 500 email addresses in the SMTC's database and posted to the agency's Facebook page. The four-page newsletter included brief summaries of the LRTP goals, other public engagement efforts since 2015, regional priority projects, performance measures, the financial plan, and the timeline for completion. The newsletter directed readers to the SMTC's website for additional information and included contact information for the SMTC by various means (phone, email, web, etc.). The LRTP goals and objectives were listed on the LRTP Update page of the SMTC website for public review. No comments were received specifically pertaining to the LRTP goals and objectives in 2020.

The SMTC also utilized an online financial simulation tool called "Balancing Act" to share the draft financial plan with the public; a link to this was included in the *2050 LRTP Update Newsletter* and posted to the SMTC's Facebook page. The simulation had over 190 page views and 12 submissions of suggested financial plan adjustments. Links to the newsletter and to the financial simulation tool were also emailed to the LRTP SAC members, and members were asked to "spread the word" to their own contacts about the LRTP Update process and these online resources. See Appendix H for a more detailed summary of this outreach and the resulting feedback, along with a copy of the newsletter.

The draft LRTP Update was made available for public review and comment on the SMTC's website from August 3 through September 2, 2020. At the same time, a narrated presentation was available on the agency's YouTube channel (linked from the LRTP page of the SMTC website), which provided a description of the SMTC, the LRTP process in general, and the specific elements of this LRTP update. This presentation received 77 views, and the SMTC received comments from five individuals during the comment period. See Appendix I for a summary of the August 2020 public outreach, including all of the public comments that were received during the comment period.

The SMTC Transportation Atlas

In conjunction with the development of the 2050 LRTP, the SMTC also published a Transportation Atlas. The Atlas includes a wealth of existing conditions information for our planning area, including demographics, infrastructure conditions, mobility patterns, and safety.

The Atlas is a companion to the LRTP, and is referenced often in the text of this document.

The Atlas is available on the SMTC's website, or you may request a print copy by calling or e-mailing the SMTC.

Look for this icon throughout the LRTP - it will tell you where to find more information in the Transportation Atlas!



The FAST Act also requires that MPOs consult with agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation during the development of the LRTP, as well as transportation providers and representatives of users of the transportation system. To this end, the SMTC contacted the appropriate agencies by mail in August 2020 to provide notice of the the availability of the draft LRTP document and presentation for their review. The contact list is included in Appendix G. No comments were received from these agencies.

Public input is incorporated throughout this document where it is most relevant: Sections 2.3 and 2.4.2 discuss public feedback related to the LRTP goals and objectives; Section 6.4 discusses public feedback on the financial plan.

1.2.3 WHAT'S IN THE 2050 LRTP (2020 UPDATE)

The remainder of the 2050 LRTP (2020 Update) is organized into the following chapters:

Chapter 2 describes the development of the plan's goals and objectives, taking into account other recent planning efforts and the public feedback received through our online survey.

Chapter 3 presents existing demographic and economic data for our region and **Chapter 4** discusses existing infrastructure conditions, and includes our System Performance Report. Both of these chapters frequently reference the SMTC's Transportation Atlas (published separately), which includes a wealth of transportation-related information for our planning area.

Chapter 5 describes the development of the 'anticipated future' scenario and the technical travel demand modeling work that was completed as part of this planning effort. This chapter also includes a discussion of emerging technologies and possible impacts on the future of transportation in our community.

The financial analysis is detailed in **Chapter 6**.

Finally, **Chapter 7** summarizes the vision for our region and the actions necessary to achieve that vision.

Chapter 2:

Goals and Objectives

2.1 FEDERAL REQUIREMENTS

MAP-21 identified eight planning factors to be used by metropolitan planning organizations like the SMTC to structure their policies and programs. In 2015, the FAST Act added two new planning factors to this list that address resiliency, mitigation of stormwater impacts, and travel and tourism. The ten planning factors require MPOs to provide projects and strategies 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 the accessibility and mobility of people and for 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.

Federal legislation requires that the LRTP address ten 'planning factors' and seven National Goals for the transportation system.

The FAST Act continues to place emphasis on measuring and managing the surface transportation system’s performance. The FAST Act describes performance management as a way to achieve “the most efficient investment of Federal transportation funds by refocusing on national transportation goals.”

Federal legislation requires that the LRTP address ten ‘planning factors’ and seven National Goals for the transportation system. The national transportation goals continued through the FAST Act are:

1. **SAFETY**—To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
2. **INFRASTRUCTURE CONDITION**—To maintain the highway infrastructure asset system in a state of good repair.
3. **CONGESTION REDUCTION**—To achieve a significant reduction in congestion on the National Highway System.
4. **SYSTEM RELIABILITY**—To improve the efficiency of the surface transportation system.
5. **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.
6. **ENVIRONMENTAL SUSTAINABILITY**—To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. **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.

Progress towards achieving our goals and objectives will be tracked over time using performance measures and targets.

MAP-21 and the FAST Act require that states and MPOs demonstrate that they are making progress toward achieving these goals. Progress is to be tracked by using a set of performance measures. MAP-21 defined several categories of performance measures, which were carried through to the FAST Act, and the specific performance measures were defined through a series of performance management rulemakings

issued by the FHWA and FTA. The rulemakings and the associated dates after which any newly-adopted or amended metropolitan transportation plan must include the specified performance targets are as follows:

- Highway Safety Improvement Program (HSIP) and Highway Safety - May 27, 2018
- Transit Asset Management - October 1, 2018
- Pavement and Bridge Condition - May 20, 2019
- System Performance/Freight/Congestion Mitigation & Air Quality Improvement Program - May 20, 2019
- Transit Safety - July 20, 2021.

Since this update to the 2050 LRTP was adopted on September 23, 2020, it includes performance targets for all the categories listed above except Transit Safety. MPOs must also include a system performance

Goals, Objectives, Performance Measures & Targets Demystified

This plan is structured around four basic building blocks: goals, objectives, performance measures, and targets. They all sound somewhat similar, but each has a different role in the federal transportation planning process.

Goals are broad statements that describe the way things should be. For example, if you were to say “I want to get more exercise from walking,” this would be a general description of how you want to get more exercise in the future. You have not said how much more walking you want to do or when and where you would do it. The LRTP is built around seven goals that, similarly, provide a general overall direction for the region’s transportation system.

Objectives are specific, measurable steps to be taken to reach a goal. An example would be saying “I will walk during my lunch break.” This objective makes the abstract goal of “walking more” into something specific. Each of the LRTP’s seven goals has distinct, measurable objectives associated with it.

Performance Measures are the means by which progress will be gauged. Performance measures are quantifiable. In the case of walking during lunch, the performance measure could be the number of minutes you walk during a lunch break and/or the number of times a week you take a walk. Each objective in the LRTP has a performance measure associated with it.

Targets indicate where each performance measure should be. A target is the number that the performance measure needs to reach to achieve a given objective. Continuing the example above, you might determine that your target for walking during lunch will be taking a 15-minute walk three times a week. By consistently hitting this target, you will have achieved your goal of getting more exercise from walking. In the case of the transportation system, the SMTC will be tracking the targets identified in the LRTP for each performance measure. The outcomes will be documented in periodic System Performance Reports.

report in the LRTP that describes the condition and performance of the transportation system with respect to required performance targets and reports on progress achieved in meeting the targets in comparison to baseline data and previous system performance reports. The required system performance report is included in Chapter 4 of this document.

2.2 LOCAL PLANNING EFFORTS

The LRTP must address the Federal Planning Factors and National Goals described above, but input from local stakeholders should also be incorporated into the LRTP to achieve a plan that supports the unique goals of each region.

Development of the 2050 LRTP began shortly after the completion of several other large-scale planning and visioning efforts centered in the Syracuse area, undertaken by local and regional planning bodies. Each of these plans discussed ongoing transportation issues and included goals and objectives for improving the surface transportation system, and included significant public outreach efforts. Rather than initiate a new planning and visioning process for this LRTP, the SMTC utilized key ideas from these recently-developed plans as the foundation for a new set of goals and objectives. The plans and documents used were:

- Syracuse-Onondaga County Planning Agency - 2010 Development Guide and Framework for Growth;
- Central New York Regional Planning and Development Board - Vision CNY;
- Central New York Regional Economic Development Council - CNY Rising - From the Ground Up;
- New York State Department of Transportation (NYSDOT) with Syracuse Metropolitan Transportation Council - The I-81 Corridor Study; and
- Syracuse-Onondaga County Planning Agency - Onondaga County Hazard Mitigation Plan.

Appendix A summarizes how each of these documents was used to develop the 2050 LRTP goals.



The future of the aging I-81 viaduct in downtown Syracuse continues to be the subject of extensive local planning efforts.

2.2.1 SYRACUSE-ONONDAGA COUNTY PLANNING AGENCY - 2010 DEVELOPMENT GUIDE & FRAMEWORK FOR GROWTH

Onondaga County’s comprehensive plan update was last adopted in 1998, though multiple local and countywide planning efforts have occurred since that time. A new county plan is also now in development and is anticipated to be presented to the County Legislature for adoption in 2021.

The 2010 Development Guide presents a set of policies and practices for Onondaga County and its 35 municipalities that are based upon four identified countywide goals: economic growth, an attractive community, choice and diversity, and fiscal strength. The plan emphasizes the importance of preserving and improving quality of life, without increasing fiscal burdens on the community

Relating to transportation and land use, a ‘fix-it-first’ approach to infrastructure investments is encouraged, as well as strategies for compact settlement patterns, reinvestment in existing communities, improving mobility, and fostering orderly new growth patterns. Specific to highways, maintenance is generally favored over premature reconstruction or expansion, and local street networks are favored over strip development.



County planning efforts emphasize infill development in existing villages and hamlets, which are already served by water, sewer, and transportation infrastructure.

Emerging themes for a new County Plan

The Syracuse-Onondaga County Planning Agency is currently embarking on a full update of the County’s comprehensive plan. Initial scoping and municipal outreach has produced the following thematic focus areas for the new plan, scheduled to be presented for adoption in 2021.

Central Planning Goal: Create an environment for economic growth and quality of life in Onondaga County through community investments in the form of placemaking, innovation, connectivity, and inclusion.

Community Planning Themes:

- *Community Based Planning:* planning from the ground up
- *Community Centers:* strong downtowns, villages, hamlets, and town centers
- *Transportation Corridors:* modern, transformative planning for mobility and development
- *Greenways and Greenbelts:* conserve, protect, connect, and restore targeted resources
- *Agriculture:* protection and promotion of the economy and landscape
- *Housing and Neighborhoods:* countywide strategy for modernization and promotion of new and existing complete neighborhoods

2.2.2 CENTRAL NEW YORK REGIONAL PLANNING AND DEVELOPMENT BOARD - VISION CNY

The Central New York Regional Planning and Development Board (CNYRPDB) produced its Vision CNY: Central New York Regional Sustainability Plan in 2013. Like the SMTC, the CNYRPDB is a regional planning body; however, the CNYRPDB's planning area extends across Cayuga, Cortland, Madison, Onondaga, and Oswego Counties - much larger than the SMTC's planning area - and the CNYRPDB's work touches on numerous aspects of community and regional planning.¹ Vision CNY examines existing energy use, infrastructure, land use, environmental conditions, economic development, and waste management practices

¹ The CNY RPDB is a public agency that was established in 1966 by Cayuga, Cortland, Madison, Onondaga, and Oswego Counties under the provisions of Article 12B of the New York State General Municipal Law. The CNY RPDB is governed by a 35-member board of directors that is appointed by its five member counties. Financial support for the agency is provided by member county contributions, state and federal grants, and contract service revenue. The CNY RPDB provides a comprehensive range of services associated with the growth and development of communities in Central New York with a focus on eight major program areas including economic development, environmental management, community development, energy management, land use and transportation planning, information and research services, and intergovernmental coordination.

Vision CNY goals

- Improve the region's energy management by increasing the efficiency of residential and commercial buildings, curtailing energy demand, increasing the use of local clean energy sources in place of fossil fuels, and accelerating the development of advanced energy technologies.
- Provide infrastructure that reduces greenhouse gas emissions, revitalizes existing communities, improves the quality of life, strengthens targeted industry concentrations, and improves the region's competitiveness.
- Manage the region's economic and physical development through the efficient and equitable use of land to conserve its natural and cultural resources and revitalize its urban cores, main streets and existing neighborhoods.
- Conserve and protect the quality of the region's water, air, land and wildlife resources without compromising the ability to meet current and future resource dependent needs.
- Support the growth of a diverse economic base that will provide employment opportunities for a broad cross section of citizens across the five-county region.
- Improve the environmental performance and the economic development and job creation potential of the region's material management systems by reducing the production of waste and increasing materials reuse, recycling, and energy recovery.
- Adapt successfully to a changing climate and improve the resilience of the region's communities, infrastructure, and natural systems.

across the five-county region. The plan proposes sustainability goals, targets, and strategies for the region, and describes the benefits that can accrue to residents and municipalities by implementing these strategies. In the area of transportation, Vision CNY emphasizes the importance of bus rapid transit, transit-oriented development, and building complete streets.

2.2.3 CENTRAL NEW YORK REGIONAL ECONOMIC DEVELOPMENT COUNCIL - CNY RISING-FROM THE GROUND UP

The Central New York Regional Economic Development Council (CNYREDC) is one of ten councils established by New York State in 2011 to develop long-term plans for economic growth at the regional level. The CNYREDC's area is made up of Cayuga, Cortland, Madison, Onondaga, and Oswego Counties. As a result of the CNYREDC's 2015 plan *CNY Rising - From the Ground Up*, the State awarded the region \$500 million for a wide variety of economic development activities.

Among other major initiatives, CNY Rising proposes the development of a Global Manufacturing and Logistics Hub, which is expected to reduce shipping costs for regional manufacturers by 40 percent. It also proposes an Opportunity Investment Fund that is intended to attract jobs to the region's distressed communities.

2.2.4 THE I-81 CORRIDOR STUDY GOALS AND OBJECTIVES

Between 2009 and 2013, the NYSDOT conducted the I-81 Corridor Study. This study initiated a community-wide planning process to address the needs of approximately 12 miles of I-81 through Syracuse. The SMTC undertook a public participation effort, known as *The I-81 Challenge*, in support of this corridor study. The public participation effort included three large public meetings and more than 20 focus group meetings. Total attendance at the three large public meetings (held in 2011, 2012, and 2013) was on the order of 1,880 people, with an additional 784 people reviewing meeting materials by way of "virtual" public meetings. This process provided an unprecedented opportunity for SMTC staff to discuss the region's transportation issues with a wide variety of stakeholders, from citizens' groups to emergency service providers to some of the region's largest employers.

CNY Rising key pillars of economic growth

- Invest in key growth drivers, such as precision sensing, data analytics, and agriculture;
- Build an inclusive economy; and
- Support and develop enablers of prosperity, such as veterans, entrepreneurship, global manufacturing, and world-class communities.

Goals from The I-81 Corridor Study

- Improve public safety
- Enhance the transportation network
- Enhance region-wide mobility
- Maintain or improve economic opportunities
- Preserve or enhance environmental health
- Support community quality of life
- Exercise fiscal responsibility
- Share burdens and benefits.

This public interaction included asking people to identify their goals and objectives for I-81; in many cases, these ideas are as applicable to the region's transportation system as a whole as they are to the I-81 corridor. Participants emphasized the importance of the highway system's safety and reliability, as well as the importance of ensuring that highway investments complement other community assets, such as environmental quality and overall quality of life.

Additional I-81 documents released by the NYSDOT since 2015 were also reviewed for this LRTP Update; this includes the Project Scoping Report and the Preliminary Draft Design Report/Draft Environmental Impact Statement. These documents continue to emphasize the need to consider livability, economic vitality, and multi-modal travel options while also addressing safety and structural and geometric deficiencies of the current structure.

2.2.5 ONONDAGA COUNTY HAZARD MITIGATION PLAN

In 2019, the SMTC worked with Onondaga County and its towns and villages to develop the County Hazard Mitigation Plan. This plan responds to the requirements of the Disaster Mitigation Act of 2000 by involving all of the local governments in the county in identifying and evaluating natural hazards in their respective jurisdictions, as well as in planning for how to mitigate those hazards.

The County Hazard Mitigation Plan ranks potential hazards based on their probability to occur, the number of people that would likely be exposed to the hazard, the threat the hazard poses to existing structures and economic vitality, the region's capacity to deal with the hazard, and the degree to which climate change is likely to exacerbate the hazard. In our region, drought, severe storms, and severe winter storms get the highest overall rankings.

The SMTC contributed data on the existing transportation system – particularly highways and roads. The resiliency of these facilities in the face of natural disasters is critical to emergency responders and to resuming commercial activity in the aftermath of a major event, such as a blizzard or flood. The County Hazard Mitigation Plan identifies freeways (I-81, I-90, I-690, I-695, and I-481) and several major arterials as possible evacuation routes, although the plan notes that evacuation routes would be set up on a case-by-case basis.

2.2.6 MUNICIPAL PLANS

In preparing the original 2050 LRTP, the SMTC also reviewed town and village plans, as well as the City of Syracuse's Land Use and Development Plan, Bicycle Plan, and Sustainability Plan. For the current Update, the SMTC reviewed planning documents that became available following the LRTP's approval in 2015. This included Syracuse University's Campus Framework, the Syracuse Surge, the Syracuse Housing Authority's East Adams Street Neighborhood Transformation Plan, the City of Syracuse's ReZone Zoning Ordinance Update (March 2018 draft), Centerstate CEO's Export Initiative, and the Central New York Regional Recreation & Heritage Plan.

Plans developed for a municipality, agency, or institution tend to focus on a specific set of issues and goals in a relatively confined geographic area. Major themes identified in these plans include:

- Economic development and the need for jobs, job training, and investment.
- Safety for all transportation system users, including bicyclists and pedestrians.
- The need / opportunity for waterfront redevelopment.
- Community character, especially mixed-use, higher density land uses that support pedestrian-friendly environments.
- Farmland, habitat, open space, and watershed protection.
- The need to both prevent and prepare for global climate change.
- The need to increase suburban transit service.
- Policy changes and capital investments that encourage biking, walking, and transit use.
- The importance of considering smart/connected technology in future transportation investments.
- Opportunities for growing responsible tourism and sustainable, recreation-based economic development.

Several suburban towns anticipate that they will see continued residential and commercial development in coming decades.

2.3 PUBLIC INPUT ON GOALS AND OBJECTIVES

In December 2014, SMTC conducted an online survey to get feedback from the general public on the LRTP's proposed planning themes, goals, and objectives for the 2050 LRTP.

The survey was available online between December 15, 2014 and January 26, 2015. The public was notified of the survey by way of e-mails sent to the SMTC's electronic distribution lists. This included about 360 recipients of the electronic version of the SMTC's Directions newsletter and the members of the SMTC's Bicycle/Pedestrian Community Interest Group. Information on the survey was also forwarded to e-mail lists maintained by community groups and was posted on the SMTC's Facebook page.

380 people provided input on the LRTP goals and objectives through an online survey in December 2014/January 2015.

A total of 380 responses were received. The results of the survey are incorporated into the remaining sections of this chapter, and a full summary report can be found in Appendix B. Based on a review of the survey results and feedback from the LRTP SAC, the final list of goals and objectives remained nearly identical to the list proposed in the survey, with some minor rewording of objectives for clarity. The goals and objectives were also reviewed at the April 2015 public meetings, which are summarized in Appendix C.

The goals and objectives were reviewed with the LRTP Study Advisory Committee (SAC) during the update process in 2019. The LRTP SAC is composed of representatives of the SMTC's member agencies, including the region's land use planning, transportation, transit, and economic development organizations; see page 12 for a complete list of members. Based on consultation with the SAC members, along with feedback obtained through numerous SMTC planning studies since the 2050 LRTP was originally adopted in 2015 (see page 14), the goals and objectives were retained, with minor modifications to some wording to better align with the new Federally-required performance measures. These were intended to be long-term goals and objectives, as originally formulated in 2015, and the SAC felt that they were still valid in 2019/2020. The goals and objectives were listed on the LRTP Update page of the SMTC website for public review (and this was noted in the

2050 LRTP Update Newsletter distributed by physical mail and email in May 2020). No comments were received specifically pertaining to the LRTP goals and objectives in 2020.

2.4 GOALS FOR THE 2050 LRTP

Taking into consideration the federal requirements outlined in the transportation legislation, the local planning efforts described above, and feedback from the LRTP SAC and the public, the SMTC identified three sets of goals for transportation investments in the Syracuse region over the next 30 years. These goals can be summarized in the statement of purpose for the 2050 LRTP.

The purpose of the 2050 LRTP is to guide the SMTC’s member agencies in making transportation investment decisions over the next 30 years that achieve the following:

- **Support the planning goals of the region and local communities.**
- **Contribute to the achievement of system performance goals, including both the National Goals and locally-defined goals.**
- **Advance regionally significant public infrastructure projects that have already been the subject of substantial community discussion.**

2.4.1 COMMUNITY PLANNING GOALS

After reviewing the local planning efforts, a list of specific community planning goals emerged. Although not measurable over time, the intent is that transportation projects should be considered at least qualitatively in light of these goals.

- Contribute positively to the local community character and support locally adopted plans.
- **Support Smart Growth development patterns, particularly the strengthening of existing mixed-use centers.**
- Retain rural land and preserve open space.
- **Support economic development, particularly in:**
 - o **Downtown Syracuse;**
 - o **Syracuse Lakefront;**
 - o **Existing or planned commercial and industrial nodes throughout the MPA.**

The community planning goals indicated in bold were identified by 60 percent or more of the survey respondents as “most important.”

Suggestions for additional objectives

Many survey respondents provided comments and ideas for additional objectives. A few themes emerged from these comments.

- Transit improvements are needed, including: better connections between the City of Syracuse and suburban communities, addition of light rail or street car service, more comfortable vehicles, and more dependable and efficient transit.
- Ensure we continue to have a “20-minute city”, with a smooth flow of traffic along main travel routes and minimal congestion in areas of signalized intersections.
- Separate freight and passenger vehicles as much as possible, particularly freight rail and passenger rail.
- Safety improvements are needed for cyclists and pedestrians.
- Solve the problem of snow-covered sidewalks.

- Incorporate Complete Streets principles and limit capacity increases for single-occupancy vehicles.
- Incorporate green infrastructure and use greener materials wherever feasible.
- Incorporate responsive technology wherever feasible.
- Minimize impacts to sensitive environmental areas.
- **Respect historic resources and local community landmarks.**
- Improve public access to appropriate waterfront areas.
- **Provide convenient connections to intercity transportation facilities, including the Syracuse Hancock International Airport and the William F. Walsh Regional Transportation Center.**
- Improve road access to intermodal freight facilities and major freight generators.
- Increase resiliency to natural and man-made hazards.

Additionally, projects should result from a decision making process that is open and transparent, includes robust public involvement opportunities, and promotes multi-jurisdictional planning.

2.4.2 TRANSPORTATION SYSTEM PERFORMANCE GOALS AND OBJECTIVES

The transportation system performance goals and objectives were developed to encompass both the federal requirements (see Section 2.1) and the relevant transportation-related goals from the local planning efforts discussed in Section 2.2. These goals also address the eight planning factors for MPOs identified in previous transportation legislation, as well as the two additional factors identified in the FAST Act. To make progress towards achieving these goals over time, these transportation system performance goals and objectives are used to evaluate capital project proposals for the SMTC’s TIP. More information about future projects and the capital project selection process can be found in Chapter 6; more information about existing conditions relating to each goal can be found in Chapter 4 of this document (specific sections are noted in Table 2.1).

Public feedback strongly supported the objectives addressing infrastructure condition, with over 80 percent of respondents indicating that “preserve and maintain bridges” was “most important.”

Table 2.1: Transportation System Performance Goals and Objectives

Goal	Objective
Support efficient freight movement within our region. <i>(See Section 4.2)</i>	Maintain a high degree of reliability for truck travel.
	Maintain adequate infrastructure conditions on primary freight corridors.
	Reduce congestion on the CMP Freight Network.
Increase the safety, security, and resiliency of the transportation system. <i>(See Section 4.3)</i>	Reduce serious injuries and fatalities from vehicle crashes.
	Reduce the number of fatalities and serious injuries from crashes involving a pedestrian or bicyclist.
	Reduce the number of height- and weight-restricted bridges, especially along primary freight and commuter corridors.
Provide a high degree of multi-modal accessibility and mobility for individuals. This should include better integration and connectivity between modes of travel. <i>(See Section 4.4)</i>	Reduce congestion in on primary commuter corridors as appropriate based on the character of the adjacent development.
	Provide essential transit service to urban and suburban areas.
	Provide higher-quality transit service to transit oriented development (TOD) nodes throughout the community.
	Provide more on-road bicycle facilities throughout the community.
	Provide more trails to connect destinations throughout the community, including the completion of existing regional and local trail systems.
	Provide more pedestrian facilities to connect destinations throughout the community.
Protect and enhance the natural environment and support energy conservation and management. <i>(See Section 4.5)</i>	Reduce vehicle miles traveled (VMT) in the region.
	Reduce on-road mobile source emissions.
	Increase the percentage of non-single occupant vehicle (non-SOV) commute trips.
	Increase availability of alternative fueling and electric charging stations.
Improve the reliability of the transportation system and promote efficient system management and operations. <i>(See Section 4.6)</i>	Maintain a high degree of reliability on Interstate, non-Interstate NHS, and other primary commuter corridors.
	Improve transit on-time performance.
	Improve utilization of transit vehicles.
	Increase the use of park-and-ride lots.
	Implement transportation demand management (TDM) strategies, with a focus on strategies for downtown and University Hill that have been recommended through previous SMTC studies.
Strategically preserve our existing infrastructure and focus future investment in areas that are already served by significant public infrastructure investments. <i>(See Section 4.7)</i>	Preserve and maintain pavement.
	Preserve and maintain bridges.
	Preserve and maintain ancillary transportation structures (culverts, etc.).
	Preserve and maintain pedestrian facilities.
	Assist communities in our planning area in creating, maintaining, and utilizing asset management systems.
	Maintain transit assets (rolling stock, equipment, and facilities) in a State of Good Repair.
Ensure that transportation system performance improvements are distributed equitably. <i>(See Section 4.8)</i>	Improve transit service between employment centers and priority target areas (as identified in SMTC’s Environmental Justice Analysis).
	Improve transportation options for off-peak commuters without cars.
	Ensure that pavement conditions within priority target areas are at or above ratings for the remainder of the MPA.
	Provide accessible sidewalks and curb ramps, in accordance with ADA requirements.

Note: Objectives shown in **bold** were identified by at least 70 percent of the LRTP Goals and Objectives survey respondents as “most important.”

The I-81 Viaduct Project

The I-81 Viaduct Project is intended to address the structural and highway design needs of the elevated portion of I-81 in downtown Syracuse, which is nearing the end of its useful life.

The Preliminary Draft Environmental Impact Statement was released in April 2019. In their April 22, 2019, press release, the NYSDOT stated: “The environmental review evaluated a variety of project alternatives, including reconstructing the existing viaduct; dispersing traffic throughout the city through a new community grid; and constructing a new below-grade tunnel for improving an aging section of elevated highway on Interstate 81 in Syracuse between the New York Susquehanna and Western Railway bridge and the Interstate 81/690 interchange....Based on the preliminary Draft Design Report/Environmental Impact Statement, the Community Grid would best address the project purpose and need and therefore would be the Department’s preferred alternative.” The community is still awaiting the final selection of a preferred alternative.

More information on the project can be found at: <https://www.dot.ny.gov/i81opportunities>.

Other objectives that were identified by at least 70 percent of survey respondents as “most important” are shown in bold in Table 2.1.

The goals and objectives were reviewed by the 2050 LRTP Update SAC in April 2019. The SAC felt that no changes or additions to the original 2050 LRTP goals were warranted. As noted in Section 2.3, the group discussed minor modifications to a few objectives to better align with new Federal performance measures. These modifications are reflected in Table 2.1 and include the following:

- Maintain a high degree of reliability for *truck travel* (previously “on primary freight corridors”).
- Reduce the number of fatalities and serious injuries from crashes involving a pedestrian or bicyclist (previously “pedestrian and bicycle crashes”).
- Increase the percentage of non-single occupant vehicle (non-SOV) commute trips (previously “commute trips made by bicycling or walking” and “commute trips made by transit”).
- Maintain a high degree of reliability on Interstate, non-Interstate NHS, and other primary commuter corridors (previously “primary commuter routes” only).

Also, the objective “improve transportation options for off-peak commuters without cars” was added under the equity goal as a result of the SMTC’s recent Work Link study (described in Section 4.4.3).

2.4.3 REGIONALLY SIGNIFICANT PROJECTS

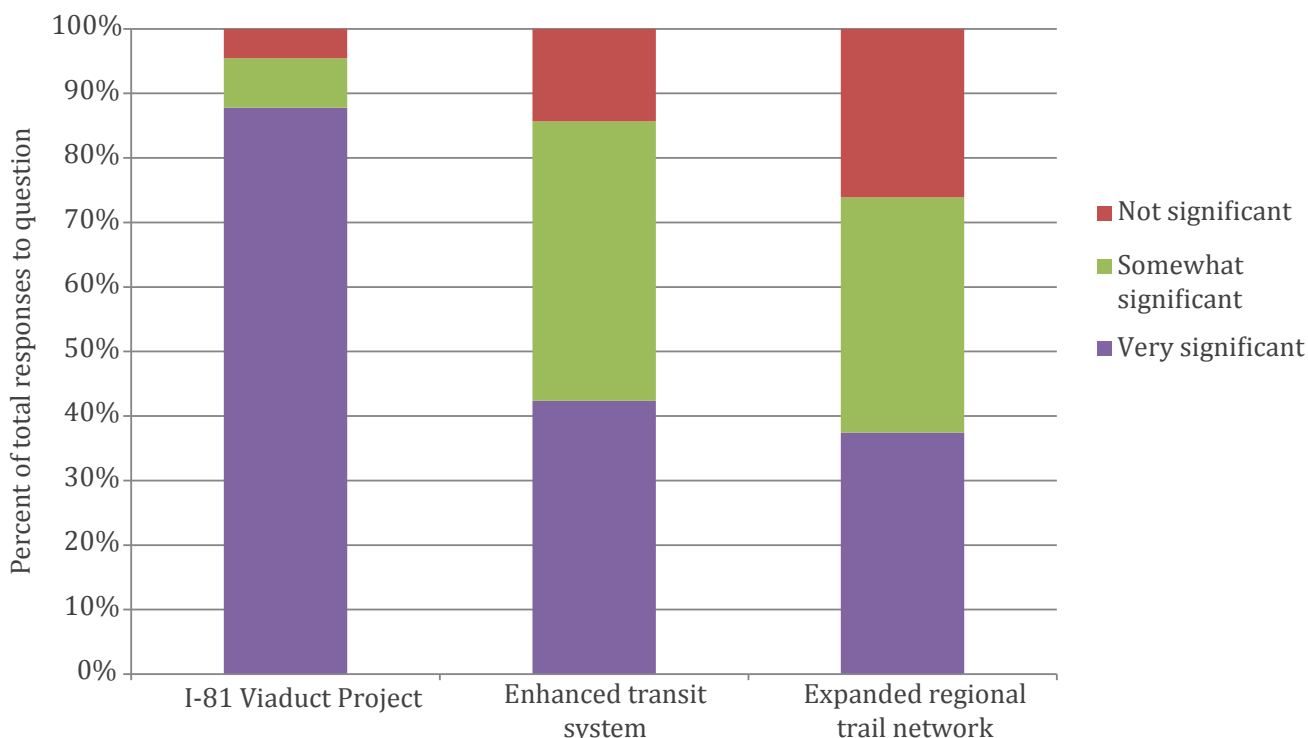
During the development of the original 2050 LRTP, four transportation projects were recognized as being major, regionally significant projects. In April 2019, the 2050 LRTP Update SAC determined that these projects continue to hold the same relevancy in the community. Each project has seen progress since the printing of the original 2050 LRTP.

- **The I-81 Viaduct Project:** advance a solution that addresses the transportation needs within the priority area identified in the I-81 Corridor Study (July 2013), and further examined in the Draft Environmental Impact Statement, that supports the goals of the LRTP outlined above.

- **Enhanced transit system:** progress the locally-preferred alternative (Bus Rapid Transit in mixed traffic) from the Syracuse Metropolitan Area Regional Transit Study Phase 1, completed in 2018.
- **Expanded regional trail network:** continue to progress projects identified in existing plans, such as the Onondaga Lake Trail and Onondaga Creekwalk (Phase II currently under construction). Significant progress has been made on the Erie Canalway Trail, with construction to close the local gap (between Camillus and DeWitt) beginning summer 2019.
- **Inland port facility:** support improvements to the DeWitt Rail Yard (shown on Figure 1.2), which will expand freight movement capacity at this location. This is expected to be complete by the end of 2020. (See Section 3.2.4 for more information.)

There has been substantial public debate and discussion around the first three of these regionally-significant projects and the original 2050 LRTP recognized that there is broad public support for advancement of these projects. The first three projects were included in the 2050 LRTP Goals and Objectives survey, and Figure 2.1 shows the results.

FIGURE 2.1: SIGNIFICANCE OF MAJOR PROJECTS BASED ON SURVEY RESULTS

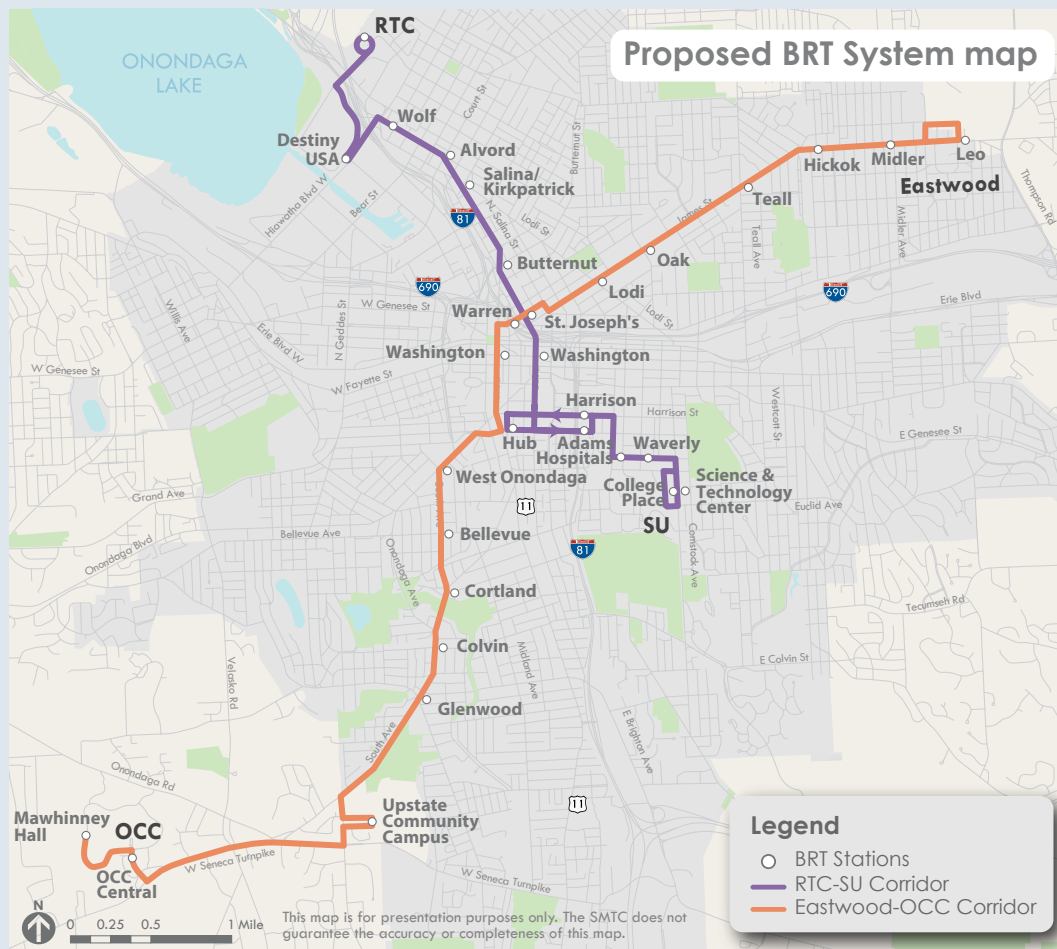


Note: The LRTP Goals and Objectives Survey asked “How significant do you feel each project is to the Syracuse Region?” Respondents could indicate whether they felt each project listed above was “very significant,” “somewhat significant,” or “not significant.”

What does “enhanced transit” mean for Syracuse?

The concept of “enhanced transit” for the Syracuse region was initially studied in the Syracuse Transit System Analysis (STSA), which was completed by NYSDOT in coordination with the SMTC and Centro in January 2014. The STSA reviewed the entire Centro system and outlined various strategies for enhancing transit in the region. Ultimately, the STSA identified two corridors as most likely to support higher-intensity transit service: Syracuse University to Destiny USA/Regional Transportation Center and James Street/South Avenue from the Eastwood neighborhood to Onondaga Community College. The SMTC and Centro then followed up with a study focused on these two corridors, which became known as the Syracuse Metropolitan Area Regional Transit Study (SMART). The SMART study – completed

in 2018 – evaluated Bus Rapid Transit (BRT) and Light Rail Transit (LRT) as options for “enhanced transit” in these two corridors. Ridership potential, service plans, costs, economic development and land use implications, engineering feasibility, and environmental factors associated with BRT and LRT route alternatives and station locations were analyzed. The SMART study determined that Bus Rapid Transit operating in mixed traffic (i.e. on city streets, in general-use travel lanes) is the most feasible alternative for these two corridors. Two routes for a new BRT system were identified, including the likely station locations and typical station designs. As the Syracuse region seeks to add transit service that goes beyond Centro’s traditional bus service, BRT on the two routes identified in the SMART study is our best option.



The I-81 Viaduct Project is not only the most significant project of the three, it was identified as “very significant” by more than twice the number of people who identified either of the other two projects as “very significant.” Fifty-eight survey respondents (out of 380 total respondents) provided additional thoughts on “regionally significant projects,” with many making general comments about transit, bicycle/ pedestrian infrastructure, general highway improvements, and comments on which option the NYSDOT should consider for the I-81 Viaduct Project.

The creation of an inland port was recognized by the 2050 LRTP Study Advisory Committee as an additional project of regional significance in 2015. At that time, several inland port concepts were being discussed for the Syracuse area. As a separate project, funding was allocated through NYSDOT in 2019, as described in the NYS Freight Plan, for upgrades to the CSX DeWitt Rail Yard. Additional freight and warehousing projects have been proposed - by private developers - near the rail yard. Section 3.2.4 of the LRTP Update provides additional information about these additional projects.

What is an inland port?

An inland port relocates the point at which ocean cargo containers are loaded onto tractor trailers away from the dockside, to sites that may be far from any major body of water. An inland port has the same functions as a maritime port, including a customs check point, on-site logistics services, and container storage. Inland ports can spur the development of warehousing and distribution facilities nearby.

Suggestions for additional projects

A few respondents to the LRTP Goals and Objectives survey, as well as some of the people who provided comments on the draft LRTP, noted some specific projects they believed to be worth considering within this plan, including:

- Rapid transit between Buffalo and Albany and continuing to New York City and/or Boston.
- Making the Erie Canalway Trail a continuous, dedicated multi-use trail across the state.
- Including the Oswego Canal Trail as part of expansion of a Regional Trail Network Project.
- Adding bike lanes to Erie Boulevard and other roads.
- A dedicated transit route between Armory Square and University Hill.
- Organized transportation to/from and around Destiny USA.
- Safe bicycle routes to allow access between Downtown Syracuse and neighborhoods / communities to the north, south, east and west (for example, Liverpool/Northside, Fayetteville, DeWitt, and the Southside).
- A shuttle system between Downtown Syracuse and the Regional Transportation Center and the airport.
- Increase the capacity of I-90 (adding a third lane through the Syracuse area).
- Urge Downtown employers to “time shift” work days to minimize commuter congestion.
- Daily bus service during very late night/early morning hours from employment centers such as Destiny USA and the Erie Boulevard East area to city residential areas.
- A public beta-testing program for bicycle and pedestrian infrastructure.
- Reduction of surface parking in downtown.
- Bus rapid transit providing direct service from designated suburban “stations” (with parking) to primary employment locations such as University Hill, downtown, and Destiny USA as well as the Regional Transportation Center.
- Extend I-690 farther east, beyond I-481.
- Increase the capacity of Route 5 east of Syracuse.
- Create a new Thruway interchange near Chittenango.
- Revive OnTrack service.

Since the writing of the original 2050 LRTP, many bike lanes have been added to Syracuse streets, including Euclid Avenue in the University Hill neighborhood. A bike share system has also been launched, with 200 e-bikes and 35 hubs in the City of Syracuse. In addition, in 2017 New York State allocated significant funding to complete the Erie Canalway Trail, now dubbed the Empire State Trail (EST), across the state. The gap in the trail between Camillus and DeWitt is under construction, with completion anticipated in 2020. As a result of this project, a multi-use trail will be added to the median of Erie Boulevard East between Teall Avenue and Bridge Street and sidewalks will be constructed from Water Street to Bridge Street along both sides of Erie Boulevard East (read more about this project in Chapter 7). The SMART study was completed, with a locally-preferred alternative for Bus Rapid Transit identified.

Chapter 3: People, Development Patterns, and the Economy

3.1 OUR POPULATION

3.1.1 REGIONAL GROWTH

In the twenty-five years following the end of World War II, the Syracuse area, and the nation, changed dramatically. The creation of the interstate highway system, the rapid construction of single-family homes, increases in personal income, and the steep rise in birth rates all combined to fuse cities to larger regions like never before. Locally, this meant building I-81 and I-690 in Downtown Syracuse, locating I-690 along the west shore of Onondaga Lake, and an unprecedented wave of suburban home construction.

The City of Syracuse's population peaked in 1950, with over 220,000 residents. Over the next 60 years, the city's population fell steadily, dropping by about a third to 145,700 people in 2010. Meanwhile, Onondaga County as a whole saw net growth, adding 131,000 total residents between 1950 and 1970 alone, then remaining fairly stable through the next few decades. Since virtually all of the County's population growth was in the towns rather than the city, it meant that every town in the county grew and total population in the towns more than doubled in 20 years, from 120,000 in 1950 to 274,700 in 1970 (Syracuse-Onondaga Planning Agency, 2007).

Between 1970 and 2000, the population in Onondaga County's towns continued to grow, but at a much slower pace, adding another 35,000 residents. As Figure 3.1 shows, the net result over the past 40 years has been population re-distribution, not population growth. While population has decentralized, the City of Syracuse remains the region's economic core, with 37 percent of the region's total employment located in the city (and 15 percent of the region's total employment in the Downtown and University Hill areas). This has

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in the margins
throughout this
chapter.



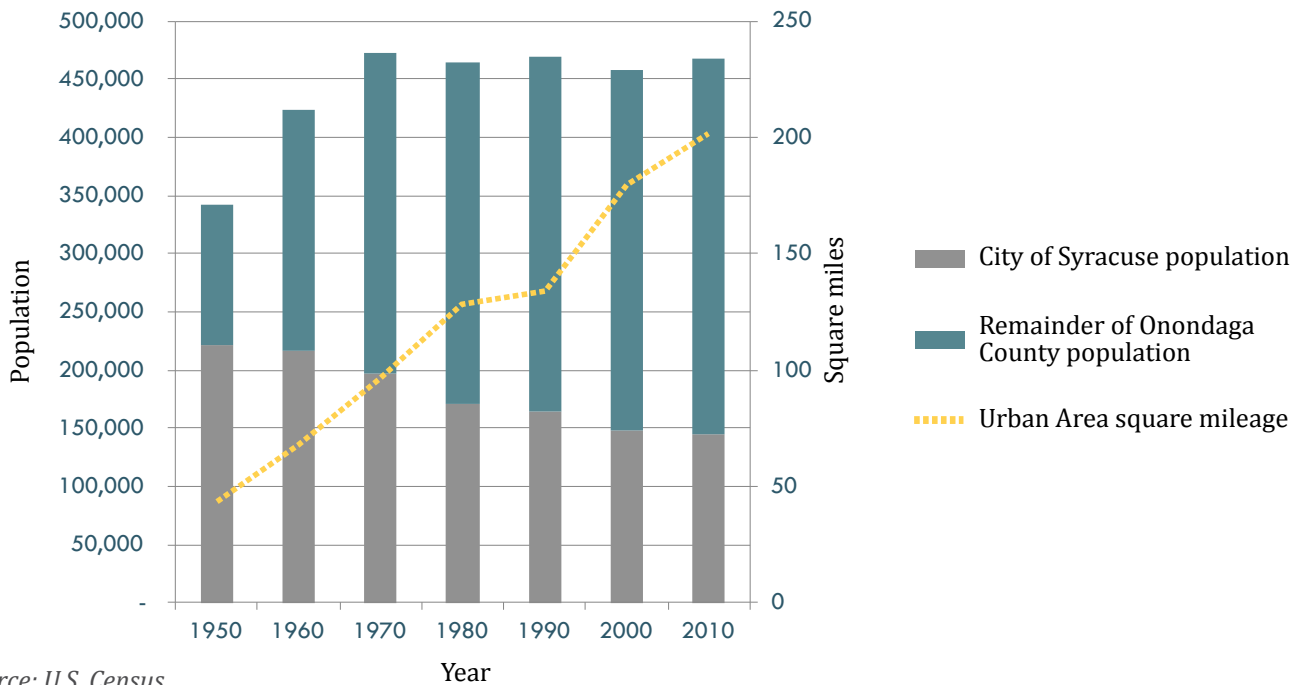
It will tell you where to find more information on specific topics in the SMTC's Transportation Atlas.

The Atlas includes a wealth of existing conditions information for our planning area, and is a companion to the LRTP.

The Atlas is available on the SMTC's website, or you may request a print copy by calling or emailing the SMTC.

Between 1950 and 1970, Onondaga County's total suburban population more than doubled, from 120,000 to 274,700.

FIGURE 3.1: POPULATION OF CITY OF SYRACUSE AND ONONDAGA COUNTY, WITH SQUARE MILEAGE OF URBAN AREA, 1950 TO 2010



Source: U.S. Census

translated into longer commutes, more vehicle miles traveled, and the need to spread the same amount of transportation funding over a much larger geographic area.

Between 2010 and 2020, this pattern of population spread without population growth continued. According to the most recent data from the American Community Survey (ACS), the SMTC MPA’s current population is 501,141, virtually unchanged from 2010. At the same time, the region has added thousands of new housing units both in the City of Syracuse and in suburban towns.

The latest ACS data (collected between 2014 and 2018) also shows that the region’s key demographic indicators are basically unchanged from their 2010 levels. Income and poverty levels, racial composition, and household size, for example, are all within two percentage points of their 2010 levels.

3.1.2 POPULATION DENSITY

As population has expanded away from the urban core of the region, new development has also generally been more spread-out than earlier development patterns. The places that saw the most growth



between 2000 and 2010 tended to be parts of the region with very low population densities (eastern Cicero, western Camillus, southern Lysander, the eastern part of the Town of Onondaga).

While the more rural parts of the region (for example, the Towns of Elbridge, Fabius, and Schroepfel) lost population, some of these towns saw an overall increase in households. The Census defines a household as “all the persons who occupy a housing unit as their usual place of residence.” When the total number of households increases without population increasing, it means that households are getting smaller on average. The implication is that the region is creating more homes in rural areas to house fewer people.

As people spread farther from one another, they also tend to get farther away from places that they may visit on a regular basis like schools, grocery stores, and pharmacies. With this comes greater dependence on the use of motor vehicles to reach these destinations. Using mass transit becomes particularly difficult in low-density areas. The transit numbers bear this out. Bus ridership is highest in the City of Syracuse. Only about one percent of commuters based in the suburbs use transit, versus eight percent in the City of Syracuse.

What this means for the LRTP. Transportation improvements often perpetuate low-density, sprawling development. This tendency is described in the Land Use – Transportation Cycle, which summarizes the relationship between accessibility and development.

Breaking this cycle can be difficult. It can mean diverting resources from areas that are growing to areas that have been declining. In our

The Syracuse region is producing more homes in rural areas to house fewer people.



Population density and transit

Planners at the Syracuse-Onondaga County Planning Agency (SOCPA) and Centro have described the relationship between population density and efficient transit service as follows: Settlement patterns must be compact to permit cost-effective and convenient transit service. Scattered development typically cannot be serviced by transit at a reasonable cost. Walking distance to bus stops is also a major component

of serviceability. Almost all City homes and jobs were located within ¼ mile of a bus route in 2007. In the surrounding towns and villages, only 34 percent of homes and 60 percent of jobs occurred within ¼ mile of a bus stop. Today’s suburban and rural places do not have the population density required to support traditional transit service. (Syracuse-Onondaga County Planning Agency, 2012)



Transportation-Land Use Cycle

A relatively small amount of development in a rural area can trigger requests for roadway improvements: for example, a narrow country road might be paved and widened to accommodate a few new houses. As this road becomes more accessible, it can attract more development. Over time, these incremental steps can lead to a much wider road and much more development. Without population and tax base growth at the regional level, this pattern is undesirable and fiscally problematic.

Placing the focus of transportation investment on the region’s urbanized core will provide environmental and fiscal benefits as well as improvements in how people get around.

region, it may mean doing more to improve streets and transit in the city and in the inner-ring suburbs, rather than in areas that are seeing more overall housing development. The benefits, however, are much greater than the costs in the long term. By shifting the focus of transportation investment from improving capacity and accessibility at the region’s periphery toward the region’s urbanized core, the region can make progress toward several of the goals identified in local plans, including farmland preservation, minimizing impacts to sensitive environmental areas, conserving energy, improving fiscal responsibility, reducing vehicle miles traveled, and increasing the availability of multiple transportation modes.

3.1.3 GROWTH AREAS

Downtown. Downtown Syracuse has seen rapid growth in recent years. More than \$250 million has been invested in creating new residential units in Downtown in the past eight years – primarily by redeveloping vacant retail or warehouse space – and more units are available to owners and renters every year. Five-year ACS data for the period from 2012 to 2016 shows Downtown’s population at 2,755, but the Downtown Committee, which tracks housing availability in Downtown Syracuse, estimated the neighborhood’s population at just over 4,000 in its most recent annual report (Downtown Committee, 2019).

Franklin Square/Inner Harbor. Like Downtown, Syracuse’s Franklin Square/Inner Harbor area has seen both redevelopment and new construction in recent years. Between 2014 and 2020, 300 new

apartments came on the market in this area, many in newly-constructed buildings.

University Hill. Enrollment numbers at Syracuse University (SU), SUNY Upstate Medical University, and the SUNY College of Environmental Science and Forestry (SUNY ESF) have all increased over the past 20 years, with SU’s total enrollment growing by more than 4,000 students since 2001. The resulting demand for housing has led to a surge in new construction and redevelopment in and around the University Hill area.

Suburban towns. Even as Onondaga County’s total population has remained flat and new housing has been added in the City, the region’s population continues to spread into towns. Data from the Census Building Permit Survey shows relatively intense residential construction in the towns of Clay, Lysander, Manlius, and Camillus between 2015 and 2019 (U.S. Census Bureau, 2015 - 2019). Apartment complexes with more than 400 new units have been built in both Clay and Van Buren in recent years, and a smaller (96-unit) apartment complex opened in Camillus in 2016. Developers have also shown interest in developing apartments on sites in Liverpool, Manlius, and Fayetteville. Single-family homes also continue to be built in rural areas such as Pompey, Skaneateles, and Otisco.

3.1.4 GENERATIONS AND TRANSPORTATION CHOICES

Seniors and Baby Boomers. Between 1980 and 2010, the median age in Onondaga County rose from 30 to 39 years old. In our region, 16 percent of the population (73,000 residents) is currently age 65 and above (2018 5-year ACS). Over the next 20 years, another 129,000 residents will be reaching retirement age and making decisions about where to spend their retirement years.

In 2010 the AARP noted that “while surveys have shown that most people prefer to remain in their homes and their communities as they age, they also like to remain mobile and independent and to be near grocery stores, libraries and doctor’s offices.” By 2018, AARP found “that although the desire to stay in their community and residence remains high among adults age 50 and older, intensity has dropped since 2010.” AARP goes on to state that “transportation is a big issue



Age of the Population

In a 2010 AARP survey, 63% of Onondaga County voters age 50 and over said they would be more likely to stay in New York if improvements were made to public transportation and alternative transportation services for older or ill residents.

for older Americans, as their ability to drive can change over time and become a safety issue.” A 2002 study in the American Journal of Public Health reported that every year 600,000 people age 70 and over stop driving (Foley, Heimovitz, Guralnik, & Brock, 2002). In our region, we are fortunate to have many transportation providers to assist senior citizens in getting to needed services. But in many cases, older residents effectively lose their mobility for recreation and social visits. The relatively-recent entry of transportation network companies (TNCs, also known as ride share) into the Upstate New York market may expand options for seniors; however, a 2018 AARP survey found that usage of these services by adults age 50 and older is relatively low, with less than one-third of the group having ever utilized a ride-share service (even though 94 percent of the group said they are aware of such services).

What seniors say about transportation

As part of its Shaping an Age-Friendly CNY study, Forging our Community’s United Strength (F.O.C.U.S.) Greater Syracuse conducted a study of nearly 2,000 Central New York residents. Nearly half of respondents said that they were planning on moving from their current home and, of these, 43 percent said they were planning on moving out of state. Fifty-four percent of respondents identified transportation as “essential” or “very important” to their decision on where to move as they get older. Walkability was identified as a key factor by even more people.

F.O.C.U.S. Greater Syracuse’s survey also asked respondents to include “any other information” they wanted to in the survey. Of the 300 responses to this question, 16 percent were related to transportation, transit, or walkability. The study summarizes these comments as follows:

“Comments on public services focused mainly on snow removal or community improvements. Responses included: ‘Community ... that is walkable

with transportation access,’ ‘in the suburbs ... there is no reliable, affordable, accessible transportation,’ ‘very limited bus transportation in our area,’ ‘more bicycle lanes,’ ‘need sidewalks repaired,’ and ‘sidewalks are seldom kept snow and ice free which makes it dangerous for aging people.’”

Similarly, in an AARP (2014) report entitled State of the 50+ in Onondaga County, New York, about a quarter of workers over the age of 50 surveyed said that they are at least somewhat likely to leave New York after retiring. Sixty-three percent of Onondaga County voters surveyed said that they would be more likely to stay in New York if improvements were made to public transportation and alternative transportation services for older or ill residents. Sixty-one percent said that sidewalk conditions in their community were a problem. Problematic sidewalk conditions included walkways that were too narrow, poorly lit, in need of repair or non-existent.

National sources have noted that for some Baby Boomers, a much more appealing alternative has been to migrate to cities that offer a variety of transportation options (Bahrapour, 2013; Nasser, 2012). City neighborhoods with a mix of homes and businesses, supported by low-cost transit options, provide much greater mobility to seniors whose physical or cognitive limitations prevent them from driving.

Millennials. A wealth of research indicates that the number of Millennials (the generation born between 1980 and 2005) living in cities is growing, particularly among those with college degrees.¹ In the City of Syracuse, total population fell by nearly three percent between 2000 and 2017 but the number of residents in the 25 to 34-year-old group increased by nearly eight percent and the number of residents in this age group with college degrees grew by 33 percent.²

Between 1983 and 2014, the percentage of 20- to 24-year-olds with driver's licenses fell from 92 percent to 76 percent (Transportation Research Institute, 2016). The average number of miles driven by 16 to 34 year-olds fell by 23 percent between 2001 and 2009 (U.S. PIRG & Frontier Group, 2014). In a recent survey, Millennials were the only age group that said that giving up their mobile phone would be worse than giving up their car (Zipcar, 2014).

What this means for the LRTP. Suburban expansion continues to be the dominant demographic pattern, but demand is growing for neighborhoods that are walkable, streets that are bikeable, and regions that are connected by modern mass transit systems. The City of Syracuse is seeing renewed interest in downtown living, which is reflective of the larger national trends in the housing choices of many Baby Boomers and Millennials. Investments in our transportation

¹A robust literature has sprung up to document this generation's interest in urban living. For example, see the April 2014 *Time* article "The New American Dream is Living in a City, Not Owning a House in the Suburbs". See also Millennials in Motion, a study prepared by the US PIRG Education Fund, Millennials: A Portrait of Generation Next, prepared by the Pew Research Center, and The Young and the Restless and the Nation's Cities by Joe Cortright, prepared for City Observatory.

²Comparison of 2000 Census, SF3, Educational Attainment by Sex and 2013-2017 American Community Survey, Educational Attainment.

Millennials are driving less and gravitating toward urban centers.

Millennials and location choice

In a survey of Millennials living in major urban areas conducted in 2013, top reasons identified for the respondents' choice of location were:

- Ease of mobility
- Proximity to work
- Culture
- Public transit options
- Living near friends and family
- Pedestrian friendliness. (American Public Transportation Association, 2013)

What is Transit Oriented Development?

Transit oriented development (TOD) is an approach to commercial and residential construction that promotes transit ridership, creates a pedestrian-friendly environment, and enhances a neighborhood’s character. A typical TOD is centered around a transit station (which may be a bus stop) and is characterized by a concentration of commercial and residential uses within a 10-minute walk. Developers of TODs sometimes benefit by being allowed to develop at higher densities than would otherwise be permitted and from reduced parking lot requirements.

system can complement these trends by incorporating Complete Street principles, expanding off-road trails, and supporting development in or near already developed population centers, rather than in rural areas.

Orienting future development around transit service is a key element in making our region more sustainable. In the long-term, enhanced transit options, such as bus rapid transit (BRT), can be combined with a plan for regional transit oriented development (TOD) to make transit an option that more people will choose to use. Chapter 4 discusses BRT and TOD in more detail. Ride-share services may become more widely accepted by older adults over time, and these can complement existing and future public transit options.

3.1.5 INCOME AND POVERTY

The data on incomes and poverty levels in our region show a stark contrast between the City of Syracuse and the suburban towns. Onondaga County’s median household income is \$20,000 higher than the City of Syracuse’s. While most of the suburban communities have poverty rates at or below the statewide average of 15.1 percent, the poverty rate city-wide is 32.6 percent, and the poverty rate for children in the city is 47 percent. The City of Syracuse also has the greatest concentration of vacant housing and the lowest median home values in the region. While Downtown Syracuse has seen an infusion of redevelopment capital in recent years, concentrated poverty persists in other city neighborhoods.

A SOCPA report describes the effects of concentrated urban poverty as resulting in neighborhoods “where basic needs such as jobs, education and health care become less plentiful and where residents have diminishing opportunities to participate in the regional economy



Poverty Household Income

(i.e., urban poverty). These trends also result in an imbalanced racial profile, with communities characterized by a concentration of poverty also home to a disproportionate share of the County’s minority populations.” (Syracuse-Onondaga County Planning Agency, 2012)

From the perspective of transportation, the key question related to income disparities is: does the system work equally well in providing access for all users, regardless of their income level? This question may be explored in terms of availability of transportation facilities or transit service, average commute times from different areas of the region, or the ability to reach places such medical facilities or educational opportunities from various locations or by different modes of travel.

Twenty-six percent of households in the City of Syracuse do not own a vehicle, compared to 5.6 percent of households in the towns. The proportion of residents using mass transit to get to work is higher in the city (8 percent) than in the suburbs (0.9 percent). Among workers living below the poverty line in the city, 31 percent use transit to get to work.

Commute times for transit riders are higher, on average, than commute times for drivers or carpool users. The average commute time for all City of Syracuse residents is around 17 minutes but for those who ride a bus it is more than 30 minutes.

What this means for the LRTP. Transportation can play a role in the ability of many of our region’s poorest residents to take advantage of employment or educational opportunities. Transportation connects workers to jobs and connects adult students to education centers, where they can get the skills to pursue new career opportunities. For those without access to a vehicle, the Centro bus system is the primary means of transportation in our region. The SMTC’s Coordinated Public Transit-Human Services Transportation Plan includes an inventory of transportation services available to low-income individuals (as well as people with disabilities and the elderly community) and includes recommendations for improving access, such as extending existing service routes to targeted employment centers, feeder bus routes, and grouping other agency trips to reduce duplication of service.



Households and Vehicle Availability
How We Get to Work
Commuting Times

Seventeen percent of transit riders have commutes of an hour or more, compared to fewer than two percent of commuters who drive.

Areas of the region with concentrations of low-income and minority residents are identified in the SMTC’s Environmental Justice Analysis as “priority target areas.” (See Section 1.1.5 for a description of Title VI and Environmental Justice requirements for MPOs, and Figure 4.5: Environmental Justice Priority Target Areas.) Part of the SMTC’s obligation to comply with federal civil rights policy is ensuring equitable access to transportation facilities in these priority target areas. Given the importance of transit to low-income populations, it is critical that transit facilities in priority target areas be equivalent to those in the rest of the region.

Expanding and upgrading transit service in our region will benefit all residents, but particularly those who cannot afford the cost of owning and maintaining a car. There are also opportunities to connect low-income residents to jobs through means other than regular fixed-route bus service; this topic was explored in the SMTC’s recent *Work Link* study, which is discussed in greater detail in Section 4.4.3.

3.2 OUR ECONOMY

3.2.1 REGIONAL ECONOMIC OVERVIEW

Total Economic Output. Total economic output for the Syracuse Metropolitan Statistical Area (MSA) was on the order of \$33 billion in 2017, an increase of 1.5 percent over 2007 (after adjusting for inflation). This compares well with the Rochester and Binghamton MSAs, both

Sources and Geography for Economic Data

In general, this LRTP provides data at either the Metropolitan Planning Area (MPA) level, which includes all of Onondaga County and four towns in adjacent counties, or for Onondaga County alone. In the case of the overview of economic activity in Section 3.2, information is provided for the Syracuse Metropolitan Statistical Area (MSA), which includes all of Onondaga, Oswego, and Madison counties. The MSA’s total geographic area is more than twice that of the MPA, but because Oswego and Madison counties are relatively rural, the MSA’s total population is only a third greater than that of the MPA.

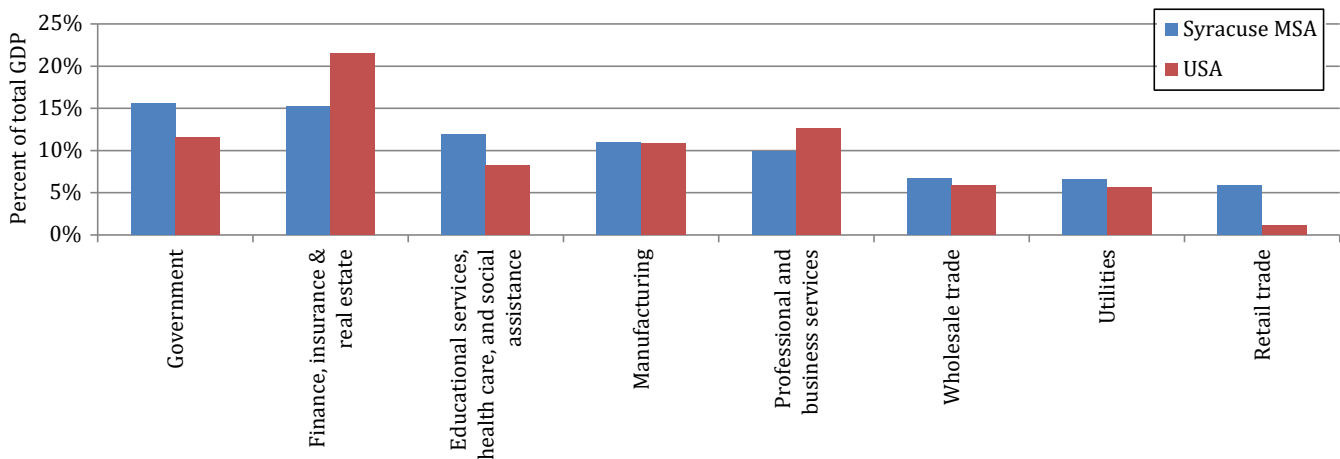
It should also be noted that different agencies take different approaches to come up with the total number of jobs and total number of employees in an area. Employment numbers used elsewhere in this plan are from the U.S. Census (decennial Census or American Community Survey). These numbers are generated using surveys of individuals and payroll data. Data from the U.S. Bureau of Labor Statistics (BLS) and the federal Bureau of Economic Analysis (BEA) are based on a variety of sources and may show a slightly different picture of the region’s economy.

of which saw slight declines in overall real (inflation-adjusted) gross domestic product (GDP) between 2007 and 2017. But our region lagged behind the Buffalo and Albany MSAs, both of which saw real GDP growth at or near ten percent in this period.

Like many of the MSAs in Upstate New York, the Syracuse region tends to lag behind the national economy both in earnings and in long-term growth. Local GDP has been rising but regional growth rates are well below national levels. For the past ten years, per capita GDP in our region has been between \$6,000 and \$10,000 below national levels.

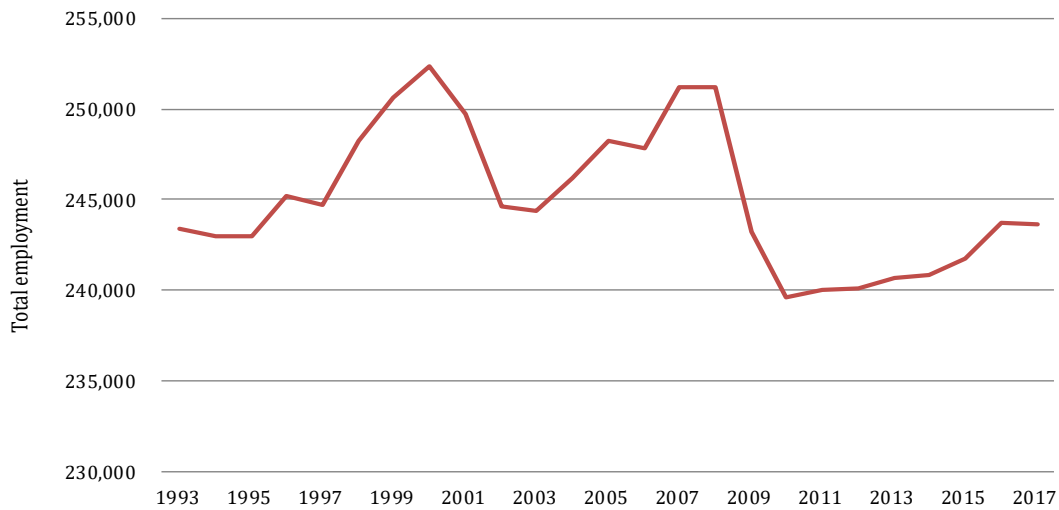
As shown in Figure 3.2, government expenditures make up 16 percent of total GDP in the Syracuse MSA - more than any of the other industrial sectors. In terms of GDP, “government” refers to public spending, including spending on defense, education, and public services. Finance, insurance and real estate services make up a large proportion of the local GDP, but a much smaller percentage than in the rest of the nation. The Syracuse region’s specialization in providing education and healthcare services (often referred to as the “Eds and Meds” sector) is reflected in this sector’s 12 percent share of total regional GDP, compared to nine percent in the rest of the nation. Manufacturing continues to play a major role in our regional economy, as does the professional services sector. The region also has some unique specialties – such as fabricated metal products manufacturing and paper production – that are not captured in the industrial sector data.

FIGURE 3.2: MAJOR INDUSTRIAL SECTORS AS A PROPORTION OF TOTAL GDP, SYRACUSE MSA AND USA, 2017



Source: Bureau of Economic Analysis; the industrial sectors not shown each make up less than five percent of the GDP in both the Syracuse MSA and the U.S.

FIGURE 3.3: ONONDAGA COUNTY EMPLOYMENT, 1993 - 2017



Source: United States Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NAICs-Based Data Files, 1993 - 2017

Total employment in Onondaga County has neither grown nor declined substantially in the past 20 years. The trend has been toward losing goods-producing jobs and adding lower-wage, service-providing jobs.

County Employment Trends. Data for Onondaga County is provided by the Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW). As Figure 3.3 shows, over the 24-year period from 1993 to 2017, total employment in Onondaga County saw peaks and valleys, but the net result was no significant change: employment remained between 240,000 and 245,000 jobs.

The past 20 years have seen the county's economy continue to transition away from goods-producing jobs and toward service-providing jobs. As shown in Table 3.1, service-providing jobs make up the bulk of the employment in Onondaga County, and the number of jobs in this sector is on the rise. Onondaga County lost more than 15,000 jobs in goods-producing sectors (manufacturing and construction), while gaining nearly 13,000 jobs in the service-providing sector and gaining 2,700 jobs in the government sector between 1993 and 2017. Annual average wages are highest in the goods-producing and government sectors; together these sectors make up only 28 percent of the job market.

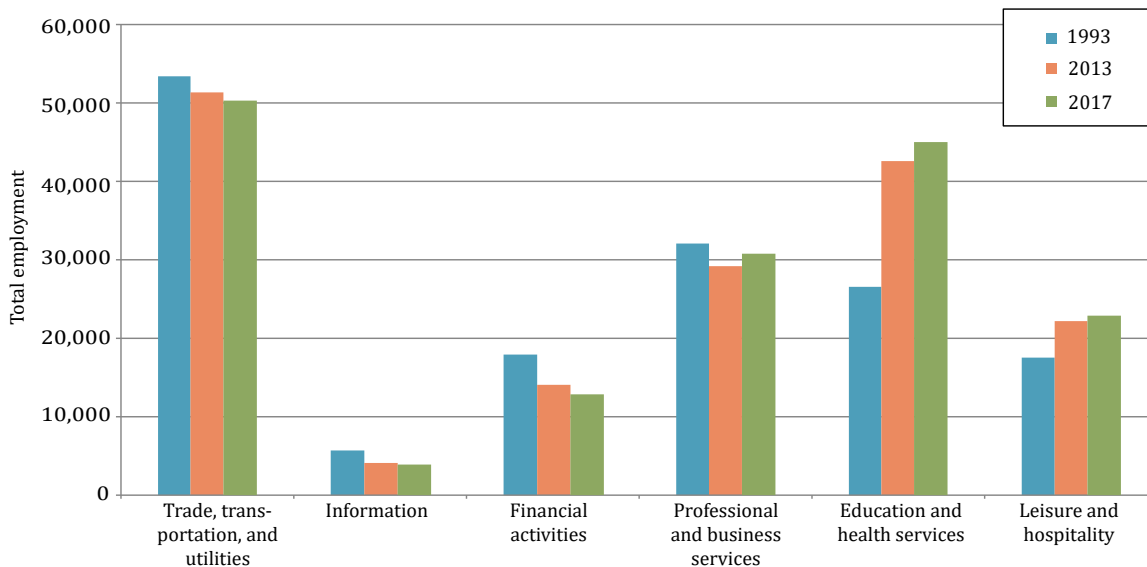
Figure 3.4 provides more detail on the rise in service-providing employment. The only two segments of the services sector to see a net increase in employment over the past 24 years were "Leisure and Hospitality" and "Education and Health Services", both of which

Table 3.1: Jobs and wages by major economic sector in Onondaga County, 1993, 2013, and 2017

Sector	1993			2013			2017		
	Number of jobs	Percent of total jobs	Annual average wage	Number of jobs	Percent of total jobs	Annual average wage	Number of jobs	Percent of total jobs	Annual average wage
Government	36,752	15%	\$32,943	39,692	17%	\$53,850	39,490	16%	\$63,346
Goods-producing	45,327	19%	\$35,105	29,024	12%	\$59,131	29,816	12%	\$64,053
Service-providing	161,283	66%	\$22,994	171,960	71%	\$42,118	174,316	72%	\$46,298

Source: United States Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NAICs-Based Data Files, 1993, 2013, and 2017.

FIGURE 3.4: CHANGE IN SERVICE-PROVIDING EMPLOYMENT, 1993 - 2013 - 2017, ONONDAGA COUNTY



Source: United States Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NAICs-Based Data Files, 1993, 2013, and 2017.

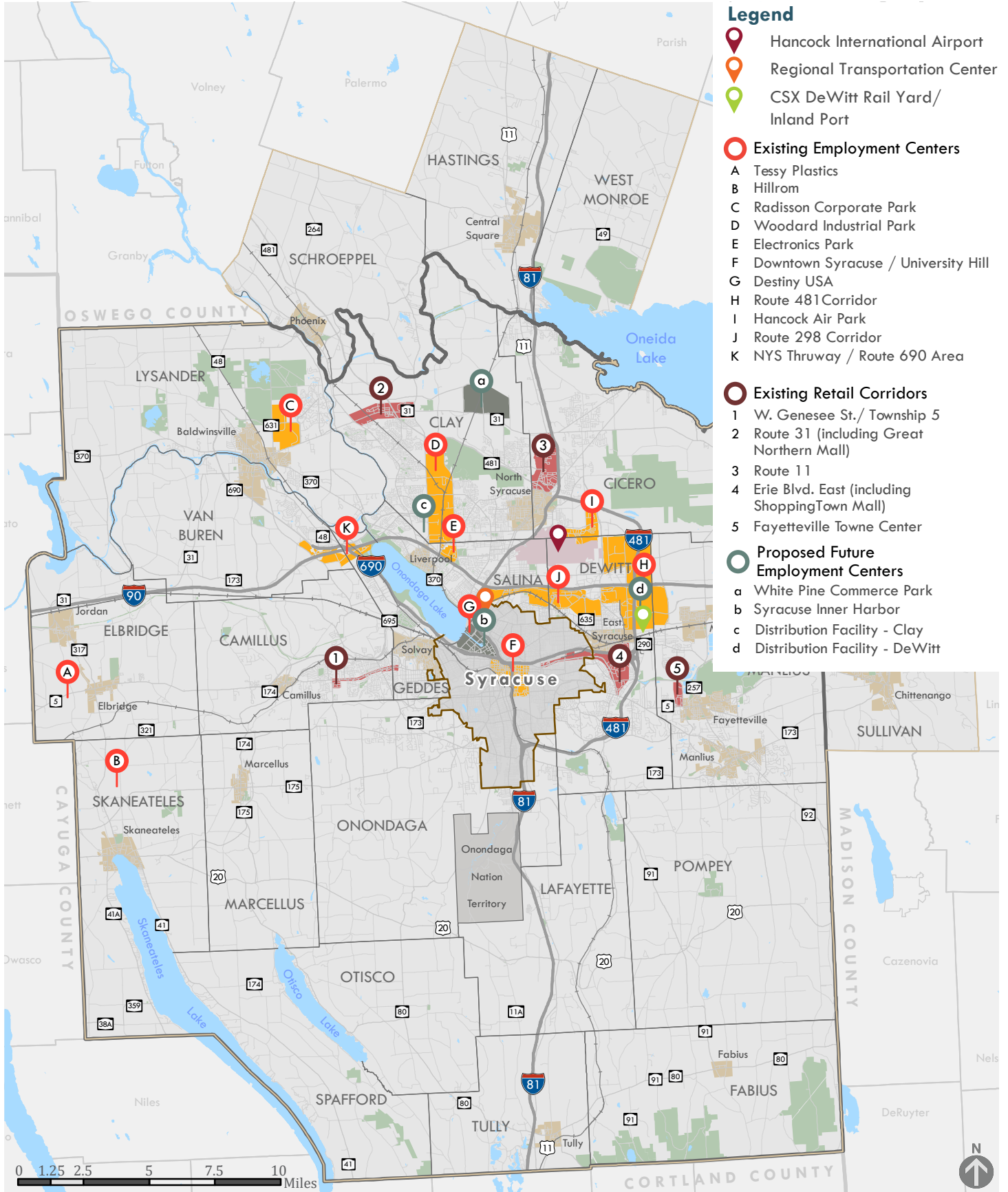
have continued to see growth in recent years. Trade, Transportation and Utilities is a “super sector” in the BLS data that includes retail, wholesale, transportation, and warehousing jobs, as well as utilities. In our region, this super sector continued to lose employment in the post-recession period between 2013 and 2017, although National Grid, UPS, and Destiny USA remain major employers in this category.

3.2.2 EXISTING EMPLOYMENT CENTERS

City of Syracuse. The City of Syracuse is the region’s economic core, with over 90,000 jobs in the city. The Downtown and University

The City of Syracuse is the region’s economic center, with over 90,000 jobs located in the city limits: more than in the Towns of DeWitt, Salina, Cicero and Clay combined.

FIGURE 3.5: EXISTING AND PROPOSED EMPLOYMENT CENTERS AND RETAIL CORRIDORS



Data Sources: NYSDOT, 2013; Onondaga County, 2013.

Hill areas have the highest employment density in the region although these areas of concentrated employment make up a relatively small proportion of the total jobs in the city; part of the attraction of doing business in a city is that there are plenty of places to do business. Destiny USA is the region's largest single retail center and second largest employment center, but other retail centers in the city include Armory Square as well as neighborhood retail centers such as James Street and Westcott Street. While large-scale manufacturing has all but disappeared from the city, many small manufacturers continue to do business on the Erie Boulevard corridor and on the city's north side. Erie Boulevard is also a major retail corridor. And while the "Eds and Meds" sector is dominated by University Hill, St. Joseph's Hospital (just north of Downtown) and Loretto (southern end of the city) are the region's fourth and ninth largest employers, respectively.

Downtown Syracuse. Approximately 20,000 people work in Downtown Syracuse, making it the single greatest concentration of economic activity in the region. As the seat of City and County government, as well as the location for local offices of state and federal agencies, government jobs make up much of Downtown's employment. In the private sector, only two downtown firms rank among the top 25 employers in the region: AXA Equitable Life Insurance, with just under 1,000 employees, and National Grid, with around 2,000. Financial, legal, engineering, marketing, real estate, and insurance firms with fewer than 1,000 employees make up the remainder of Downtown's employers. The departure of Excellus Blue Cross Blue Shield's 825 employees from Downtown in 2008 dealt a temporary blow to the district's vitality, but it has been more than made up for by the in-migration of firms like OBG (now part of Ramboll), WCNY, and Haylor, Freyer & Coon, which relocated to Downtown from suburban locations. Additionally, tech firms like TCG Player, SpinCar, Ephesus Sports Lighting, and the Digital Hyve have selected downtown offices over suburban business parks.

The popularity of newly redeveloped market-rate condominiums and apartments has attracted the attention of retailers, restaurateurs, and firms interested in capturing the talent and the purchasing power of young people. Infrastructure improvements, including the



Employment

On the whole, the past 10 years have seen a wave of revitalization in Downtown that runs counter to the long-term trend of population decline in the city.

extension of the Onondaga Creekwalk to Armory Square and beyond, have supported this resurgence of economic activity. As the region's gathering place, the center of government activity, and its cultural core, investments in transportation improvements in Downtown yield benefits to thousands of workers and residents.

University Hill. Three of the region's ten largest employers are located on University Hill, and during the school year it is either home to or a destination for Syracuse University's (SU) more than 20,000 enrolled students and SUNY College of Environmental Science and Forestry's (SUNY ESF) 2,200 students. SU's Carrier Dome is a venue for football and basketball games that regularly draw 20,000 to 35,000 spectators. April 2020 saw the opening of SU's National Veterans Resource Center, a 115,000 square foot facility dedicated to the educational needs of the region's veterans.

Recent additions to University Hill and its area include a new building for SU's School of Law, Upstate Golisano Children's Hospital, Upstate Cancer Center, the Center of Excellence, and the Central New York Biotech Accelerator.

Traffic congestion is a recurring issue in the University Hill neighborhood, with 18,000 workers and thousands of students converging on a square mile packed with academic buildings, medical facilities, and a variety of related destinations. Rather than build sprawling satellite locations elsewhere in the city or region, however, the district's largest employers continue to build and reconstruct facilities in and around University Hill. Syracuse University's Campus Framework plan epitomizes this approach, by proposing that first- and second-year undergraduate housing be relocated from South Campus to Main Campus.

State-funded facility improvements established this trend, with more than \$211 million invested in SUNY Upstate alone and millions more in improvements and additions to Hutchings Psychiatric Center and SUNY ESF (Downtown Committee). State and federal support also helped build the \$41 million Syracuse Center of Excellence, located on what has become the northern edge of the University area: Water Street, east of Almond Street (Russell, 2011). The Central New York Biotech Accelerator, opened in 2013, sits just east of the Center of Excellence on Fayette Street.

Private investment, including more than \$140 million in new buildings on the SU campus, \$50 million in new facilities at Crouse Hospital, and \$15 million in hotel renovations, have furthered a construction boom on University Hill. The combined value of public and private spending is on the order of three-quarters of a billion dollars, signaling without doubt that the Hill's largest institutions are committed to enhancing - not dispersing - their presence on the Hill.

Suburbs. While jobs, like neighborhoods, have spread out from Syracuse over the past 60 years, our region has maintained a relatively high level of overall employment density. A 2013 Brookings Institution study identified the Syracuse MSA as being among the nation's most centralized small employment centers. According to this study, only 22 percent of the jobs in the Syracuse MSA are more than 10 miles from downtown, compared to 24.5 percent in Poughkeepsie, 29 percent in Springfield, MA, and 38 percent in Stockton, CA.

Most of the region's largest employment centers are located at the junction of major transportation facilities. Just as the Erie Canal helped Syracuse emerge as a center of trade and commerce, similarly the combination of proximity to the DeWitt Rail Yard, Hancock International Airport, the New York State Thruway, I-81, I-690, and I-481 have helped make the Towns of DeWitt and Salina attractive places to do business over the past several decades. The northern part of the Town of DeWitt (north of I-690) is the second largest job center in the region, after the City of Syracuse.

Although Electronics Park, built by General Electric in the Town of Salina in 1946, preceded construction of the Thruway and I-81, the site clearly benefits today from proximity to the Interstate system. Lockheed Martin is currently the primary occupant of this site and the tenth-largest employer in the region with over 2,000 jobs.

Other parts of the region with significant employment centers include the Town of Geddes, where a number of distribution-related businesses are located in and around the I-90/I-690 interchange, and Woodard Industrial Park in the Town of Clay, home to Raymour & Flanigan Furniture and Eagle Comtronics.



Employment

Radisson Corporate Park in the Town of Lysander is home to one of only 12 Anheuser-Busch breweries in the United States. The brewery employs approximately 480 people and generates 180 truck trips per day. Radisson Corporate Park is also home to several large distribution and warehousing businesses.

There are also large employment centers in remote parts of the county, such as Tessy Plastics' manufacturing plant on Route 5 in Elbridge, Hillrom's (formerly Welch Allyn) plant in Skaneateles, and smaller industrial and commercial parks that are found in rural areas, like the Oswego County Industrial Park just north of Phoenix.

Aside from Destiny USA, most of the region's major retail corridors and nodes are located outside of the city. These include:

- Erie Boulevard East (which begins in the city and continues to the east), the Bridge Street corridor, and ShoppingTown Mall (which is slated for a major redevelopment) in DeWitt;
- Towne Center at Fayetteville;
- Route 11 between Route 481 and Route 31 in Cicero
- Route 31 near Route 481, including Great Northern Mall, in Clay
- Route 5 (West Genesee Street) and Township 5 in Camillus.

3.2.3 TRAVEL AND TOURISM

Syracuse is home to many destinations that attract visitors from throughout the Northeast, including Canada. These attractions include museums, sports venues, shopping destinations, New York State and County parks (including a zoo), farm markets/agritourism, entertainment/theaters, and historic sites as well as numerous festivals throughout the year and the New York State Fair. Tourism plays an important role in generating sales and room tax revenues. These tax revenues lower local property tax rates and subsidize municipal services. In addition, many sectors of our economy – such as hotels and dining establishments, retail, healthcare facilities, entertainment venues, and college sport venues – contribute to tourism-related spending.

Our extensive network of highways, bus routes, walkways, and bikeways accommodate local tourism sectors, influence visitors' first impressions of the region, and contribute towards overall quality of

experience. The State, County, and City continue to invest in tourism-related improvements, which include transportation infrastructure investments that support travelers and tourists.

The New York State Fairgrounds is experiencing a rebirth as the state invested more than \$100 million to offer new incentives, attractions, and facilities such as the \$50 million Exposition Center - the largest expo facility north of New York City between Boston and Cleveland. In total, approximately 2 million people visit the Fairgrounds each year to attend various events. The largest event, the Great New York State Fair, hosted approximately 1.33 million people during 18 days in 2019. New fair attendance records have been set each year since 2016. To address the swell of Fair-related traffic, NYSDOT, OCDOT, and Centro have made many transportation investments to accommodate growing attendance numbers:

- Centro has completely revamped bus operations to the Fairgrounds;
- NYSDOT redesigned the I-690 ramp and intersection (Exit 7) with a new signal/lanes to improve bus flow and accommodate increased traffic volumes;
- Development of the 65-acre Orange Lot with more than three miles of paved interior roads, two miles of sidewalks, and 114 new LED lights for improved visibility;
- NYSDOT is currently constructing a bridge over I-690 West to accommodate a new ramp from the Orange Lot to I-690 East;
- OCDOT redesigned Bridge Street and Milton Avenue with various streetscape/beautification improvements and a 16-foot wide pedestrian promenade to the Fairgrounds; and
- New York State is currently extending the Empire State Trail (a statewide trail system) through the City of Syracuse along a route that brings it to the Fairgrounds' entrance.

Onondaga County also continues to invest heavily to attract travelers and support local tourism, especially to one of its greatest natural assets, Onondaga Lake. The County has invested hundreds of millions of dollars reclaiming Onondaga Lake and its shoreline, extending the Loop-the-Lake Trail, and developing the 17,500-seat St. Joseph's Health Amphitheater at Lakeview. The Amphitheater attracts performing

artists and fans from throughout the region. When complete, the Loop-the-Lake Trail will encircle the lake and connect with the Empire State Trail and the City of Syracuse’s Creekwalk trail. As part of current trail extension efforts, the County is developing a bicycle/pedestrian bridge over the CSX railroad mainline.

In addition, the Central New York Regional Recreation & Heritage Plan (completed May 2017 by the Central New York Regional Planning and Development Board) outlines a regional bicycle touring corridor network for Central New York, including Cayuga, Oswego, Onondaga, Madison, and Cortland Counties. Twenty-nine potential recreation and bicycle touring corridors are included in this plan that connect heritage sites to one another and to other already-existing trails (such as the Loop-the-Lake Trail, Empire State Trail, and the Creekwalk). In conjunction with the CNYRPDB, the SMTC is currently planning a couple of specific links within Onondaga County for the Regional Recreation & Heritage Plan. Also as part of the current UPWP, the SMTC, CNYRPDB, and SOCPA are working together on the Onondaga County Empire State Trail Local Economic Opportunities Plan. This plan will help local municipalities capture the economic potential of the Empire State Trail, with the goal of making it easy for trail users to exit the trail and access local businesses via safe trail and/or on-road connections. All of these efforts will work towards attracting tourists, from both near and far, to our local municipalities, heritage sites, and recreational resources.

3.2.4 PROPOSED FUTURE EMPLOYMENT CENTERS

Distribution facility, Town of Clay. In November 2019, the Onondaga County Industrial Development Agency (OCIDA) approved the construction of a 3.7-million-square-foot, five-story tall, warehouse and distribution facility – by some estimates, the second largest such facility in the world. This distribution center will be located in the Town of Clay on land that was previously used as a golf course. The 110-acre site is located between Morgan Road and Route 57 on the north side of the Liverpool Bypass, just north of the Village of Liverpool. In May 2020, it was announced that Amazon would occupy the facility (Baker, 2020). It is expected to employ 1,000 workers and generate approximately 25 tractor-trailer trips every hour. Tractor-trailer trips will use the nearby Thruway entrance (Exit 38) on Route 57.



Economic Outlook

Each year, CenterState CEO* asks its members about their expectations for their industries and the region's economy in the coming years. The resulting Economic Forecast for Central New York provides the best available snapshot of near-term economic conditions in our region**.

Two-thirds of the businesses participating in the 2019 Economic Forecast projected that they would add between one and ten new employees in the coming year, and 75 percent anticipated very strong sales and/or revenue growth.

While many of the business leaders surveyed were optimistic about business expansion, they also identified challenges to sustaining growth in the region, such as finding a qualified workforce, addressing poverty, and the costs involved in keeping up with the rapid pace of technological change.

According to the 2019 Economic Forecast, between 2003 and 2017, the value of the region's exports increased by 52 percent, and the number of jobs supported by exports grew dramatically. Most businesses in our region (80 percent) report that they do not currently export a product or service,

but most expect their export business to grow in the coming year.

Historically, the business community in Central New York has not identified significant unmet transportation needs, such as a missing freeway or rail connection. The 2019 Economic Forecast reaffirms this long-term trend: two-thirds of surveyed business leaders reported that they did not anticipate that changes in transportation and logistics would have an impact on their business in the coming year.

*CenterState CEO is the largest economic development organization in Central New York, and is one of the SMTC's member agencies. It coordinates public and private economic development activities in a 12-county area and counts more than 2,000 businesses in its membership.

**The Economic Forecast for Central New York covers five counties: Cayuga, Cortland, Madison, Onondaga, and Oswego. CenterState CEO's 12-county region includes the five Central New York counties, as well as Herkimer, Jefferson, Lewis, Oneida, Seneca, St. Lawrence and Tompkins Counties.

Intermodal / international shipping - DeWitt Rail Yard. The CSX Rail Yard in DeWitt has been a critical link in the region's freight network for decades. Its location at the junction of I-481 and I-690, only two miles south of the Thruway and thirteen miles from the airport, make it a natural point around which to develop a major transportation and distribution hub. In recent years, global economic forces have converged to increase this area's importance in international shipping.

Since the opening of a new set of locks on the Panama Canal in 2016, the tonnage of freight moving through the canal has increased dramatically, exceeding projections of how quickly the new locks would expand freight movement. Analysts have predicted for years that an increase in freight through the canal would present an opportunity

High Speed Rail in New York State

The development of high speed rail across Upstate New York, linking Buffalo to New York City, could have a significant positive impact on the region's economy. As documented in the High Speed Rail Empire Corridor Tier 1 Draft Environmental Impact Statement (DEIS) prepared in 2014, the options under consideration would bring dramatic improvements in travel time, but would not be completed until 2035. If the fastest possible service were constructed, averaging 125 M.P.H., the travel time between New York City and Syracuse would fall from six and a half hours to just under four hours. As the DEIS states, improvements to service at the Syracuse station may represent a "benefit to businesses, employment, and business activity" as a result of shorter travel times and more frequent trips between New York's metropolitan areas.

for the development of East Coast "inland ports" to take pressure off of the already congested Port of New York and New Jersey (PONYNJ). An inland port facility in Central New York could use rail lines to move freight out of the New York City metropolitan area to our region, where shipping companies would be able to take advantage of a relatively uncongested freeway system to distribute freight to other parts of the country.

In 2019, New York State dedicated up to \$19 million toward the construction of the Syracuse Intermodal Container Transfer Facility at the CSX DeWitt Rail Yard. This project includes two new cranes (allowing for longer trains and increased capacity), new entry and exit kiosks, improved circulation within the facility, and expanded storage capacity. The new facility is expected to reduce the cost of shipping by up to \$500 per container, thereby making the Central New York region more globally competitive. When fully operational, this new intermodal import-export facility will handle approximately 30,000 containers annually.

Distribution and warehousing, Towns of DeWitt and Manlius.

A new Amazon distribution facility has been proposed less than a mile north of the CSX tracks in the Town of DeWitt, near the I-481/Kirkville Road interchange. At 112,000 square feet, this distribution center is expected to employ roughly 200 people and generate 30 tractor-trailer trips daily. This type of development along with the proximity to the rail yard may attract attention from other firms in the transportation and warehousing sector. For example, a large warehousing and container storage facility has been proposed on a site immediately north of the CSX rail lines, between Girden and Fremont Roads at the western edge of the Town of Manlius.

Unmanned Aerial Systems Test Corridor. Unmanned aerial systems (UAS) technology is one of the fastest-growing industries in the world; its application beyond recreation and goods movement are just beginning to be explored. As a recent article in Forbes put it:

With their onboard computer-controlled cameras and their capacity to go places that people and other machines cannot,

drones hold enormous promise to sharpen law enforcement, crack down on terrorism, help farmers monitor crops, assist insurance agents in assessing damaged assets, and, all in all, buoy the retail, transportation and entertainment industries, among others. If the Internet can deliver information, then drones can deliver almost everything else. (Levick, 2018)

Central New York is on track to become one of the nation's top regions in UAS development. In the fall of 2017, the Northeast UAS Airspace Integration Research Alliance, or NUAIR, began testing unmanned aerial vehicles (UAVs) in a small area around Griffiss International Airport in Rome, NY – one of only seven such test sites approved by the Federal Aviation Administration. In 2019, the full 50-mile testing corridor between Rome and Syracuse was completed, allowing drones to be operated beyond the operator's visual line of sight. In November 2019, Governor Cuomo announced a \$12.5 million investment by the State to expand drone testing facilities at the Syracuse Technology Garden.

In the fall of 2018, CenterState CEO projected that six UAS companies would create nearly 200 jobs in Central New York in the near future, with private investment on the order of \$40 million. Several of these firms were Genius NY grant recipients; these grants are designed to ensure that startups – particularly those in the UAS field - take root and grow in Central New York.

White Pine Commerce Park. The Onondaga County Industrial Development Agency (OCIDA) has been laying the groundwork for a new industrial park in the northern part of the Town of Clay. White Pine Commerce Park, located at the NYS Route 31 intersection with Caughdenoy Road, is expected to accommodate up to two million square feet of industrial development. When development comes to this facility, it may become a major regional employment center (OCIDA, 2013).

3.2.5 SUMMARY OF ECONOMIC ACTIVITY

Over the next 30 years, business activity will continue to be drawn to established suburban commercial centers that offer both available commercial space and access to transportation facilities. Radisson

Corporate Park, Collamer Crossing Business Park, and other commercial parks in northern DeWitt are likely to continue to see both new development and the reuse of existing facilities. The distribution facility in the Town of Clay will bring many new employees to the southern part of that town. White Pine Commerce Park is expected to come on-line in the next five to ten years, adding a significant employment center to the northern part of the MPA. The UAS industry is expected to continue growing, with jobs distributed at various locations throughout the region.

Maintaining high-quality transportation infrastructure will support economic development throughout our region.

Within the City of Syracuse, Downtown and University Hill will continue to be major employment centers. The Inner Harbor is likely to be the city's fastest-growing employment center over the next 10 to 20 years, as new commercial space is added and the currently vacant land between Franklin Square and the Inner Harbor is developed.

None of the economic development plans in the MPA have identified specific transportation issues that are placing limits on regional economic competitiveness. Instead, these plans emphasize that the infrastructure that we have should be in the best condition possible.

Transportation investments that promote safety, ensure that our infrastructure is in a state of good repair, and that reduce congestion make good economic sense. Transportation improvements should capitalize on businesses' general interest in the City of Syracuse by supplying higher quality transit service, such as bus rapid transit, along some routes in the city. Our region has plenty of low-density, suburban office space with good freeway access. Investments in walkable, mixed-use commercial districts served both by transit and local roads have the potential to give the region a competitive advantage in attracting smaller firms that value an urban setting.

REFERENCES:

- AARP. (2010, November). Home and Community Preferences of the 45+ Population. <http://assets.aarp.org/rgcenter/general/home-community-services-10.pdf>
- AARP. (2018, August). 2018 Home and Community Preferences: A National Survey of Adults Ages 18-Plus. <https://www.aarp.org/research/topics/community/info-2018/2018-home-community-preference.html>
- AARP. (2014). State of the 50+ in Onondaga County. <http://bit.ly/1P5WxMc>
- American Public Transit Association. (2013). Millennials & Mobility: Understanding the Millennial Mindset. <http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>
- Bahrampour, T. (2013, July 31). The kids gone, aging Baby Boomers opt for city life. *The Washington Post*.
- Baker, C. (2020, May 19). It's official: Amazon will move into enormous warehouse being built in Clay. *Syracuse.com*. <https://www.syracuse.com/news/2020/05/its-official-amazon-will-move-into-enormous-warehouse-being-built-in-clay.html>
- Brandon, E. (2013, October 17). Yahoo! Finance. Retrieved October 28, 2014, from *US News and World Report* - The Best Places to Retire on \$75 a Day: <http://finance.yahoo.com/news/best-places-retire-75-day-180521228.html>
- Downtown Committee of Syracuse, Inc., and CenterState Corporation for Economic Opportunity. Downtown Syracuse Development Overview.
- Downtown Committee of Syracuse, Inc. (2019). 2018 - 2019 Annual Report. https://issuu.com/downtownsyracuse/docs/2018-2019_annual_report_website_
- F.O.C.U.S. Greater Syracuse. (2014, October). Shaping an Age-Friendly CNY, Appendix II - Survey Results.
- Foley, D.J., Heimovitz, H.K., Guralnik, J.M., & Brock, D.B. (2002, August). Driving Life Expectancy of Persons Aged 70 Years and Older in the United States. *American Journal of Public Health*. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447231/>
- Frizell, S. (2014, April 25). The New American Dream Is Living in a City, Not Owning a House in the Suburbs. *Time*. <http://time.com/72281/american-housing/>
- Kneebone, E. (2009). Job Sprawl Revisited: The Changing Geography of Metropolitan Employment. *Metropolitan Policy Program at Brookings*. <http://www.brookings.edu/research/reports/2009/04/06-job-sprawl-kneebone>
- Levick, R. (2018, May). Drone industry just beginning to take off. *Forbes.com*. <https://www.forbes.com/sites/richardlevick/2018/05/15/drone-industry-just-beginning-to-take-off/#2111d0b72bce>.
- Moriarty, R. (2019, September 18). Drones over Central NY: 50-mile test corridor to open for business soon. *Syracuse.com*. <https://www.syracuse.com/business/2019/09/drones-over-central-ny-50-mile-test-corridor-to-open-for-business-soon-map.html>

- Moriarty, R. (2019, November 12). Gov. Cuomo announces \$12.5 million to expand the Syracuse Tech Garden for drones. *Syracuse.com*. <https://www.syracuse.com/news/2019/11/gov-cuomo-announces-125-million-to-expand-the-syracuse-tech-garden-for-drones.html>
- Nasser, H. E. (2012, September 27). Downtowns revive as new residents flock to big cities. *USA Today*.
- Onondaga County Industrial Development Agency. (2013, September). Final Generic Environmental Impact Statement, White Pine Commerce Park.
- Russell, J.S. (2011, March 29). Syracuse Builds \$41 million Green Incubator. *Bloomberg Business*. <http://www.bloomberg.com/news/articles/2011-03-29/syracuse-builds-41-million-incubator-for-green-ideas-james-s-russell>
- Sivak, M. and Schoettle, B. (2016, January). Recent Decreases in the Proportion of Persons with a Driver's License Across All Age Groups. University of Michigan Transportation Research Institute.
- Syracuse-Onondaga Planning Agency. (2007). Onondaga County Trends 2007 Summary. http://www.ongov.net/planning/documents/county_trends_summary_2007.pdf
- Syracuse-Onondaga Planning Agency. (2012). Livability & Society Element Report.
- Syracuse-Onondaga Planning Agency. (2012). Transportation and Land Use Element Report.
- Tobin, D. (2014, September 16). Big hopes for SUNY Water Research and Education Center at Inner Harbor. *Syracuse.com*. http://www.syracuse.com/news/index.ssf/2014/09/big_hopes_for_suny_water_research_and_education_center_at_inner_harbor.html
- U.S. Census Bureau (2015 - 2019). Building Permit Survey. Town and city-level data. <https://www.census.gov/construction/bps/>
- U.S. PIRG Education Fund & Frontier Group. (2014). Millennials in Motion: Changing Travel Habits of Young Americans and the Implications for Public Policy.
- Weaver, T. (2014, July 10). Second hotel planned for Inner Harbor in Syracuse. *Syracuse.com*. http://www.syracuse.com/news/index.ssf/2014/07/second_hotel_planned_for_inner_harbor_in_syracuse.html
- Zipcar. (2014, January). SlideShare.net. Retrieved October 29, 2014, from Millennials and the "New American Dream": A Survey Commissioned by Zipcar. http://www.slideshare.net/Zipcar_PR/millennials-2013-slide-share

Chapter 4: Our Transportation System

4.1 OVERVIEW

Our region's transportation system works extremely well for the majority of users. Eighty-four percent of commuters in our planning area drive alone to work¹, and the average commute time regionally is an enviable 20.5 minutes², which is well below state and national averages. Two major interstate highways, I-81 and I-90, pass through Onondaga County and intersect just north of the City of Syracuse. These facilities, along with additional interstates (I-690 and I-481) and a dense network of State, County, and local roads, make it possible for commuters in private vehicles to get from one part of the region to the other efficiently. Freight transportation also benefits from our relatively uncongested Interstate facilities and other major roadways.

The region is also served by a number of multimodal transportation hubs: passenger and freight air service are provided at Hancock International Airport, intermodal freight containers are handled at the CSX DeWitt Rail Yard, and Amtrak passenger rail and intercity bus service, as well as local Centro bus service, are provided at the Regional Transportation Center. Just outside of the SMTC's MPA, in the City of Oswego, is the deepwater Port of Oswego that handles freight from around the globe.

Centro is the only fixed-route public transit service in the Syracuse area and is operated by the Central New York Regional Transportation Authority (CNYRTA). Centro carries nearly 10 million passengers annually, including passengers on fixed-route services, as well as paratransit and special services for local schools and special events. All Centro bus routes operate out of the Transit Hub in Downtown Syracuse.

¹ American Community Survey, 2014-2018 Estimate. Table B08006.

² American Community Survey, 2014-2018 Estimate. Table B08013.

Look for these icons in the margins throughout this chapter.



They will tell you where to find more information on specific topics in the SMTC's Transportation Atlas or in other SMTC studies.

The Atlas includes a wealth of existing conditions information for our planning area, and is a companion to the LRTP.

The Atlas and the other studies are available on the SMTC's website, or you may request a print copy by calling or emailing the SMTC.

Average commute time in our region is under 21 minutes, well below state and national averages.



Commuting Times



Amtrak passenger rail service, intercity bus service, and local Centro bus service are provided at the William F. Walsh Regional Transportation Center.



Green bike lanes, green medians, street furniture, and new sidewalks along East Genesee Street were installed as part of Phase I of the Connective Corridor in late fall 2012.

Our transportation system works very well for most people in our region, but we know there are still improvements we can make, especially in bicycle and pedestrian facilities and transit.

Bicycle and pedestrian facilities are primarily located within the City of Syracuse and the adjacent towns, as well as some villages in the region. The City of Syracuse and most of the region’s villages have developed extensive sidewalk networks, but few sidewalks exist outside of these areas. However, several suburban communities, such as DeWitt, Cicero, and Camillus have started to incorporate pedestrian facilities along their commercial corridors. These pedestrian facilities need to be continuous in order to meet the needs of pedestrians in terms of both safety and convenience. This is especially true for individuals with mobility or vision impairments, for whom a gap in the sidewalk network could become a barrier to travel. To this end, the City of Syracuse and NYSDOT continue to improve the accessibility of pedestrian resources on their facilities by bringing intersections into compliance with the American’s with Disabilities Act (ADA) standards (see Section 4.8.2 for more information on ADA Transition Plans). In addition to its extensive sidewalk network, the City continues to expand its on-road bicycle facility network. Outside of the City, the only on-road bicycle facilities that currently exist are the route markings for New York State Bicycle Routes 5 and 11 (which are for wayfinding only and do not include dedicated bicycle infrastructure), and marked bicycle lanes on Fly Road in the Town of DeWitt and Milton Avenue in the Village of Solvay. Trail networks have been expanding over the past few years and there are currently three prominent trails in the MPA: the Onondaga Lake Trail (‘Loop the Lake’), the Onondaga Creekwalk, and the Erie Canalway Trail.

Our transportation system is very good, but it could be better. During the public involvement efforts for many of SMTC’s recent studies, members of the public have expressed a desire for more multi-modal transportation options to better serve all users. This includes more roads designed to accommodate bicyclists and pedestrians, upgraded and expanded transit, and a more extensive system of off-road trails. For people who are unable to drive, cannot afford to own a vehicle, or who live outside of Centro’s service area, mobility can be an obstacle to getting medical care, holding a job, attending school, buying groceries, or visiting friends. There are more than 100 service providers in our region, both for-profit and non-profit, that operate to fill this gap. SMTC

has also completed a number of recent studies with municipalities in our region that emphasized bicycle and pedestrian mobility, as well as transit enhancement, such as: Armory Square Mobility Plan (2019); Erie Boulevard Transit Mobility Enhancement (2019); Carrier Park Mobility Plan (2018); Connections to Township 5: Bicycle and Pedestrian Assessment (2018); Erie Boulevard East Pedestrian Study (2018); Skaneateles Multi-Use Corridor Study (2018); Central DeWitt Mobility Study (2017); and Western Lights Pedestrian Access Study (2017). All of these are available on the SMTC website.

4.1.1 TRANSPORTATION SYSTEM PERFORMANCE REPORTING

The FAST Act places a strong emphasis on performance measurement using specific objectives, performance measures, and targets. States and public transportation providers must establish targets within one year of the effective date of the final rule, after which MPOs shall coordinate with their respective State and public transportation provider within 180 days to establish the required targets. The MPO can either agree to support the target set by the State or public transportation provider, or establish a quantifiable target specific to the MPO planning area. Section 2.1 of this document lists each of the Federal rulemakings. SMTC has chosen to support all applicable targets set by the NYSDOT and the CNYRTA.

Once targets are established, future project investments must show that progress is being made to achieve individual targets. The LRTP must include a system performance report that describes the condition and performance of the transportation system with respect to the required performance targets, and reports on progress achieved in meeting the targets in comparison with baseline data and previous system performance reports.

With guidance from the LRTP SAC, performance measures were also identified for the LRTP objectives that are not federally-required. These “local” objectives and performance measures highlight additional concerns that the SMTC member agencies and the public have about the transportation system in our region.

The remainder of this chapter identifies the elements of our existing transportation system and the current function of that system in the

context of the goals and objectives described in Chapter 2. Performance measures, baseline conditions, and targets are identified throughout the chapter. The federally-required performance measures include the following:

- Freight movement reliability (see Table 4.1)
- Safety (See Table 4.3)
- Interstate and National Highway System reliability (See Table 4.8)
- Pavement and bridge conditions (See Table 4.9)
- Transit asset management (See Table 4.10)

4.2 FREIGHT

4.2.1 VOLUMES AND VALUE

Freight shipments represent the economy in motion and thus play an integral economic role at both the national and regional levels. The Bureau of Transportation Statistics forecasts an increase in total tonnage shipped in the U.S. from nearly 18 billion tons in 2015, with a value of more than \$19 trillion, to over 25 billion tons in 2045, worth an estimated \$37 trillion.³

The SMTC published a Freight Transportation Profile for the MPA in 2017 that assists staff and member agencies in the development of plans and programs. The Freight Transportation Profile provides an overview of the freight transportation system in our region, identifies tons and value of commodities traveling through the system, and tracks the primary shipping modes (i.e., air, rail and truck).

The Freight Transportation Profile also summarizes data from the FHWA's Freight Analysis Framework (FAF), the Brookings Institution's Metro-to-Metro report, and IHS/Global Insight TRANSEARCH data.⁴ According to the TRANSEARCH data, inbound freight shipments to Onondaga County consisted of 13.5 million tons of freight, valued at

³ U.S. DOT, Bureau of Transportation Statistics. (2017) Freight Facts and Figure 2017.

⁴ FAF is an FHWA data source based in part on the 2007 Commodity Flow Survey; Metro-to-Metro is a freight data collection compiled in 2013 as part of the Brookings Institute's Global Cities Initiative; TRANSEARCH is a proprietary freight planning tool based on a national database of commodity flows. These data sources were the most current available at the time that SMTC created the Freight Transportation Profile (2017). The NYSDOT recently purchased an updated TRANSEARCH data set that contains 2018 data, which will be made available to MPOs.



Freight Transportation Profile



Freight Air Travel

\$20.4 billion in 2012. Forty-one percent of this freight originated within the state (5.5 million tons). Outbound freight included 10.5 million tons (\$15 billion), with 41 percent being shipped elsewhere within the state (4.2 million tons). About 957,000 tons of freight (valued at about \$3.2 billion) was generated and shipped within the county – all by truck – in 2012. As noted in Chapter 3, expansion of the Panama Canal may lead to more freight being shipped to and from the Port of New York and New Jersey, and possibly through an inland port in the Syracuse region.

A total of 162,345 tons of air cargo landed at Syracuse’s Hancock International Airport in 2018, which was a 7.45 percent increase from 2017.⁵ The top three air cargo destinations from Syracuse are Memphis, Louisville, and Buffalo.

4.2.2 FACILITIES

Within the MPA, freight primarily moves via railways and the interstate highways. Air cargo arrives at and departs from Syracuse’s Hancock International Airport. Freight travels through and within our region on interstates, arterials, collectors, and local roadways. To help prioritize investments for planning and capital programming, the SMTC has identified a set of “primary freight corridors,” which are shown

⁵ Air Carrier Activity Information System, 2018.

In 2012, 13.5 million tons of freight were shipped into Onondaga County and 10.5 million tons of freight were shipped out of the county.

New York State Freight Plan

The NYSDOT adopted its first State Freight Plan in August 2019 to address the state’s multimodal freight network of highways, railways, marine highways, pipelines, airports, and seaports. The Freight Plan helps state agencies, authorities, and partners address infrastructure, regulatory, policy, and operational needs. It identifies goals and performance measures, defines the State Freight Core Highway network, and categorizes short-, medium-, and long-term freight improvement needs. Several MPOs, including the SMTC, participated in the development of the state’s plan.

The Freight Plan includes a summary of SMTC’s highway, air terminal, maritime, rail, and intermodal rail terminal facilities. It also identifies

the following corridors within SMTC’s planning area, either partially or entirely, as part of the State Freight Core Highway Network: I-90, I-690, I-81, I-481, and NY 481. The Freight Plan also commits various funds (including NHFP funds) to four highway projects and one rail project in the SMTC planning area to be developed in the short term. Unfunded illustrative projects that are considered medium- and long-term highway projects are also identified, including six such project in the SMTC’s planning area: the I-81 viaduct, various bridge replacement projects, an interchange (I-81 at NY 31) safety project, and a freeway incident management technology project.



Cargo containers stacked on rail cars at CSX's DeWitt Rail Yard.

on Figure 4.1. These corridors were identified through discussions with various SMTTC member agencies. Primary freight corridors were selected based on their functional class, their average traffic volumes, and their proximity to major freight generating businesses.

Ensuring that trucks can access our region efficiently means monitoring pavement and bridge condition ratings along primary freight corridors and strategically investing in these routes. Capital improvements to this roadway network will also increase reliability and maintain low levels of congestion on these corridors.

4.2.3 FREIGHT MOVEMENT – ISSUES AND OPPORTUNITIES

Efficient freight movement faces few obstacles in the region, none of which have been identified as seriously impeding economic development. One recurring issue though is the number of roads and bridges with height and/or weight restrictions (this is also a safety concern, and is included in the next section of this document). An example is the elimination (since 2011) of all commercial traffic on the portion of NYS Route 370 known as the Onondaga Lake Parkway, due to a low-clearance railroad bridge. In this case, alternative routing is relatively convenient. However, such detours can mean delays and also may mean damage to vehicles and infrastructure in the event that an oversized truck attempts to use a restricted facility. Future investments should work to reduce the number of height- and weight-restricted facilities in the MPA to eliminate this recurring issue.

Freight movement is most efficient when the roadways traveled by freight are reliable and uncongested. Federal rulemaking defined the Truck Travel Time Reliability (TTTR) Index on the Interstate system as the measure to assess performance associated with the National Highway Freight Program. (See “Congestion measures defined” on page 74 for a full description of the TTTR.) The NYSDOT has established 2-year and 4-year targets for TTTR on the Interstate system, and the SMTTC agreed to support these targets. As shown in Table 4.1, the TTTR index for the Interstate system in the SMTTC MPA is currently 1.27, which is below the adopted targets.

Reliability and congestion were also assessed in the SMTTC’s most recent CMP update, completed in 2019. The CMP analysis focused on

a subset of roadways within the urban area including, but not limited to, the Interstate system. For freight-related reliability and congestion measures, the CMP analysis was further refined to a “CMP Freight Network,” which is highlighted on Figure 4.1.



**Congestion Management Process
2019 Status Update**

The CMP used Total Excessive Delay (TED) per mile to assess the level of congestion on road segments. The CMP defined congestion as 40,000 or more person-hours per mile of TED (approximately representing the 90th percentile value for the CMP corridors) on a segment over an entire year, and found that 97 percent of the mileage on the CMP Freight Network is considered “uncongested.”

Table 4.1: Freight system performance measures and targets

<i>Goal: Support efficient freight movement.</i>					
Objective	Performance measure	New York State Baseline	SMTC MPA	2020 target	2022 target
Maintain a high degree of reliability for truck travel.	Truck Travel Time Reliability (TTTR) index on the Interstate system	1.38	1.27	2.00	2.11
	Percent of mileage on the CMP Freight Network with a TTR under 4.00	NA	99%	NA	NA
Maintain adequate infrastructure conditions on primary freight corridors.	Percent of primary freight corridor mileage with pavement in good condition*	NA	63%	NA	NA
	Percent of primary freight corridor mileage with pavement in poor condition*	NA	10%	NA	NA
Reduce congestion on the CMP Freight Network.	Percent of mileage on CMP Freight Network with TED per mile less than 40,000 person-hours/mile	NA	97%	NA	NA

Notes:

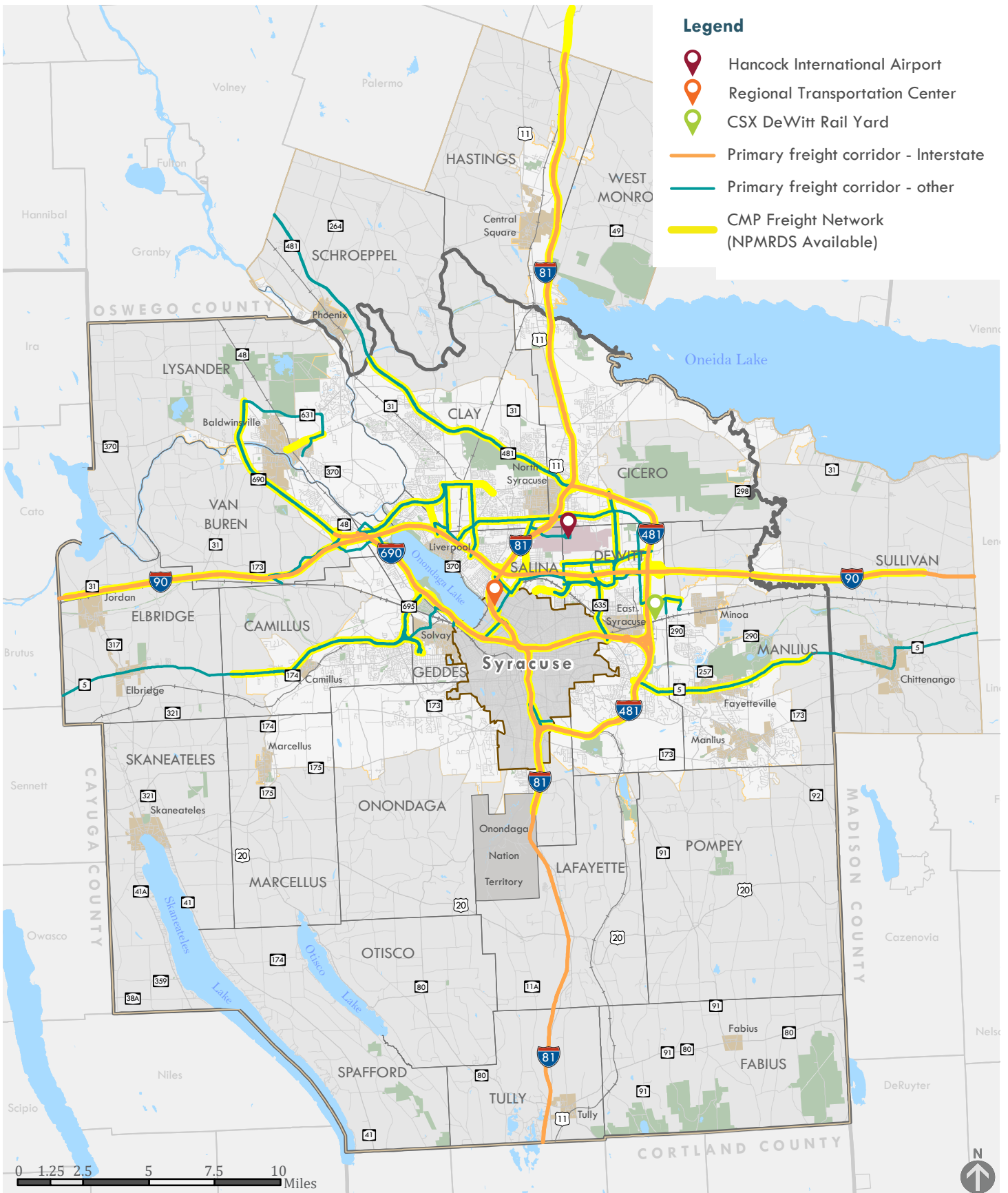
- TTTR index is the required performance measure for the National Highway Freight Program (NHFP) per federal rules. The SMTC agreed to support the targets established by NYSDOT for freight performance via Policy Committee Resolution No. 2018-14 on December 11, 2018.

- The 2018 condition value for TTTR is provided by the University at Albany Visualization and Informatics Lab (AVAIL). AVAIL’s calculation of the TTTR utilizes truck travel time data, except where truck-only data is too sparse for meaningful calculation, in which case all vehicle travel time data are used.

- NA: All other performance measures (other than TTTR) listed in table were defined by the LRTP SAC and are not federally required. Targets have not set by the SAC at this time.

* “Rated” miles only. Freight corridors outside the traditional scope of pavement ratings (e.g. ramps) were not included. For this analysis, Good pavements have a Surface Score of 7-10, and Poor pavements have a Surface Score of 1-5. Ratings are from 2017 and 2018. See the SMTC’s Bridge and Pavement Condition Management System Report for more details.

FIGURE 4.1: PRIMARY FREIGHT CORRIDORS IN THE SMTc MPA



Data Source: SMTc, 2019

The MPA’s opportunities for expanding freight movement derive from its location. As mentioned in Section 3.2.4, New York State has dedicated funding to expand operations at the existing CSX DeWitt Rail Yard. The region is at the crossroads of I-81 and I-90 (New York State Thruway), and the Port of Oswego is about 40 miles away. A project to expand the port’s rail car storage capacity was recently completed.

4.3 SAFETY

Improving roadway safety for drivers, transit riders, pedestrians, and bicyclists requires cooperation among facility owners. Transportation planners, engineers, law enforcement officers, and emergency medical service providers also serve important roles in reducing the frequency and severity of crashes through the Five Es: engineering, education, enforcement, emergency response, and evaluation. The SMTC plays an important role in this endeavor; as the MPO, the SMTC conducts cooperative studies and analysis on behalf of its member agencies to inform their development of data-driven safety solutions to reduce crash frequency and severity.

4.3.1 RECENT TRENDS

The safety, security, and resiliency of the transportation system is of utmost importance to the SMTC and its member agencies. The MPO seeks to advance the objectives of reducing serious injuries and fatalities for all users of the transportation system, including non-motorized users such as bicyclists and pedestrians. The SMTC consistently reviews crash data, either through the lens of corridor studies or through specific, safety-focused planning efforts. The New York State Department of Transportation maintains an Accident Location Information System (ALIS) database that catalogues information about crashes throughout the state, which the SMTC frequently monitors and uses.

Figure 4.2 illustrates crash data (total crashes) for New York State and the SMTC MPA from 2014 to 2018, and Table 4.2 includes crash rates for New York State and the SMTC MPA. Statewide, outside of a large jump in 2015, fatal crashes have been trending down, but the number of fatal crashes in the SMTC MPA is trending up over the last five years. Bicycle crashes in the MPA are down, and statewide crashes have also been trending down over the last three years, following a



Accidents Bicycle and Pedestrian Accidents

Table 4.2: Selected crash rates per 100,000 people, 5-year average (2014-2018)

Crash statistic	New York State	SMTC MPA
Total	1,671.78	2,316.46
Fatal	4.89	6.35
Serious Injury	48.24	68.43*
Bicycle	30.08	20.34
Pedestrian	75.51	43.83

Data sources: Institute for Traffic Safety Management and Research, Traffic Safety Statistical Repository; New York State Department of Transportation, Accident Location Information System.

*Serious Injury data is not available at the sub-County level in the ITSMR database. Since the SMTC MPA includes towns outside of Onondaga County, MPA-level data cannot be obtained for the Serious Injury category. The number in this table represents ALIS data.

FIGURE 4.2: SELECTED ANNUAL CRASH STATISTICS (TOTAL CRASHES) IN NEW YORK STATE AND THE SMTC MPA, 2014 TO 2018



Data source: Institute for Traffic Safety Management and Research, Traffic Safety Statistical Repository.

Notes:

- Consistent with the SMTC’s 2015 LRTP, the data in Figure 4.2 and Table 4.2 is sourced from the University at Albany’s Institute for Traffic Safety Management and Research (ITSMR) Traffic Safety Statistical Repository (TSSR) database, which draws data from the NYS Department of Motor Vehicles Accident Information System (AIS), based on the crash reports submitted to the DMV by police agencies and motorists.
- The ITSMR database allows for easy interpretation of data at a statewide level. Two additional important points on the use of the ITSMR database: first, that the total number of crashes listed is an undercount from the total crashes that occurred, based on cross-referencing the NYSDOT’s ALIS database. And second, prior to 2018, ITSMR captured significantly fewer Property Damage crashes than occurred, which accounts for the large increase in total crashes from 2017 to 2018. Even after capturing a larger amount of data in 2018, there is still an undercount, although it is far less severe.

large dip in 2015 and then a spike in 2016. Pedestrian crashes both in the MPA and the state show an upward trend outside of large dips in 2016 for the MPA and 2015 for the statewide numbers.

The total number of crashes shown in Figure 4.2 are undercounted prior to 2018. The TSSR database notes that due to a change in the Police

Accident Report form in 2018, additional “property damage” crashes were captured, compared to prior years. Outside of this spike, total crashes did not change much year-to-year, but trend slightly downward in the MPA and slightly upward in the state. However, we cannot make definitive conclusions about this data.

4.3.2 SERIOUS INJURIES AND FATALITIES FROM CRASHES

On March 15, 2016, the Federal Highway Administration (FHWA) published the final rule for the HSIP and Safety Performance Management (Safety PM) Measures in the Federal Register. The NYSDOT Highway Safety Improvement Program (HSIP) annual report documents the statewide safety performance targets. All LRTPs adopted or amended after May 27, 2018, must include performance targets for the safety-related measures.

Starting in February 2018, the SMTC has annually agreed to support the NYSDOT statewide targets for the safety-related performance measures. Table 4.3 summarizes the adopted performance targets, along with the 2011-2015 SMTC baseline data and the most recently-

Table 4.3: Safety performance measures and targets (serious injuries and fatalities)

<i>Goal: Increase the safety, security, and resiliency of the transportation system</i>						
Objective	Performance measure	2011-2015 SMTC baseline	2014-2018 SMTC condition	Targets		
				2018	2019	2020
Reduce serious injuries and fatalities.	Number of fatalities	167	169	1,086	1,072	1,040
	Fatality rate per 100M VMT	0.65	0.67	0.87	0.86	0.826
	Number of serious injuries	1,738	1,933	10,854	10,987	11,017
	Serious injury rate per 100M VMT	6.79	7.65	8.54	8.62	8.709
Reduce the number of fatalities and serious injuries from crashes involving a pedestrian or bicyclist.	Number of non-motorized fatalities and serious injuries	281	278	2,843	2,726	2,627

Data sources: Fatalities: FARS (Fatality Analysis Reporting System), Serious Injuries: NYSDOT ALIS (Accident Location Information System). VMT: NYSDOT. Note that the 2014-2018 VMT figure provided by NYSDOT includes changes to roadway functional classification implemented in 2018, which resulted in fewer miles of local roads and an accompanying decrease in the VMT estimate.

Note: All performance measures in Table 4.3 are required per the final rule for the HSIP and Safety Performance Management Measures. The SMTC agreed to support the safety targets established by NYSDOT via Policy Committee Resolutions: 2018-02 on February 16, 2018; 2018-15 on December 11, 2018; and 2019-09 on December 12, 2019. NYSDOT targets represent a statewide total. SMTC baseline conditions were reported in *System Performance Report, Addendum to 2050 Long Range Transportation Plan*, adopted via Policy Committee Resolution 2018-18 on December 11, 2018.

County and City Safety Assessments

The Onondaga County Department of Transportation (OCDOT) wants to reduce fatal and serious injury crashes on its road network, and improve its ability to secure HSIP funds and any competitive funds offered through NYSDOT-sponsored solicitations (e.g. PSAP). OCDOT's road network includes approximately 800 miles of roadways, 113 signalized intersections, and hundreds of County-to-County unsignalized intersections. SMTC reviewed approximately 8,000 crashes that occurred during a 3-year period (2015-2017) and developed an approach to identify 12 'hot spot' locations and six systemic

'emphasis areas' (Intersections, Lane Departure, Vulnerable Users, Speed, Age-Related, and Driver Behavior) based on fatal and serious injury crash patterns. SMTC summarized additional crash findings for the hot spot locations, and identified high risk roads unique to each emphasis area. The hot spot crash pattern summaries and the high risk road emphasis area maps inform decisions about where to prioritize safety improvements and safety issues to address, and support funding requests. The SMTC is currently progressing a similar safety assessment for the City of Syracuse.

available (2014-2018) data. Per Federal rulemaking, (i.e., Title 23, Part 490.207 of the Code of Federal Regulations) the safety performance measures are to be calculated as five-year rolling averages, ending in the year for which the target is established.

4.3.3 HEIGHT- AND WEIGHT-RESTRICTED BRIDGES

Height- and weight-restricted bridges may pose safety concerns in certain situations, and reducing the number of these bridges in the MPA is one of the objectives identified in the LRTP. The current number of these bridges is listed in Table 4.4.

Weight-restricted bridges are relatively straightforward: bridges with either an R-posting, which indicates a lack of sufficient reserve weight capacity, or a posted load limit, listed in tons. Reconstruction of a structure or some of its elements can potentially remove weight restrictions. There is no universal, comprehensive definition of a height-restricted bridge – this designation can be interpreted in a number of ways. There are different recommendations for clearance depending on the type of facility a structure crosses, whether it crosses the National Highway System, and whether the structure is covered by several different exemptions.

Table 4.4: Height- and weight-restricted bridges

<i>Goal: Increase the safety, security, and resiliency of the transportation system</i>		
Objective	Performance measure	2020 condition
Reduce the number of height- and weight-restricted bridges (especially along primary freight and commuter corridors).	Number of height-restricted bridges*	164 bridges
	Number of weight-restricted bridges**	14 bridges

* A bridge is considered “low clearance” if it is crossing a roadway with a minimum permitted vertical clearance under the structure of less than 14 feet, no matter the type of roadway it is crossing. On the NHS, bridges are supposed to have a minimum permitted vertical clearance of 16 feet, but exemptions exist based on a series of agreements between NYSDOT and FHWA. This number does **not** consider those exemptions. The minimum required vertical clearance for crossing railroads is 22 feet. Additionally, navigable waterways have variable minimum vertical clearances depending on their location in the State. See the NYSDOT’s Bridge Design Manual and the SMTC’s 2017 Freight Profile for additional information.

** Defined as bridges with either an R-Posting - where a bridge, based on design or condition, does not have the reserve capacity to accommodate most vehicles over legal weights, but can still safely carry legal weights; or a Posted-Load Bridge - a bridge or elevated structure which has a specific weight limit in tons posted on a sign. See the SMTC’s 2017 Freight Profile for additional information.

4.3.4 DESCRIPTION OF PROGRESS

As shown in Table 4.3, the number of fatalities and the fatality rate per 100 million vehicle miles traveled (VMT) remained relatively consistent between the two analysis periods (2011-2015 to 2014-2018). The MPA experienced 195 more serious injuries during the 2014-2018 period as compared to the 2011-2015 period. The number of non-motorized fatalities and serious injuries declined slightly. Reducing fatalities and serious injuries has been and will continue to be of the utmost importance for SMTC and its member agencies. SMTC considers safety issues when developing local and regional plans, studies, and initiatives; recent examples include the Onondaga County Safety Assessment and the Bicycle Safety Education Campaign. Recent programming of capital funds to safety-related projects is also noted below.

Pedestrian Safety Action Plan (PSAP) Capital Improvements.

The NYSDOT released a five-year Pedestrian Safety Action Plan on June 20, 2016. The multi-agency initiative provides funds to improve safety for pedestrians through infrastructure improvements, public education efforts, and enforcement. Within SMTC’s MPA, NYSDOT implemented numerous projects at signalized intersections and uncontrolled crosswalks for a total cost of approximately \$3.2M. Additionally,

Bicycle Safety Education Campaign

The SMTC developed a televised bicycle safety campaign that promotes safe riding practices to help reduce bicycle crashes. In 2017, the SMTC co-branded five 30-second bicycle safety videos in partnership with AAA and the League of American Bicyclists (LAB). SMTC ran 700 televised PSA commercials during two five-week campaigns (summer and autumn) on CNN, Fox News, MSNBC, and Spectrum News. More than 400,000 households in the Syracuse region viewed the campaign.

In 2018, the SMTC partnered with the New York State Association of Metropolitan Planning Organizations (NYSAMPO) and the Governor's Traffic Safety Committee (GTSC) to modify and expand the campaign statewide. The GTSC selected the "Share the Road" bicycle safety video to broadcast throughout the state more than 1,100 times in 2018. GTSC continues to broadcast this video statewide as part of its annual rotation. All five videos are also available to any MPO within New York State to conduct a local campaign, and several MPOs coordinate each May ('Bike Month') to conduct an online social media campaign that features the PSA videos.

NYSDOT anticipates constructing pedestrian improvements on Erie Boulevard East between Bridge Street and East Genesee Street by 2021.

In 2018, the NYSDOT established a \$40M fund and solicited requests for up to \$5.0M in funds from local road owners to implement PSAP countermeasures. Projects funded pursuant to this call for pedestrian projects are eligible to receive up to 100 percent federal HSIP funding. The NYSDOT awarded approximately \$1.6M to the City of Syracuse to improve multiple locations along city roadways by 2021.

In total, state and city roadways in the MPA will receive approximately \$4.8M towards new systemic pedestrian safety improvements. Once complete, the PSAP countermeasure improvements will contribute to a safer pedestrian environment at numerous locations, which should help reduce the occurrence of pedestrian crashes within the MPA during the coming years.

Safety funds in the TIP. HSIP funds represented approximately three percent of total FHWA funds programmed in the 2014-2018 TIP and in the 2017-2021 TIP. The current 2020-2024 TIP increases the programmed HSIP funds to 5.7 percent of the total FHWA funds available for programming. Although HSIP is one fund source dedicated to safety improvements, safety projects may program multiple funding sources.

In total, the SMTC programmed approximately \$51.2M (includes HSIP and other fund sources) for safety-related projects in the 2017-2021 TIP and in the 2020-2024 TIP. The \$51.2M is in addition to the \$4.8M programmed for the PSAP projects previously discussed, which results in a combined total of \$56.0M towards safety improvements. Of the \$51.2M, sponsors have constructed projects that total about \$14.2M. Projects currently underway will total approximately \$31.2M when constructed, and projects that have yet to start will total approximately \$6.9M when construction is complete.

Many projects listed in the 2020-2024 TIP, including project types not classified as a safety project, will improve safety. For example, a sidewalk project on Route 11 is categorized as a "bicycle/pedestrian" project but will improve safety for users as well. Of those classified as safety projects, the Onondaga Lake Parkway Safety Improvement

project will address a significant safety issue within the community that has existed for generations. The safety project will address bridge strikes at a low-clearance railroad (CSX) bridge that exists over a state-owned facility (NYS 370), as well as lane departures into oncoming traffic. Bridge strikes have occurred at this location throughout the decades, and have resulted in serious injuries and fatalities. This project is currently underway as of the writing of this LRTP, and \$11.1M is currently programmed to address related safety concerns.

4.4 ACCESSIBILITY & MOBILITY

At the regional level, accessibility refers to the degree to which people can get to jobs, stores, schools, needed services, and other destinations. Mobility is a factor in gauging accessibility; mobility is measured by how quickly a person can get from one place to another.

Our system of roads, trails, bus routes, bike routes, and sidewalks has evolved over the past 200 years to ensure both interregional and regional accessibility. Improvements in the last 50 to 60 years have tended to favor passenger vehicle mobility. As a result, our transportation system provides efficient access for this mode throughout the region; although, in some cases, the unintended consequence of wider, faster roads has been to make it harder for people without cars to get from place to place.

4.4.2 CONGESTION

The SMTC completed a new Congestion Management Process (CMP) Status Update in 2019. A CMP is an essential component of the regional transportation planning process. Per FHWA, “the development of objectives for the CMP responds to the goals and vision for the region established early in the transportation planning process.” The CMP objectives were derived from the goals and objectives developed for the LRTP in 2015, and were updated in 2019 to better reflect the applicable performance measures. The CMP includes commonly-used measures of congestion and presents a more detailed examination of congestion in the region than the LRTP.

The CMP analysis focused on roadways that the SMTC categorized as “primary commuter corridors” inside the urban area, which are



Congestion Management Process 2019 Status Update

SMTC's Congestion Management Process objectives (2019)

- Maintain or exceed 90% reliability on the CMP network over the lifespan of the LRTP.
- Limit congestion levels to 10% on CMP network segments.
- Increase the percentage of transit ridership by 5% in the next 10 years.
- Maintain or exceed 90% on-time performance of transit buses over the next 10 years.
- Increase the percentage of commuting trips made by bicycling or walking by 5% in the next 10 years.

Two sides to congestion

No one likes to be stuck in traffic. Traffic congestion can hurt a region's economy. In a major metropolitan area, delays associated with recurring traffic congestion impose a cost on freight shipments and commuters and can limit the region's ability to effectively market products to other parts of the country and world. A National Cooperative Highway Research Program study from 2001 estimated that a 10 percent decrease in travel times across the Philadelphia region would reduce business costs by \$240 million. While traffic jams have costs, they are also a sign that people and businesses want to be doing business in a place; some of the nation's most congested regions (the New York Metropolitan area, for example) are also the most economically productive. Recognizing that the goal of reducing congestion tends to result in larger facilities that in turn foster development, the State of California recently altered the way its state-level environmental review handles a proposed project's transportation impacts. Rather than strictly measuring delay and roadway capacity, projects can be evaluated based on the degree to which they will result in the "reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses."

facilities that met at least one of the following criteria: 1) on the National Highway System (NHS); 2) any arterials (principal or minor) with over 10,000 AADT; and 3) connecting roadways (arterials) between the facilities that met the previous two criteria (with preference to the higher-volume arterial if more than one connection exists). The CMP analysis used data from the National Performance Management Research Data Set (NPMRDS),⁶ which was not available for every segment identified as a primary commuter corridor. Figure 4.3 shows the primary commuter corridors both on and off the National Highway System (NHS), and also highlights the segments for which 2018 NPMRDS data was available; the highlighted segments were considered the "CMP Network" for analysis. (Secondary commuter corridors include some arterials that did not meet the criteria above, as well as some major collectors. These were not included in the CMP analysis.) The 2019 CMP Update utilized four measures to assess congestion: Total Hours of Excessive Delay (TED) per mile; Truck Travel Time Reliability (TTTR); Travel Time Index (TTI); and Level of Travel Time Reliability (LOTTR). See page 62 for a full description of congestion measures.

The 2019 CMP concluded that, overall, there is very little congestion on the primary commuter corridors inside the Syracuse urban area. There are a few isolated locations that experience congestion, but most of our road network consistently operates very well for drivers. This is evidenced by 88 percent or more of the CMP Network mileage considered uncongested and/or reliable based on the various congestion-related performance measures. For example, as noted in

⁶ The NPMRDS is a FHWA-procured and -sponsored archived speed and travel time data set, and its associated location referencing data, covering the National Highway System (NPMRDS Descriptive Metadata Document 1.1, page 4). In order to establish the Highway Performance Monitoring System (HPMS), the FHWA contracted with INRIX, a leading firm in the collection of vehicle-probe based data in 2017 to provide real time travel data to States and MPO's. The data is collected in 5-min epochs by GPS probes from commercial vehicles, connected cars and mobile applications (<http://inrix.com/press-release/npmrds>). To make use of the extensive amount of available data on the National Highway System, and an expanded network that the NYSDOT has obtained from INRIX, the NYSDOT contracted with SUNY Albany's AVAIL to assist in establishing performance measures per requirements set forth by the Federal government. AVAIL created an online tool that allows users to measure and analyze regional and segment level congestion in a much more concise manner than in previous congestion reports.

Congestion measures defined

Travel Time Index (TTI): It's the ratio of travel time during the peak period to the time necessary to make the same trip at free-flow speeds. A TTI value of 1.3 indicates that a 20-minute trip in free-flow conditions requires 26 minutes during the peak period. The TTI is a useful measurement because it provides an easily calculated and understandable congestion measure that identifies recurring peak period bottlenecks.

Total Excessive Delay (TED) Per Mile: The TED measure represents the total hours of delay resulting from traffic congestion on the network during the entire year. FHWA defines excessive delay as the extra amount of time spent in congested conditions defined by speed thresholds that are lower than a normal delay threshold. For this measure, the threshold is 20 miles per hour (mph), or 60% of the posted speed limit, whichever is greater, during all hours for the entire year. Excessive delay is totaled and is then weighted by vehicle volumes and occupancy to be expressed as the annual hours of excessive delay on a per capita basis, thus measuring person-hours of delay rather than vehicle-hours. The total is divided by the TMC segment length (in miles) to get TED/Mile for comparison across the network. This measure identifies regularly congested (a.k.a. recurring congestion) higher-volume road segments.

Level of Travel Time Reliability (LOTTR): Travel time reliability refers to the consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day (https://ops.fhwa.dot.gov/publications/tt_

[reliability/TTR_Report.htm](#)). 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), using the NPMRDS data. Data are collected during all time periods between 6:00 a.m. and 8:00 p.m. A segment is considered reliable if its LOTTR is less than 1.5 during all time periods analyzed. This measure identifies road segments with highly variable (unreliable) and non-recurring congestion.

Truck Travel Time Reliability (TTTR): The TTTR measure assesses travel time reliability for trucks traveling on a road segment. As stated in the LOTTR definition above, travel time reliability refers to the consistency or dependability in travel times. The TTTR ratio is generated by dividing the longer travel times (95th percentile) by the "normal time" (50th percentile) for each segment. Reporting is divided into five periods: the four periods used for the LOTTR measure are shown above plus overnights for all days (8:00 p.m.-6:00 a.m.). The time periods cover all hours of the day. This measure identifies road segments with highly variable (unreliable) and non-recurring congestion.

FIGURE 4.3: PRIMARY COMMUTER CORRIDORS IN THE SMTC MPA

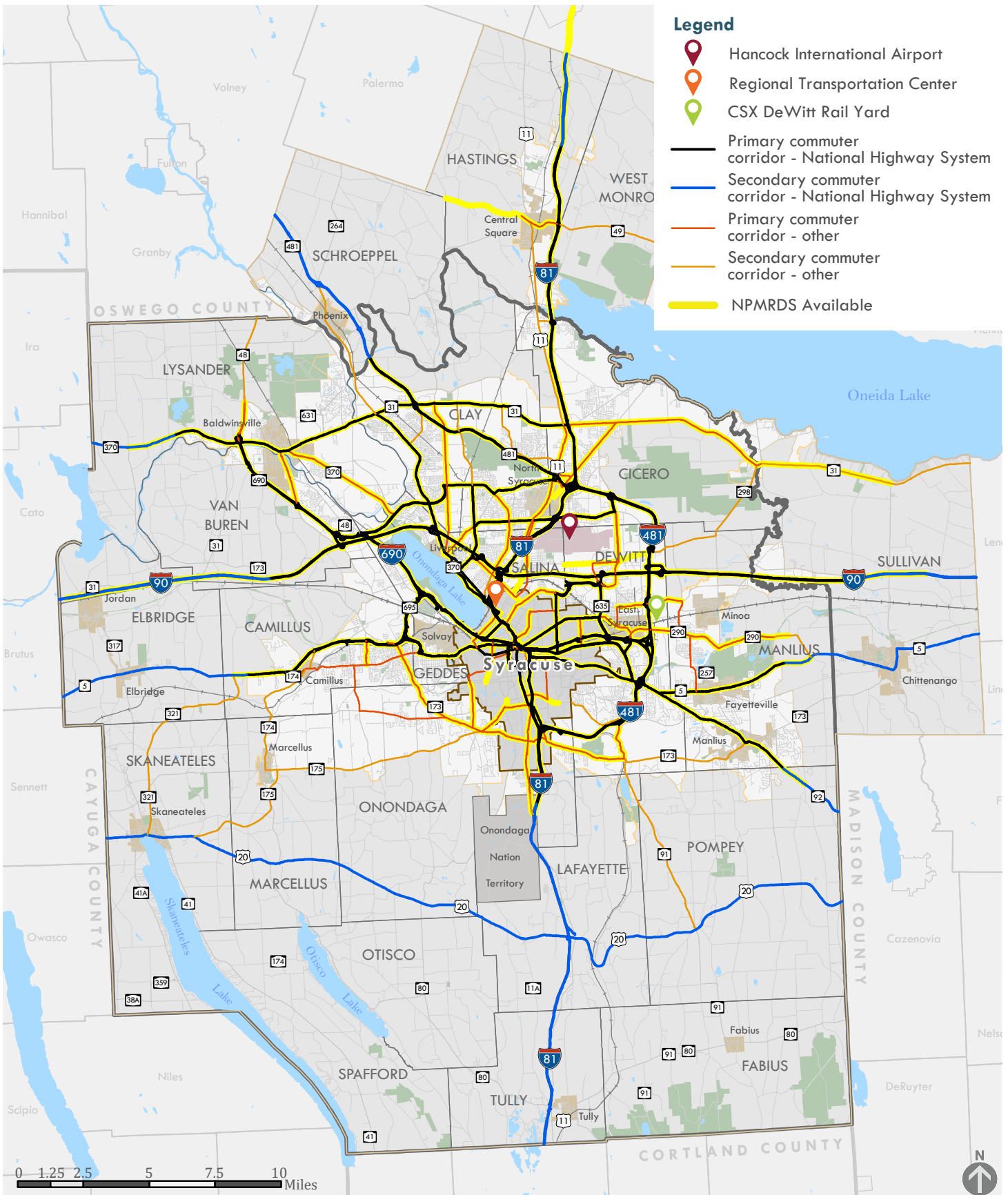


Table 4.6, 96 percent of the CMP Network mileage has TED below the threshold to be considered congested (less than 40,000 person-hours/mile).

Although our congestion is relatively minor, the CMP does suggest some strategies to reduce congestion even further, such as: implementing traffic signal coordination or signal optimization; promoting ride sharing options with the “safety net” of a guaranteed ride home; providing buses with traffic signal priority; and encouraging employers to allow flexible work schedules.

4.4.3 TRANSIT RIDERS

Rider & Non-Rider Surveys. In 2017, the SMTC worked with Centro to conduct an extensive survey of both bus riders and people who did not use Centro’s bus service (“non-riders”). These surveys were intended to help Centro plan for future service and better understand their potential market in Onondaga County. The rider survey was administered on Centro buses and included questions about the types of trips riders make, common destinations, time spent on the bus, how riders receive information about Centro, and satisfaction with Centro service. One finding of this survey was that, when asked to list places to which they ride the bus most often, roughly one-third of respondents said that they take the bus to DestinyUSA. This was by far the most popular single destination for all riders, regardless of their neighborhood, income level, or race.

Most respondents (91 percent) said that the existing Centro system met their needs, and three-fourths of riders said that they did not consider the Transit Hub (and the need to transfer from one bus to another for many trips) a deterrent to riding transit. When asked to identify the biggest issue with existing bus service, bus frequency was the problem identified by the most respondents, often mentioned in the context of night and weekend service. Many respondents also identified transit access issues in the northern suburbs: Liverpool, North Syracuse, Mattydale, Hancock International Airport, and Baldwinsville.

The target population of the non-rider survey was people living in Onondaga County who could reasonably use Centro (i.e. people who live relatively close to existing routes) but who did not use transit at the



Congestion due to construction or other incidents can impact reliability and frustrate drivers. Overall, though, our region has very little recurring congestion.



Centro Rider Survey



Centro Non-rider Survey



Transit

time of the survey. Ten thousand surveys were mailed and 1,125 were returned. Three-fourths of respondents were residents of suburban towns and villages and one-fourth were city residents. Forty percent of respondents indicated that, while they did not use bus service at the time of the survey, they might use transit if service issues could be resolved. Of the service issues these respondents identified, the one that came up the most was frequency. Other major issues were the length of trips by bus, the need to have access to a car during the day (while at work or school), and the lack of a bus line near the respondent's home. Lack of bus service near "home" is a bigger problem than lack of bus service near "work." More than twice as many responses indicated that there is no bus service near where people live than those that indicated that there is no bus service near where people work.

The non-rider survey's results suggest that a substantial number of people in our region might use transit if service was more frequent and if bus service were integrated with some of the other transportation options that have become available in our region in recent years, such as Transportation Network Companies (TNCs), which can make it easier to get between home and a bus stop.

Current service performance measures. As the non-rider survey results indicate, infrequent bus service is an obstacle to people using transit. Bus frequency is measured in terms of "headways": the length of time between buses on a route. In our region, the James Street corridor has the lowest average headway in the region: 7.5 minutes during the morning peak period (with buses running on multiple lines).

Centro adjusts its service standards, like vehicle headways, based on population density. For this purpose, "urban" areas are defined as having 3,600 people per square mile and "suburban" areas as having 1,800 to 3,600 people per square mile. Figure 4.4 shows the parts of our region that fall into each of these categories. Note that there are large parts of the SMTC's official Urban Area (based on 2010 Census data) that do not meet the Centro definition of urban or suburban population density.

One of the objectives identified for the LRTP is to "provide essential transit service to 'urban' and suburban' areas," and the SMTC has

developed performance measures for accessibility to bus routes with essential transit service in urban and suburban areas. Essential transit service was defined as bus routes with an average peak headway of up to 30 minutes in urban areas and up to 40 minutes in suburban areas, and “accessibility” was also adjusted according to population density (a half-mile distance to a bus route in urban areas, and a mile in suburban areas).⁷

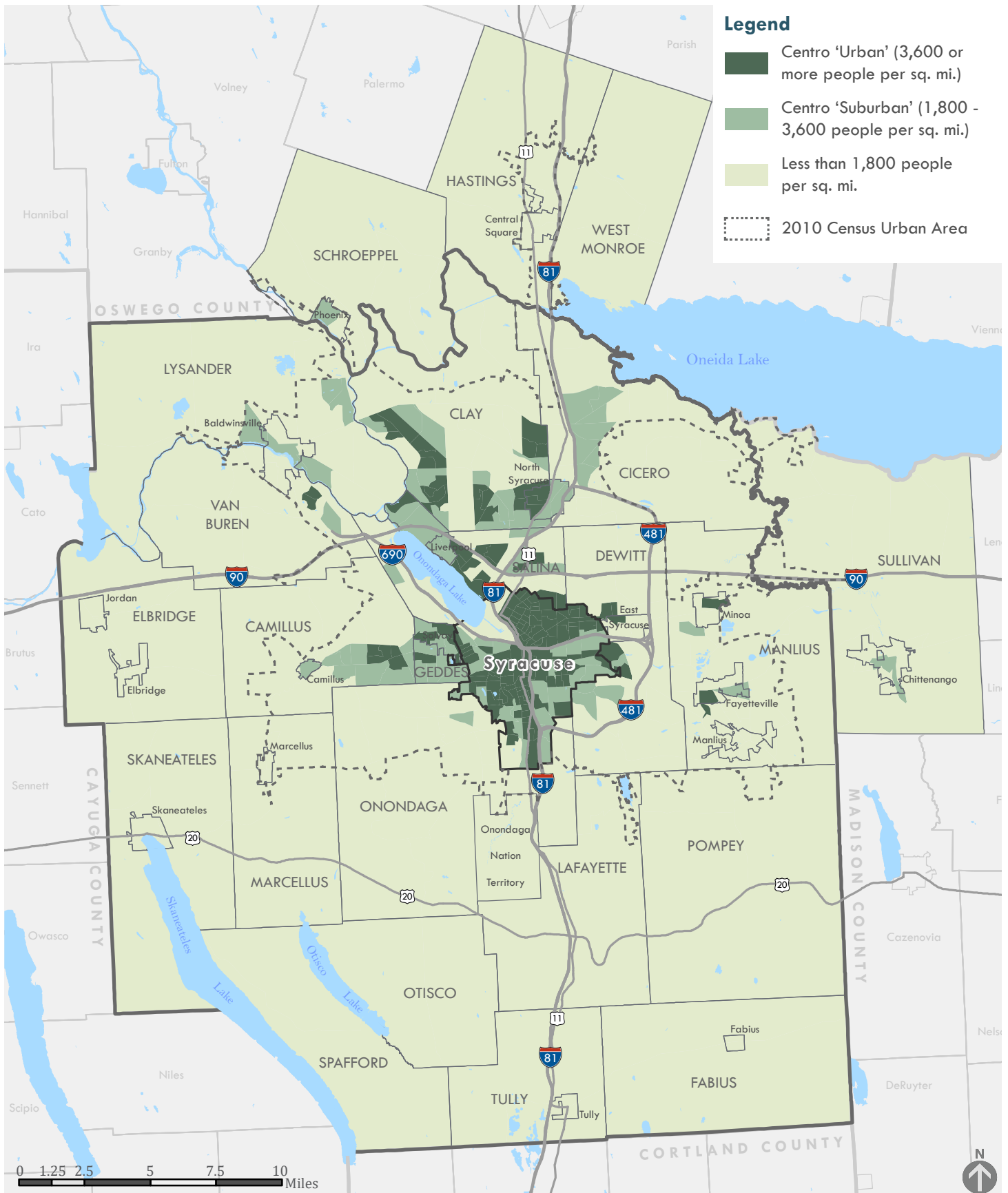
In our region, access to essential transit is fairly high, particularly for urban residents. Ninety-one percent of urban residents have access to essential transit during the morning peak period, and 85 percent have access to essential transit during the evening peak period. For suburban residents, these numbers are similarly high. The proportions of suburban residents with access to essential transit are 81 percent during the morning peak period and 89 percent during the evening peak period. Outside of peak periods, these numbers drop considerably: 42 percent of urban residents and 36 percent of suburban residents have access to essential transit during the off-peak hours.

Another way to think about transit service, particularly as it applies to commuters, is to measure the degree to which transit routes that meet peak headway standards overlap with major commuter routes. In our region, 47.1 miles of transit routes with 30-minute average peak headways overlap with primary commuter corridors. Extending this analysis out to bus routes with 40-minute average peak period headways, a total of 75.9 miles of primary commuter corridors overlap with these routes.

Transit oriented development (TOD) zoning can reduce parking requirements and allow higher densities than would otherwise be permitted. As of this writing there are no TOD districts in the MPA. However, the City of Syracuse recently completed a comprehensive overhaul of its zoning ordinance and map, which proposes to reduce (and remove in some areas) parking requirements and increase density in many parts of the city, including along primary transportation

⁷ It is not possible to calculate distances between specific homes and bus lines. This metric uses the best available proxy: whether or not a large proportion (50 percent) of a block group’s land area is near good transit.

FIGURE 4.4: URBAN AND SUBURBAN POPULATION DENSITY IN THE MPA, BASED ON CENTRO SERVICE STANDARDS



corridors, in mixed-use districts, and near transit stops. (The final draft “ReZone Syracuse” ordinance was completed in December 2019 and the City of Syracuse is currently undertaking a Generic Environmental Impact Statement process.) The SMTC will continue to coordinate with the City and Centro to identify how TOD and bus rapid transit (BRT) concepts can work synergistically to create transit-oriented nodes throughout the city.

Syracuse Metropolitan Area Regional Transit Study Phase 1 (SMART 1). One implication of the responses to the non-rider survey is that a major improvement in transit service is needed to attract more riders to transit – an improvement such as enhanced transit service, with very low headways and shorter trip times. One approach to this would be to develop a bus rapid transit (BRT) system in the City (see page 28 for additional background on a possible BRT system in our region). In 2018, the SMTC’s SMART study completed its evaluation of BRT options along two key corridors: the Syracuse University to the Regional Transportation Center corridor, and the James Street/South Avenue corridor, connecting the Eastwood neighborhood to Onondaga Community College. Throughout this project, the SMTC engaged in a public outreach process in order to get as much input, feedback and community involvement as possible.

The BRT concept identified in the SMART Study as the locally-preferred alternative would provide much shorter headways than on most Centro routes: either 15-minute headways throughout the day, or a mix of 10-minute headways during peak hours and 20-minute headways for the remainder of the day. While this “mixed traffic” BRT concept would not create separate lanes for buses, it would reduce trip times along BRT corridors by consolidating bus stops, reducing layover times at the Transit Hub, and adding transit signal prioritization for buses (transit signal prioritization reduces the amount of time buses spend stopped at traffic signals). The SMART study’s preferred alternative is projected to increase total daily ridership within the two corridors served by 600 to 1,000 additional rides taken.

Work Link study. After service frequency, the transit service issue mentioned most frequently by respondents to the rider survey was off-peak service: nights and weekends, when bus service is much less



Syracuse Metropolitan Area Regional Transit Study Phase 1



The Capital District Transportation Authority operates the “BusPlus” BRT system along Route 5 between Albany and Schenectady.



Work Link

frequent or completely unavailable. Limited service at night and on weekends means that workers who depend on transit are shut out of many second- and third-shift jobs.

In 2017, the SMTC finalized the Work Link study, which focused on transportation options for low-income workers. This project focused on transit’s effectiveness in getting workers to jobs, particularly second- and third-shift jobs. The Work Link Study found that transit routes were generally doing a very good job of reaching employment centers: 78 percent of the more than 250,000 jobs in the county area within a quarter-mile of a bus route. However, while some employment centers are along a transit route, they may see very few buses throughout the day. As Figure 4.5 shows, most suburban employment centers have good transit coverage in the morning commute period (6:00 to 8:00 a.m.). In the off-peak periods, transit service drops off considerably. After 10:00 p.m., bus service to most employment centers is minimal or non-existent, and no buses run after midnight. For workers who rely on transit service, most second- and third-shift jobs are inaccessible.

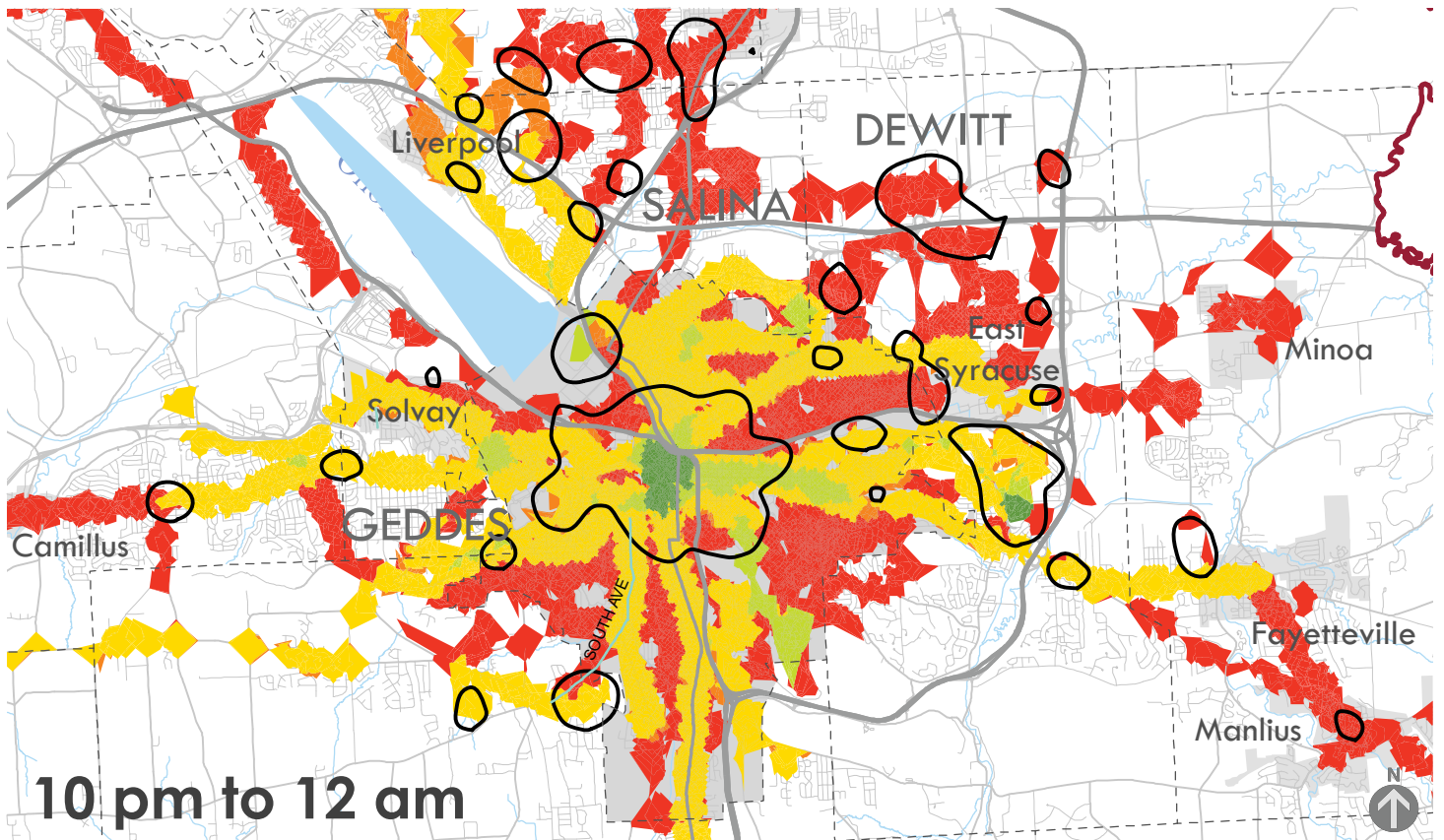
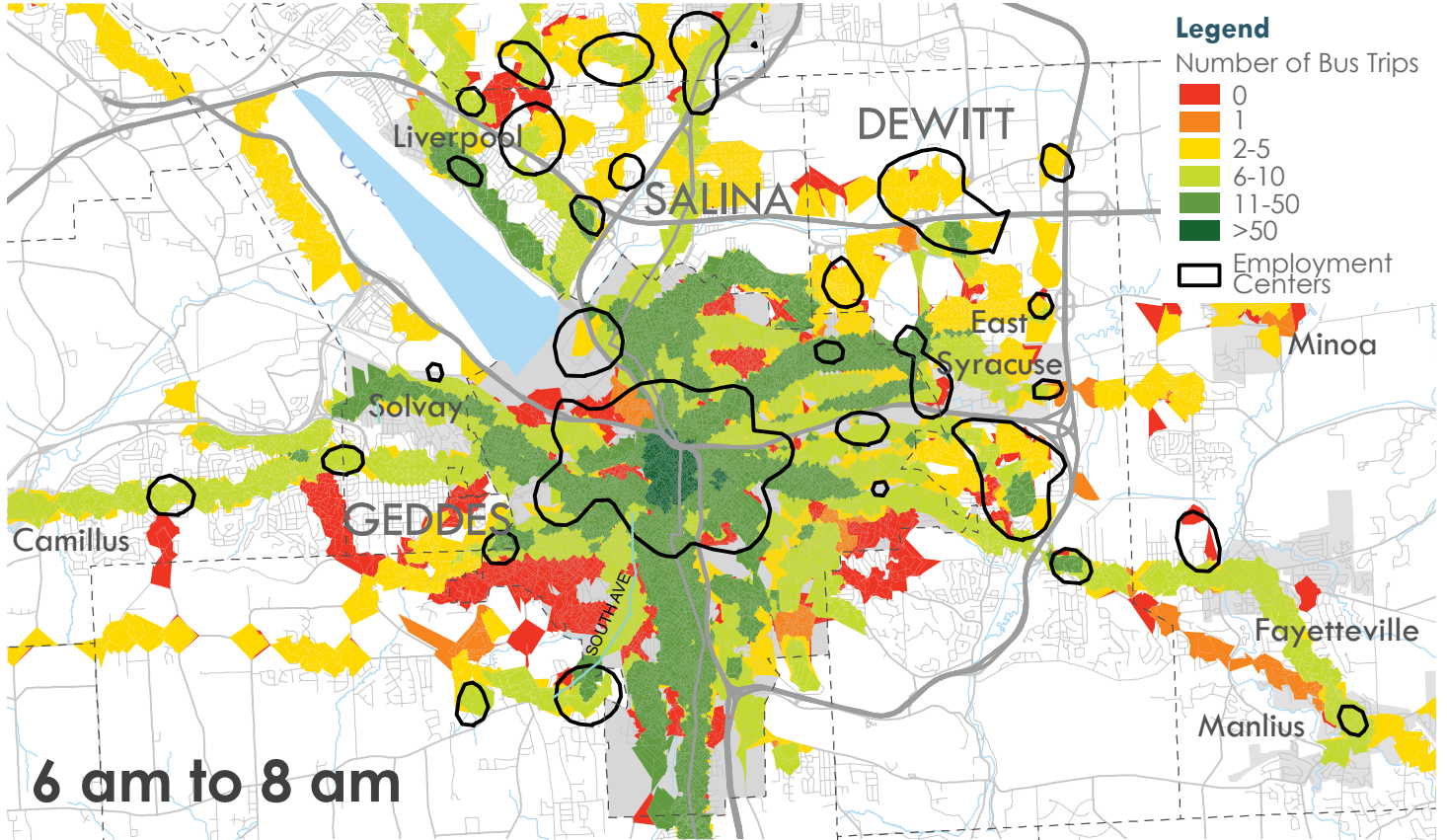


Shared lane use markings (sharrows) and updated pedestrian amenities on Water Street in downtown Syracuse, installed in 2012.

The SMTC explored several alternatives to fixed-route transit to help fill in these gaps in transit service for low-income workers. The project’s final recommendations included:

- Support Providence Services of Syracuse, a local non-profit organization that is currently working to provide shuttle service to workers based in the City of Syracuse. With additional funding, Providence Services can scale up its vanpool system and market its services to potential clients.
- Offer subsidized rides through a transportation network company, such as Uber or Lyft. This strategy has been used successfully in Florida. In Onondaga County, JOBSPlus! Is currently operating a pilot project that offers rides through Lyft to workers who face transportation barriers to employment.
- Create a pool of vehicles using vans owned by local human service agencies to share vans when they are not being used.
- Experiment with pilot projects, like a neighborhood car-sharing program, employer-sponsored vanpools, and car ownership programs.

FIGURE 4.5: TRANSIT SYSTEM COVERAGE AND EMPLOYMENT CENTERS, FIRST SHIFT VS. THIRD SHIFT



Data Sources: SMTG GIS, 2017

Connecting people to jobs

The Syracuse-based non-profit organization Providence Services began in 2013 with the goal of removing transportation barriers for low-income workers. Initially, the organization’s focus was on the region’s refugee community, but its mission quickly expanded to include all low-income residents. Today, Providence Services operates multiple vans that run between the City of Syracuse and job sites in Liverpool, East Syracuse, North Syracuse, and Oneida. The organization has helped over 150 workers get or keep jobs.

Providence Services uses a door-to-door vanpool model, with vans driven by professional drivers. The fare is \$6 (each way), but the fare is waived for a worker’s first 30 days. Providence Services encourages employers to contribute to their workers’ transportation costs, and at least one local company fully subsidizes vanpool service.

Potential clients use an online form to inquire about vanpool service to a specific job site and shift. Each of Providence Services’ vanpool runs need a minimum ridership to an employment area to remain viable – which means five to seven workers on the same shift in the same area. Unlike traditional mass transit, however, this vanpool program can adapt quickly to the needs of workers and employers. When a local employment agency was looking for a way to get workers to Rite Aid’s distribution center in Clay, Providence Services was able to set up vanpool service for five workers on the early morning shift. As workers have left this vanpool over time, the employment agency has been able to keep filling empty seats.

4.4.4 PEDESTRIANS AND CYCLISTS



Trails and Bicycle Facilities

As of June 2020, there are 23.8 miles of on-road bike facilities in the MPA, the majority of which are found in the City of Syracuse. This includes the Syracuse University Connective Corridor, which features a separated two-way bicycle lane or “cycle track.” There are 41 miles of signed bike route on New York State Bike Route 5 (along NYS Route 31) and 50 miles on New York State Bike Route 11 (primarily on NYS Route 11).

The City of Syracuse has been upgrading its streets to accommodate cyclists. Its long-term strategy for improvements is outlined in the Syracuse Bicycle Plan, which describes a variety of improvements designed to create bikeable corridors throughout the city. In July 2019, the City launched a bike share system with Gotcha Bike, which currently has 35 hubs and 100 bicycles in circulation, with 200 additional bikes on-order (intending to have 200 total bikes available for use at any given time). The system is currently averaging just over 100 rentals per day.

As shown on the SMTC's 2020 Bike Suitability Map, many of the major roadways within the MPA are considered to have "average" to "good" suitability for cycling (on a poor-average-good-excellent scale), though they may not all have dedicated bicycle infrastructure. The majority of roads in the MPA with wide shoulders, particularly outside of the City of Syracuse, generally accommodate cyclists. Some roads, in areas that are more congested, may benefit from dedicated bicycle infrastructure. In 2013, the SMTC and NYSDOT prepared a Bicycle Commuter Corridor Study to identify preferred corridors for future investments in bicycle lanes and other infrastructure for cyclists, as well addressing some "pinch points" such as intersections and bridges, to encourage more commuting by bicycle. Recommendations for improvements were intended to be implemented as facility owners maintain and improve their roadways.

There are 841 miles of sidewalk in the MPA.⁸ Nearly 70 percent of the region's sidewalks (586 miles) are within the City of Syracuse. Most villages in the region have robust sidewalk networks; a total of 174 miles of sidewalk (21 percent of the region's total) are in villages. Most towns do not have many miles of sidewalk. There are only 80 miles of sidewalks in the MPA in towns outside of villages, and more than half of this mileage is in two towns: DeWitt (24 miles) and Salina (20 miles).

A well-maintained sidewalk network can contribute to increased property values, decreased reliance on the automobile and health benefits through increased physical activity. At the same time, sidewalks can be expensive to construct and to maintain and may not be appropriate for every thoroughfare in the planning area. The SMTC's Sustainable Streets Project identifies "priority zones" in which efforts to provide pedestrian infrastructure are expected to yield the greatest benefits. The SMTC will work with its member agencies to ensure that, as improvements are made to the traveled way in these priority zones, improvements are also being made to pedestrian access.

⁸ Not including privately-maintained walkways adjacent to the public right-of-way (such as in parking lots or internal to school campuses) or the Radisson Walkway system in the Town of Lysander.



Bike Suitability Map



Bicycle Commuter Corridor Study

New York's Complete Streets legislation

In August 2011, Governor Andrew Cuomo signed New York State's "Complete Streets" law (S5411A-2011). This law requires transportation projects undertaken, overseen, or funded by the NYSDOT to consider the needs of various users, including motorists, pedestrians, cyclists, transit riders, and citizens of all ages and abilities (including children, the elderly, and the disabled). Although the law requires projects funded with state or federal funds to comply, it does not provide any additional funding for designing or incorporating complete street design features into a project. Currently, there is no national Complete Streets policy and locally funded projects are exempt from this law in New York State.

Table 4.5: Total sidewalk mileage in the MPA and snow removal programs

Location	Total sidewalk miles	Sidewalk with snow removal	
		Miles	Percent of total
City of Syracuse	586	96	16%
Towns	69	9	12%
Villages	168	94	56%

Sidewalks and snow removal. Of the 18 villages in the MPA, 15 do some degree of snow clearance from their sidewalks. Only two towns have a snow clearing program: Camillus and Cicero. In a phone survey of towns and villages in the MPA, most municipalities that reported having a snow clearing program described it as “supplemental” since property owners have primary responsibility for keeping their sidewalks clear. These supplemental programs cover approximately 93 miles of sidewalk in villages (53 percent of all village sidewalks in the MPA) and nine miles of sidewalks in towns (11 percent of all town sidewalks).

In January 2019, the City of Syracuse initiated its first ever municipal snow removal program: a pilot project that hired a private contractor to clear snow from 40 miles of sidewalk along high-priority streets. The City worked with the SMTC to identify priority routes with the greatest

Table 4.6: Accessibility and mobility performance measures

<i>Goal: Provide a high degree of multi-modal accessibility and mobility for individuals to include better integration and connectivity between modes of travel.</i>				
Objective	Performance measure		2015 condition	2020 condition
Reduce congestion on primary commuter corridors.	Percent of mileage on CMP Network with TED per mile less than 40,000 person-hours/mile		NA	96%
Provide essential transit service to “urban” and “sub-urban” areas.	Percent of urban population within ½ mile of a route with up to a 30-minute weekday peak period headway		77%	91% (AM Peak) 85% (PM Peak)
	Percent of suburban population within 1 mile of a route with up to a 40-minute weekday peak period headway		70%	81% (AM Peak) 89% (PM Peak)
	Number of transit route miles that overlap commuter routes and meet minimum weekday peak headway standards.	30 min. avg. headway	49.7 miles	47.1 miles
40 min. avg. headway		64.1 miles	75.9 miles	
Provide higher-quality transit service to TOD nodes.	Number of TOD nodes with access to high quality service		0	0
Provide more on-road bicycle facilities.	Centerline miles of roads with bike infrastructure		15.6	23.8
Provide more trails to connect destinations.	Miles of multi-use trails that connect destinations		66.5	68.2
Provide more pedestrian facilities.	Total public sidewalk mileage		812.0	841.0

Data sources: CENTRO, SMTC GIS files

potential for conflicts between vehicles and pedestrians – particularly young children walking to school. Like village snow clearing programs, the City’s snow clearing program is considered supplemental: individual property owners will continue to be responsible for the condition of their sidewalks. The sidewalk snow clearing initiative ensures that continuous corridors are open to pedestrians through the winter months, even if individual property owners neglect their responsibility. The program was expanded in the 2019/2020 winter to include a total of 77 miles of sidewalk.

The Downtown Committee has been providing this kind of supplemental snow clearance on 19 miles of downtown sidewalk for many years. Together, the Downtown Committee and the City of Syracuse clear 96 miles of sidewalk, or about 16 percent of the City’s sidewalks. With the addition of the City’s pilot program, there are just under 200 miles of sidewalk in the MPA with some form of snow clearance service.

4.4.5 AIR TRAVEL

The Syracuse Hancock International Airport provides passenger and air cargo service to destinations across the northeast (see Section 4.2.1 for air cargo information). The airport is located approximately 7 miles north of downtown Syracuse, and the main entryway - Colonel Eileen Collins Boulevard - connects directly to I-81 approximately three miles north of the interchange with the New York State Thruway (I-90).

In November 2018, Hancock International saw the completion of a \$45 million upgrade to its passenger terminal. The renovation modernized the airport’s lobby space and added energy-efficient lighting throughout the airport. With nearly one million passenger enplanements on certified commercial U.S. air carriers in 2019, the Federal Aviation Administration classifies Hancock as a small primary service commercial hub.⁹ In 2019, the top three single airport destinations from Syracuse by total passengers were Chicago O’Hare, Atlanta, and Charlotte Douglas International airport in North Carolina.¹⁰



Air Travel

⁹ Federal Aviation Administration. (2019). 2019 – 2023 National Plan of Integrated Airport Systems Report, Appendix A. <https://bit.ly/3ajHmew>

¹⁰ Bureau of Transportation Statistics T-100 Market Data, Air Carrier Activity Information System, 2019.

4.4.6 INTERCITY BUS AND RAIL TRAVEL

Intercity bus service is limited within the SMTC MPA, and does not play a substantial role in moving people within the MPA. Current intercity bus service providers in the MPA include Amtrak, Greyhound, Trailways, and MegaBus, which all operate out of the Walsh Regional Transportation Center (RTC). The RTC is open 24 hours a day, 7 days a week, and is operated by Centro, which also offers connections via their Syracuse, Oswego, and Auburn routes. Frequent destinations to and from the RTC include Rochester, Niagara Falls, Boston, New York, Washington, D.C., and Philadelphia.¹¹

Carriers operating out of the RTC do not report their ridership to Centro. However, Amtrak keeps track of ridership out of their stations. In 2018, 127,000 people traveled through the RTC via Amtrak.

Birnie Bus Service, Inc. also offers intercity travel via bus. They offer service from the Syracuse area to the Turning Stone Resort and Casino in Verona, New York, with pick-ups at Western Lights Plaza, the Centro Hub, and Shop City in Eastwood (seats are limited and offered



**Regional Transportation Center/
Market Area Access Study**

¹¹ https://www.centro.org/service_schedules/william-f-walsh-regional-transportation-center

What about transportation network companies?

Transportation network companies (TNCs) – commonly known as ride-hailing or ride-booking apps – began operating in Upstate New York in mid-2017 after being authorized by State lawmakers in April 2017. In December 2019, Uber released their latest list of top 10 destinations over the previous year, with Destiny USA at the top of the list for the second time. Four of the destinations are Syracuse University dorms. The remainder of the list includes the Walmart in DeWitt, the Regional Transportation Center, Marriot Syracuse Downtown, Sheraton Syracuse University, and an SU-area bar. Notably, Uber did not include the Hancock International Airport on their published list in 2019, although an Uber spokesperson

indicated that this was likely the top destination in the region. (<https://www.syracuse.com/news/2019/12/uber-releases-top-10-syracuse-destinations-in-2019.html>) The company does not release data on the actual number of trips. Lyft released a very similar list of top 10 destinations in January 2018, after operating in the region for about six months. That list included the airport in the number-one spot, with Syracuse University, Destiny USA, the RTC, Marriot Downtown Syracuse, and a few local bars and restaurants completing the list. (https://www.syracuse.com/news/2018/01/lyfts_new_manager_talks_rideshare_goals_shares_top_10_destinations_in_syracuse.html)

on a first come/first served basis). In addition, they offer a weekday line that travels both eastbound and westbound between Little Falls and Syracuse. Service picks up in Chittenango (at the Route 5 Tops plaza), Fayetteville Towne Center, and in Syracuse in the University area as well as the Centro Hub. Some weekend service is also available.

Continuing to invest in the MPA's intermodal facility for inter-city bus service will improve the quality of inter-city bus travel. In 2020, the SMTC completed the Regional Transportation Center/Market Area Access Study, which identified opportunities to improve access to the RTC for all modes of travel, with a focus on bicycle and pedestrian accommodations.

4.5 ENVIRONMENTAL IMPACTS OF TRANSPORTATION

As discussed in Chapter 3, the general trend over the past 50 to 60 years has been for development to spread into rural areas. Development can work with the natural environment to enhance it, but historically development has meant the loss and fragmentation of habitat, the degradation of landscapes, and the loss of farmland, and open space. Transportation facilities affect the natural environment both directly, in how they interact with resources like wetlands and riparian areas, and indirectly, by facilitating access to previously undeveloped areas.

4.5.1 ENVIRONMENTAL MITIGATION

Environmental mitigation ensures consistency of transportation planning with applicable federal, state and local energy conservation programs, environmental goals, and objectives. The SMTC's LRTP is a policy-level document that contains several projects in the later (mid-term) years for which mitigation activities may be appropriate, particularly those that are considered "non-maintenance" projects (see Chapter 6 for a more detailed discussion of potential future projects). However, most of the projects included in this LRTP are maintenance or "replacement in kind" projects that will not increase the capacity of the transportation system. For future projects that may increase system capacity, such as a road widening or interchange improvement, specific mitigation measures will be examined at the project phase via



Land Use
Water Resources

What is VMT?

Vehicle miles traveled, or VMT, is often used to summarize how much driving people are doing. Unlike other measures, like commute times or how people get to work, VMT encapsulates all kinds of trips by everyone in a given geographic area. Per capita VMT is an even better measure, since it provides a rough idea of the total number of miles an average person drives in a year.

the State Environmental Quality Review Act (SEQRA) and National Environmental Policy Act (NEPA) processes and are, therefore, beyond the scope of the LRTP.

The SMTC's 2020-2024 TIP document includes maps showing the geographic extent of currently-programmed projects in relation to national register of historic places cultural resources, parks and wetlands. The projects on the current TIP are anticipated to have minimal impact on these resources and will be further researched within the necessary engineering and design phases. Environmental assessments, as required, for each programmed project in the TIP will be conducted by the respective project sponsor.

4.5.2 STORMWATER MANAGEMENT

As part of the Central New York Stormwater Coalition, CNY RPDB has undertaken a multi-year, Municipal Separate Storm Sewer (MS4s) system features mapping and data collection project. The SMTC developed the region's first interactive digital municipal storm sewer system map for this project, in addition to creating the project's data collection methodology.

The resulting publicly-available map (<https://cnypdb.maps.arcgis.com/home/index.html>) serves as an important compliance tool for tracing the origin of non-stormwater discharges from MS4 systems to receiving lakes and streams, should they occur. Transportation infrastructure such as roadway drainage ditches, swales and culverts comprise a substantial amount of the MS4 system. Although these features are key safety components responsible for moving stormwater runoff away from roadways, they also serve as conduits for pollution. Understanding where these features are located, if they are properly functioning, and/or are in need of maintenance, repair or replacement will support stormwater management goals and public safety concerns. This project has yet to focus on mapping culverts and roadside ditches or overland flow (this is an anticipated future project phase). However, catch basins are mapped which could help crews identify the location of clogged basins in a flooding event.

Table 4.7: Environment and energy performance measures

<i>Goal: Protect and enhance the natural environment and support energy conservation and management.</i>		
Objective	Performance measure	2020 condition
Reduce VMT in the region	Daily VMT per capita	24.28 miles
Reduce on-road mobile source emissions	Annual on-road mobile source emissions	Total gaseous hydrocarbons: 1,208 tons Carbon monoxide: 19,853 tons
Increase the percentage of non-single occupant vehicle (non-SOV) commute trips	Percent of commute trips made by non-SOV modes (walking, biking, transit, and carpooling)	16%
Increase the availability of alternative fueling and electric charging stations	Number of alternative fueling (non-electric) locations	8
	Number of electric charging locations	54

Data sources: SMTC travel demand model; 2014-2018 ACS; U.S. Dept. of Energy Alternative Fuels Data Center https://afdc.energy.gov/data_download.

4.5.3 VMT, EMISSIONS, AND ENERGY USE

Nationally, per capita VMT has grown in recent years, after nearly a decade of decline. In 1985, annual per capita VMT was 7,500 miles. By 2005, it had peaked at more than 10,000 miles. The rate of growth had begun to slow in the early 2000s, before declining notably from about 2006 to 2013 (during the recession). More recently, per capita VMT was rising again (pre-COVID-19) reaching about 9,800 in 2018.¹²

At the regional level, the transportation system’s greatest environmental impact has been to support a pattern of low density, car dependent suburban development. As a result of this land use pattern, the vast majority of the region’s commuters find it most efficient to drive themselves to work daily and to drive to complete daily tasks. The net result was a 38 percent increase in total vehicle miles traveled (VMT) per capita in our urbanized area between 1990 and 2010.¹³ However, estimates indicate that, more recently, our VMT per capita has remained steady, at about 10,200 miles (annually) from 2011 to 2017, although this is still higher than the national average.¹⁴ The SMTC’s



How We Get to Work

¹² State Smart Transportation Initiative. “Per capita VMT drops for ninth straight year; DOTs taking notice”

¹³ Based on Highway Performance Monitoring System estimates provided by the NYSDOT and decennial Census data for urbanized area population, 1990 and 2010.

¹⁴ NYSDOT MPA VMT estimates, 2007-2011 ACS Population Estimate, 2013-2017 ACS Population Estimate.

Air quality conformity

In 1990, changes to the federal Clean Air Act meant that Onondaga County was placed on the New York State Department of Environmental Conservation’s list of regions that did not meet standards for carbon monoxide (CO) emissions. Two years later, the County was found to meet the national ambient air quality standards (NAAQS) for carbon monoxide, which meant that it was placed on a ten-year monitoring plan to ensure that it continued to meet those standards. This was followed by a second ten-year monitoring plan. As part of this monitoring, the County’s CO levels were

measured against a “budget” for CO emissions. For example, the budget for 2013 was 357 tons of CO per day. The SMTC’s estimates showed that for 2013, CO emissions would be 174.43 tons per day – well below budgeted levels. In 2013, the Syracuse region achieved a major milestone: the region was removed from the FHWA/FTA list of communities not meeting federal standards for carbon monoxide emissions. This means that air quality transportation conformity is no longer required by law for the SMTC MPA.

travel demand model predicts that per capita VMT for the Syracuse MPA will increase by about 3.5 percent from 2017 to 2050 (see Section 5.3.1 for a detailed discussion of VMT and the SMTC’s travel demand model).

As long as people are driving fossil fuel-powered vehicles, VMT will translate into vehicle emissions, including carbon monoxide and greenhouse gases. At the same time, it is important to note that while total VMT has increased over time, improvements in vehicle exhaust systems and automobile fuels, and the increased use of alternative fuels, have all meant that air quality in the Syracuse region has actually been improving.

The SMTC utilized the Motor Vehicle Emission Simulator (MOVES 2014b) model, developed by the U.S. EPA’s Office of Transportation and Air Quality, to estimate existing on-road mobile source emissions using the VMT outputs from the SMTC’s regional travel demand model. (More detail on the emissions analysis can be found in Appendix D.) This analysis indicates that about 19,900 tons of carbon monoxide (CO) are emitted annually in the SMTC MPA (or about 55 tons per day). Reducing VMT will reduce on-road mobile source emissions. Both objectives can be accomplished by increasing the percentage of commute trips made by bicycling, walking, and transit.

As more electric and alternatively fueled vehicles come into use, on-road mobile source emissions will continue to decrease. Increasing the number of available stations for alternative fueling and electric charging in the MPA will support this trend. As of May 2020 there are 54 electric charging locations with 154 charging hook-ups available in the MPA, along with 8 other alternative fueling stations (including compressed natural gas, biodiesel, ethanol and propane). In addition, the Central New York Electric Vehicle Charging Station Plan was completed in May 2016 by the Central New York Regional Planning and Development Board, an SMTC member agency, in collaboration with Clean Communities of Central New York, Energetics, the New York State Energy Research and Development Authority, and the NYSDOT. This group was one of several along the New York State Thruway that developed plans for deployment of electric vehicle charging stations that could support intra-regional travel.

4.6 RELIABILITY

4.6.1 TRAVEL TIME RELIABILITY FOR DRIVERS

From the point of view of the individual using the transportation system, predictability and reliability are critical. Regardless of how long a trip takes, whether it's a five-minute walk to a nearby convenience store or a 40-minute commute by bus, it is important that people be able to rely on the trip taking this amount of time.

Because it is related to traffic volumes and delays, system reliability is addressed in the SMTC's Congestion Management Process. Reliability was measured in the CMP, in part, using the Level of Travel Time Reliability (LOTTR) performance measure. See page 74 for a description of LOTTR. This analysis indicated that 78.3 miles of road segments (or about 12 percent of the CMP Network mileage) would be considered unreliable based on LOTTR, leaving about 88 percent of the CMP Network segment mileage considered reliable. Obstacles to achieving reliability are usually temporary conditions, such as construction, accidents, or special events. Efficient management and operation of the existing system can maintain or improve reliability and limit the need for capacity expansion such as road widening. For example, a transportation system that uses elements like intelligent

SMTC's Downtown TDM Study

The SMTC's Downtown Syracuse Transportation Demand Management Study (2011) sought to address growing concerns regarding commuter and visitor access to downtown Syracuse. The study process included a review of existing conditions, meetings and interviews with area stakeholders, surveys of downtown employees and employers, development and evaluation of potential TDM strategies, and the creation of final program recommendations. Numerous TDM strategies were identified for the downtown and University Hill area, ranging from the creation of a guaranteed ride home program to development of a bike parking system. As of May 2020, no new TDM programs have been developed as a result of this study. Implementing some of these strategies could help to improve the reliability of the transportation system in the Syracuse MPA.



**Congestion Management Process
2019 Status Update**

transportation systems can improve reliability for its users, even when unexpected and unpredictable events arise. An electronic message sign that warns of an accident or construction ahead can encourage drivers who would otherwise sit in traffic to use alternative routes.

Transportation demand management, or TDM, can also help decrease congestion and improve reliability. As the name suggests, TDM focuses on reducing the demand for roadway capacity rather than increasing its supply. TDM strategies include carpooling/ridesharing, off-peak commuting, increased transit use, and denser land uses. Park-and-ride lots offer drivers another convenient means of leaving their vehicles behind and using transit. In 2010, Park-and-Ride lot utilization was 23 percent, based on observations conducted as part of the Central

Table 4.8: System performance (reliability) measures and targets

<i>Goal: Improve the reliability of the transportation system and promote efficient system management and operations.</i>					
Objective	Performance measure	2018 condition	Targets		
			2018 (Baseline)	2020	2022
Maintain a high degree of reliability on the Interstate system, non-Interstate NHS, and other primary commuter corridors.	Percent of person-miles on the Interstate system that are reliable (Interstate LOTTR)	99%	81.3	73.1	73.0
	Percent of person-miles on the non-Interstate NHS that are reliable (non-Interstate NHS LOTTR)	87%	77.0	NA*	63.4
	Percent of CMP network miles that are reliable	88%	NA	NA	NA
		Current condition			
Improve transit on-time performance	Annual percent on-time arrival at Transit Hub	90%			
Improve utilization of transit vehicles	Average daily Centro vehicle utilization	38%			
Increase the use of park-and-ride lots	Overall utilization rate for all park-and-ride lots	23%			
Implement TDM strategies	Number of TDM programs	0			

Notes:

- “Reliable” segments of the system are those for which the Level of Travel Time Reliability (LOTTR) is less than 1.5 during all four time periods analyzed. Interstate and non-Interstate NHS LOTTR are required performance measures for the National Highway Performance Program (NHPP) per federal rules.

- The SMTC agreed to support the targets established by NYSDOT for Interstate and non-Interstate NHS performance via Policy Committee Resolution No. 2018-14 on December 11, 2018.

*Only the four-year target is required for Non-Interstate NHS.

New York Regional Transportation Agency's (Centro's) Transit Park-and-Ride Study.¹⁵ Recent ridership data shows that 211 riders board and 167 alight daily from Centro's 12 Park-and-Ride facilities located within Onondaga County. The Syracuse Transit System Analysis includes ideas for improving the design of selected park-and-ride lots to make them more efficient and visually appealing. Implementing improvements of this kind can increase utilization of these facilities.

4.6.2 TRANSIT RELIABILITY

Centro's Service Standards and Guidelines indicate that Centro's on-time performance target (a measure of trips completed as scheduled) is 90 percent or greater. A review of the arrival time data from November 1, 2018 to September 30, 2019 found the average on time performance of all transit routes was 90 percent.

Centro also seeks to improve the utilization of transit vehicles by reaching their vehicle load guidelines. Vehicle load is a metric expressed as the ratio of passengers on-board to the number of seats available on a vehicle, at the vehicle's maximum load point. The vehicle fleet used is matched to the ridership patterns and volumes served by each garage facility. Due to the variety of service area characteristics, vehicle types, amenities, and seating configurations, a "typical" vehicle load standard is difficult to identify. The Service Standards and Guidelines indicate a target maximum load of 100 percent of seating capacity, on average, for off-peak trips and up to 130 percent of seating capacity for the peak hour. On an average day, Centro overall operates at about 40 percent of utilization. During an average AM and Peak hour, a certain line(s) operate at over 100 percent capacity.

The SMTC's most recent CMP evaluated reliability of the CMP Network segments that are utilized by Centro bus routes, using the TTI, TED, and LOTTR performance measures. The CMP analysis found 92 percent of the mileage of the CMP Transit Network to be uncongested based on TTI, and 93 percent of the mileage to be uncongested based on the TED measure. Using the LOTTR measure on the CMP Transit Network, 84 percent of the mileage was found to be reliable.

¹⁵ This was a one-time data collection effort as part of a study, and has not been a recurring item.

4.7 SYSTEM PRESERVATION

Ensuring that our transportation system is in a state of good repair typically uses three-fourths of the region’s approximately \$300 million dollar (over 5 years) federal transportation allocation. There are approximately 4,000 centerline¹⁶ miles of road and 550 roadway bridges in the MPA. There are also 305 miles of active railroad, 841 miles of sidewalk, and 66 miles of off-road trails in our region. Heat, sunlight, salt (in the case of roads and bridges), and repeated freeze-thaw cycles as well as wear and tear from vehicles and snowplows degrade the condition of these assets over time.

The MPA includes 109 miles of Interstate roads, and 179 miles of non-Interstate NHS pavements.¹⁷ Additionally, within the MPA, there are 256 bridges (with approximately four million square feet of total deck area) that carry the NHS. As shown in Table 4.8, the MPA has a smaller percentage than the statewide average of NHS bridge deck area in Good condition, but also has a smaller percentage than the statewide average in Poor condition.

The LRTP addresses preservation of the transportation system and identifies infrastructure needs within the Syracuse metropolitan region, and projects funding for pavement and bridge condition improvements over the next 30 years. The five-year Transportation Improvement Program (TIP) for the MPA directly allocates funds to major pavement and bridge repair/rehabilitation/replacement efforts; Chapter 6 of this document provides additional details.

4.7.1 BRIDGES AND PAVEMENT

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, established six performance measures for pavement and bridge conditions. 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 two bridge condition performance measures indicate the percentage of bridges by deck area on the NHS that are in Good or Poor condition.

¹⁶ A linear centerline mile of road is a continuous line of pavement along the center of the length of pavement, regardless of the number of traffic lanes.

¹⁷ BPCMS, 2018-2019 (ramps not included)



**Pavement
Bridges
Functional Class**



**Bridge and Pavement Condition
Management System report**

The SMTC annually compiles pavement ratings and bridge conditions in a single document, the Bridge and Pavement Condition Management System (BPCMS) report. The BPCMS provides an overview of bridge and pavement conditions, describes what constitutes Good, Fair, and Poor bridge and pavement ratings, and it includes performance measure calculations consistent with federal regulations.

Pavement rating. Prior to the PM2 rule, pavement was rated on a scale of 1-10, based on the frequency and severity of surface cracking. The PM2 rule specifies that pavement condition is rated based on cracking, faulting (concrete) or rutting (asphalt), and International Roughness Index (IRI) or the Present Serviceability Rating (PSR – only for routes with speed limits less than 40 mph). Pavements are rated Good, Fair, or Poor based on the values of these individual metrics. 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.

Given that the collection of these metrics requires specialized equipment, the NYSDOT leads the data collection effort statewide. NYSDOT collects these metrics on the entirety of the State system every year, and on the entirety of the federal-aid system (regardless of ownership) over the course of two years. Although not currently available to MPOs, it is anticipated that this data collected by NYSDOT will become the basis for scoring performance within the SMTC MPA.

As a separate effort for local planning, the SMTC also rates all roads owned by the City of Syracuse and all federal-aid eligible roads owned by Onondaga County using the pre-PM2 1-10 scale, and will likely continue to do so for the foreseeable future.

Bridge rating. All public roadway bridges are inspected by the NYSDOT, with every bridge inspected at least once every 24 months. The NYSDOT then reports condition data to FHWA. The performance measures assess the condition of four bridge components: deck, superstructure, substructure, and culverts. Ratings are done on a scale of zero to nine. For each component, ratings are: less than or equal to 4 - Poor; 5 or 6 - Fair; greater than or equal to 7 - Good. If the lowest



Distress, such as cracking, is frequent and severe on roads with “poor” pavement condition.



Deterioration is visible on the underside of this bridge deck.

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. 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 suggest 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.

Pavement and bridge condition targets and reporting 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.

NYSDOT established statewide PM2 targets on May 20, 2018. The SMTC was then required to establish PM2 targets no later than November 16, 2018. The SMTC agreed to support NYSDOT's PM2 performance targets on December 11, 2018 via SMTC Policy Resolution No. 2018-14. By adopting NYSDOT's targets, the SMTC agreed to plan and program projects that help NYSDOT achieve these targets.

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.

Table 4.9 presents baseline performance for the pavement and bridge condition performance measures for New York and for the SMTC planning area as well as the two-year and four-year statewide targets established by NYSDOT and adopted by the SMTC.

Additionally, the SMTC established the objective of preserving and maintaining ancillary transportation structures. The performance measure associated with this objective is the percent of large culverts with a condition rating less than 5. According to the NYSDOT, large culverts have an opening measured perpendicular to the centerline of the culvert greater than or equal to 5 feet, including multiple pipe structures where the clear distance between pipes is less than half of the smaller pipe diameter. Structures having an opening measured along the centerline of the roadway greater than 20 feet, including multiple pipe structures where the clear distance between pipes is less than half of the smaller pipe diameter, are categorized as bridges and inventoried and inspected under New York State's Bridge Inventory and Inspection Program, and are included in the bridge performance measures listed above.¹⁸ The SMTC obtained a list of large culverts in the MPA from the NYSDOT. According to the most recent inspection¹⁹, 33.6% of culverts have a condition rating less than 5 in the MPA.

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

4.7.2 PEDESTRIAN FACILITIES AND TRAILS

The SMTC's inventory of sidewalks in the City of Syracuse includes a block-level rating of the sidewalk's compliance with City ordinances (i.e., sidewalks should be a continuous strip of concrete, running

¹⁸ <https://www.dot.ny.gov/divisions/operating/oom/transportation-maintenance/repository/CulvertInventoryInspectionManual.pdf>

¹⁹ The frequency of inspection required for each culvert is determined by the overall General Recommendation given as a result of the inspection. An Annual Inspection is required if the General Recommendation is 1 or 2. A Biennial Inspection is required if the General Recommendation is 3 or 4. A Quadrennial Inspection is required if the General Recommendation is 5, 6 or 7. Ratings are current through CY 2019.

Table 4.9: Infrastructure condition performance measures and targets

Goal: Strategically preserve our existing infrastructure and focus future investment in areas that are already served by significant public infrastructure investments

Objective	Performance measure	New York Performance (Baseline)	SMTC Performance (Baseline)	New York 2-year Target (2019)	New York 4-year Target (2021)
Preserve and maintain pavement	Percent of Interstate pavements in good condition	52.2%*	69.7%**	46.4%*	47.3%
	Percent of Interstate pavements in poor condition	2.7%*	7.4%**	3.1%*	4.0%
	Percent of non-Interstate NHS pavements in good condition	20.4%	46.7%**	14.6%	14.7%
	Percent of non-Interstate NHS pavements in poor condition	8.3%	24.2%**	12.0%	14.3%
Preserve and maintain bridges	Percent of NHS bridges (by deck area) in good condition	22.8%	17.9%	23.0%	24.0%
	Percent of NHS bridges (by deck area) in poor condition	10.6%	10.4%	11.6%	11.7%
		2015		2020	
Preserve and maintain ancillary transportation structures	Percent of large culverts with condition ratings less than 5.	34%		34%	
Preserve and maintain pedestrian facilities	Percent city sidewalk code compliance	57%		59%	
Assist communities in creating, maintaining, and utilizing asset management systems.	Number of Systems Implemented	0		2 (in-progress)	

Source: NYSDOT BDIS, ratings from 2018 and 2019. An NHS bridge is defined as a structure carrying the National Highway System.

Note: Interstate and non-Interstate NHS pavement conditions and NHS bridge conditions are required performance measures per federal rules. The SMTC agreed to support the targets established by NYSDOT for pavement and bridge conditions via Policy Committee Resolution No. 2018-14 on December 11, 2018.

*These values were calculated by NYSDOT and agreed to by the SMTC on December 11, 2018. These may differ compared to those published by the Federal Highway Administration, which utilized a different calculation methodology.

**This information is based on 2017 and 2018 data collected using the NYSDOT Surface Score Scale, and cannot be directly compared to the performance targets because the targets involve the newer condition rating system required by the Federal guidance. However, this was the most recent data made available to the SMTC at the time the LRTP Update was completed. Consistent with the NYSDOT Transportation Asset Management Plan (2019), for this analysis “Good” pavements have a Surface Score of 7-10, and “Poor” pavements have a Surface Score of 1-5. See the SMTC’s Bridge and Pavement Condition Management System Report for more details.

through driveways).²⁰ Based on this inventory, 347 miles (out of a total of 586 miles), or 59 percent, of the City’s sidewalks currently fall into the “very good compliance” or “perfect compliance” categories. At this time, no similar compliance rating data are available for sidewalks outside of the city.

The City of Syracuse has expressed an interest in taking responsibility for sidewalk maintenance throughout the city. Currently, maintenance of City sidewalks is the responsibility of the owner of the property adjacent to the sidewalk (this is also true in most other municipalities in the MPA). In his 2020 State of the City address, City of Syracuse Mayor Ben Walsh stated that the current system of sidewalk maintenance “creates frustration with city government; hardship on residents; and, sometimes, ill-will between neighbors.”²¹

Other Upstate New York cities that have taken over the responsibility for sidewalk maintenance have developed a source of revenue dedicated to sidewalk maintenance. The City of Ithaca imposes fees on property owners based on a combination of land use and sidewalk frontage length. The City of Syracuse should consider developing a similar revenue source, as well as an efficient means of periodically evaluating, and tracking improvements in, sidewalk conditions.

4.7.3 ASSET MANAGEMENT

Although the MPO does not maintain any formal asset management systems for purposes of recommending maintenance on or tracking improvements to individual transportation systems owned by member agencies, the SMTC remains one of the preeminent sources for spatially referenced transportation-related data in the region, and routinely issues reports on the condition of the system. The annual Bridge and Pavement Condition Management System report serves as an example of the SMTC’s access to asset data in action. As a collaborative planning agency, the MPO is uniquely positioned to foster data-sharing relationships between member agencies in order to coordinate infrastructure maintenance planning.

²⁰ For more information on sidewalk ratings, see Chapter 4 of the SMTC’s Sustainable Streets: Sidewalk Reference Manual.

²¹ Syracuse.com. (2019). Read the full text of Ben Walsh’s 2020 State of the City address. Syracuse.com. <https://www.syracuse.com/news/2020/01/read-the-full-text-of-ben-walshs-2020-state-of-the-city-address.html>.

Member agencies have leveraged the SMTC’s data in efforts to develop and/or improve their own asset management systems to track infrastructure improvements. After recognizing the value in pavement condition data collected by the SMTC, the City of Syracuse requested the MPO’s assistance in developing a pilot program for recommended pavement maintenance prioritization, improving on their existing decision-making process. Additionally, the City of Syracuse is seeking the SMTC’s input in developing a program for long-term sidewalk maintenance. Advancing efforts like these fit the objective identified in this LRTP of assisting communities in creating, maintaining, and utilizing asset management systems.

4.7.4 TRANSIT ASSET MANAGEMENT

As a recipient of federal transit funding, federal law requires that CNYRTA develop and implement a Transit Asset Management (TAM) plan per regulations established by the Federal Transit Administration (FTA). TAM is a business model that prioritizes funding based on the condition of transit assets to help achieve or maintain transit networks in a State of Good Repair (SGR). The FTA establishes SGR standards as well as performance measures and targets for four transit asset categories: rolling stock, equipment, infrastructure, and facilities.²²

As a Tier I provider, Centro must report on the SGR measures for the following three (out of four) asset categories:

- Rolling stock (revenue vehicles): Percent of vehicles that have either met or exceeded their Useful Life Benchmark (ULB)
- Equipment (including non-revenue service vehicles): Percent of vehicles that have either met or exceeded their ULB
- Facilities: Percent of facilities rated below condition 3 on the FTA’s Transit Economic Requirements Model (TERM) scale

The infrastructure category (rail fixed guideway, track, signals and systems) does not apply to Centro because it is a bus-only transit property.²³

²² CNYRTA TAMP, November 1, 2018, Section 3 – Federal TAM Requirements, pp. 11-16.

²³ CNYRTA TAMP, November 1, 2018, Section 3 – State of Good Repair Performance Measures, pp. 11.

Pursuant to these requirements, CNYRTA's Board of Members adopted the TAM plan via Resolution No. 2373.²⁴ The final TAM plan (dated November 1, 2018), identifies local transit asset performance measures and targets, outlines the CNYRTA's asset management approach, and guides TAM strategies that are achievable with available funds. The TAM plan states that Centro will review it annually to ensure that it complies with FTA requirements. (According to 49 CFR Part 625 Subpart E Subsection 625.55 (a) (2), transit agencies are to provide two reports annually to the National Transit Database (NTD): a data report, and a narrative report.) Additionally, Centro's TAMP also states that it will conduct a bi-annual transit asset inventory, and that Centro will update the TAMP every four years as required per 49 CFR Part 625 Subpart 625.29 (a).

Performance Targets and Baseline Conditions. Public transportation providers set transit asset targets annually (per 49 CFR 625 Subpart D Subsection 625.45 (b) (2)) 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). FTA Planning regulations do not require MPOs to update their TIPs or MTPs annually. Furthermore, MPOs are not required to update their TAM targets when a State DOT or transit provider updates its TAM targets.²⁵

MPOs may choose to set targets after transit agencies set initial targets, and again when updating subsequent LRTPs. On February 16, 2018, the SMTC Policy Committee agreed to support Centro's 2018 TAM Targets via Resolution 2018-03. On December 11, 2018, the SMTC Policy Committee amended the LRTP and agreed to support (via Resolution No. 2018-16) the updated (2018) TAM plan's 2019 TAM Targets and the TAM plan performance measures (via addendum). (Federal rulemaking requires that LRTPs adopted or amended after October 1, 2018, include TAM performance targets.)

The TAM plan created by CNYRTA summarizes assets across all of their subsidiaries, covering a four-county service area that includes

²⁴ CNYRTA TAMP, November 1, 2018, Section 1, pp. 5.

²⁵ FTA TAM FAQ webpage: <https://www.transit.dot.gov/TAM/gettingstarted/htmlFAQs>

SMTC's planning area as well as the Herkimer-Oneida Counties Transportation Study (HOCTS) planning area. The TAM plan does not identify assets by sub geographies, such as individual counties or MPO planning areas. CNYRTA established targets for the TAM performance measures, inclusive of assets in all subsidiaries. The SMTC agreed to support the targets as identified by CNYRTA; these targets and baseline conditions - inclusive of all CNYRTA subsidiaries - are indicated in the SMTC's 2018 addendum to the LRTP.

As outlined in the TAM plan, Centro's targets are to ensure that all rolling stock and equipment continues to be in a state of good repair, with no rolling stock or equipment older than its ULB and all facilities receiving a 3.0 TERM rating or better. According to the TAM plan, the average age of Centro's rolling stock or equipment does not exceed its useful life benchmark (14 years in the case of large buses, 8 years in the case of autos/trucks, and minibuses - which are also known as cutaways, and vans). Additionally, the average rating of Centro's facilities scored above the minimum benchmark equipment rating (3.0) on the FTA's five-point scale. The Transit Asset Management Targets, along with baseline performance conditions, are shown in Table 4.10.

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 the 2018 TAM plan. According to the TAM plan, Centro's asset management policy states that they are committed to manage capital assets and maintain its system in a state of good repair to support safe, efficient, and reliable transit across the organization.

Centro continually improves the management of its fleet and facility conditions to provide safe, reliable, and sustainable transportation options. The TAM plan identifies priority projects to improve Centro's TAM capabilities, and specifies, by reference, the lifecycle management activities outlined in the Fleet and Facilities Maintenance Plan (FMP) for each department that is responsible for the operations and/or maintenance of assets. The CNYRTA annually monitors and reviews the TAM plan and the FMP based on changing environment or business needs. Additionally, annual NTD reporting requirements also address

Table 4.10: Transit asset management performance measures and targets

<i>Goal: Strategically preserve our existing infrastructure and focus future investment in areas that are already served by significant public infrastructure investments.</i>						
<i>Objective: Maintain transit assets in a State of Good Repair (SGR).</i>						
Performance measure	Asset category & Class	2018 TAM Plan Baseline Condition				FY18 Target
		Fleet size	Avg. Vehicle age	Default ULB	Percent exceeding ULB	
Percent of revenue vehicles by asset class that have met or exceeded their ULB	Rolling stock					
	Over the road	12	4.54	14	0%	0%
	Bus	188	7.083	14	0%	0%
	Cut-a-way	36	4.083	8	0%	0%
Percent of non-revenue vehicles that have met or exceeded their ULB	Equipment					
	Auto	21	5.7	8	0%	0%
	Truck	12	4.083	8	0%	0%
Performance measure	Asset category	TERM Average Rating (1-5 scale)		Benchmark	Percent exceeding TERM Basis Rating	FY18 Target
Percent of facilities rated below 3.0 on TERM scale	Facilities					
	Admin/ maintenance	3.26		3	0%	0%
	Passenger parking	3.765		3	0%	0%

Source: Central New York Regional Transportation Authority, Transit Asset Management Plan, November 1, 2018.

ULB – Useful Life Benchmark

TERM – Transit Economic Requirements Model

TERM Rating Condition Descriptions:

Excellent 4.8-5.0 No visible defects, near-new condition

Good 4.0-4.7 Some slightly defective or deteriorated components

Adequate 3.0-3.9 Moderately defective or deteriorated components

Marginal 2.0-2.9 Defective or deteriorated components in need of replacement

Poor 1.0-1.9 Seriously damaged components in need of immediate repair

Notes:

- All performance measures in Table 4.9 are required per the FTA’s final Transit Asset Management rule. The SMTC agreed to support the TAM targets established by the Central New York Regional Transportation Authority (CNYRTA) via Policy Committee Resolution 2018-16 on December 11, 2018. The *System Performance Report, Addendum to 2050 Long Range Transportation Plan*, adopted via Policy Committee Resolution 2018-18 on December 11, 2018, previously reported FY17 performance the TAM measures.

- The TAM plan (dated Nov. 1, 2018) created by CNYRTA summarizes assets across all of their subsidiaries, covering a four-county service area that includes the SMTC’s planning area as well as the Herkimer-Oneida Counties Transportation Study (HOCTS) planning area. The TAM plan does not identify assets by sub-geographies, such as individual counties or MPO planning areas. CNYRTA established targets for the TAM performances measures, inclusive of assets in all subsidiaries. The SMTC agreed to support the targets as identified by CNYRTA; these targets and baseline conditions, inclusive of all CNYRTA subsidiaries, are indicated in the SMTC’s 2018 addendum to the LRTP.

SGR performance targets for the upcoming year and provide a description of changes in condition from the prior year.

As shown in Table 4.10, the average age of Centro’s rolling stock and equipment assets do not exceed the ULB or fall below the SGR benchmark for facility assets. However, some assets, when considered independently, may require investment or replacement. Identifying assets to improve helps to inform Centro’s transit asset management strategies and balance investment needs that are achievable with available funds.

Each year, Centro develops a capital plan document, which is used for investment prioritization. Centro’s capital plan document also helps inform the development of SMTC’s TIP and HOCTS’s TIP. According to the TAM plan, projects are first prioritized as follows:

- Bus Replacements (due to increased maintenance costs of older vehicles and potential safety concerns from vehicles that have been subjected to the harsh winter environment)
- Preventive Maintenance
- Facilities Rehabilitation (exception made for safety concerns)
- Equipment

As discussed in the LRTP Financial Plan (see Chapter 6), Centro and SMTC prioritized \$88.9M in capital expenditures in the SMTC 2020-2024 Transportation Improvement Program (TIP) to target specific transit assets categories within the SMTC planning area. These funds are anticipated to be spent during the five-year period on equipment replacement, other capital project needs, preventative maintenance, and purchase of new rolling stock.

The expenditure of \$88.9M should align with needs identified through the annual NTD reviews during the coming years, and will help Centro maintain progress towards TAM performance targets and address the SGR of capital assets. Centro will continue to review, monitor, and adjust needs as necessary to maintain its system in a state of good repair to support safe, efficient, and reliable transit in the communities across the four-county region it serves.

4.8 EQUITY

4.8.1 TIP SPENDING AND PLANNING ACTIVITIES

The SMTC is committed to adhering to both the spirit and letter of Title VI of the Civil Rights Act of 1964 in its planning activities. (See Section 1.1.5 for a detailed description of Title VI.) In February 2015, the SMTC prepared its Title VI and Limited English Proficiency Plan. This plan includes an evaluation of where in the region the SMTC has funded transportation projects through its current Transportation Improvement Program (TIP) and where in the region the greatest concentrations of minority residents live. As this analysis demonstrates, while minority residents make up only about a fifth of the region's total population, 46 percent of all TIP funds have been allocated to portions of the region with above average proportions of minority residents. The SMTC's December 2018 Environmental Justice Analysis draws similar conclusions from its analysis of TIP spending in Priority Target Areas, which are shown on Figure 4.6. This analysis defines Priority Target Areas based on geographic areas with higher than average proportions of residents who are identified (by the U.S. Census) as low income and/or being non-White, or Hispanic.²⁶ The Environmental Justice Analysis concludes that the SMTC's planning activities have been distributed throughout the region, in both Priority Target Areas and non-target areas.

²⁶ The Priority Target Areas were identified by combining individual concentration factors of minority and low-income population variables. Census tracts designated as Concentration areas were given a value of 1, while tracts designated as High Concentration were given a value of 2. Minority Concentration areas were defined as tracts with a minority population above the MPA-wide average percentage (21%) up to and including the 75th percentile (36%). Minority High Concentration areas were assigned to tracts with a percentage above the 75th percentile. For low-income population, areas were determined by HUD, Division of Community Planning and Development Block Grant Program guidelines. A tract is labeled by HUD as low-income when its median household income does not exceed 50% of the MPA median household income. Tracts whose median household income does not exceed 80% of the value are considered moderate-income. For the Environmental Justice analysis, SMTC used the labels of High Concentration and Concentration in place of the low-income and moderate-income tract designations. Priority areas were assigned by the following values: High Priority – cumulative score of 3 or 4; Medium Priority – cumulative score of 2; Low Priority – cumulative score of 1.

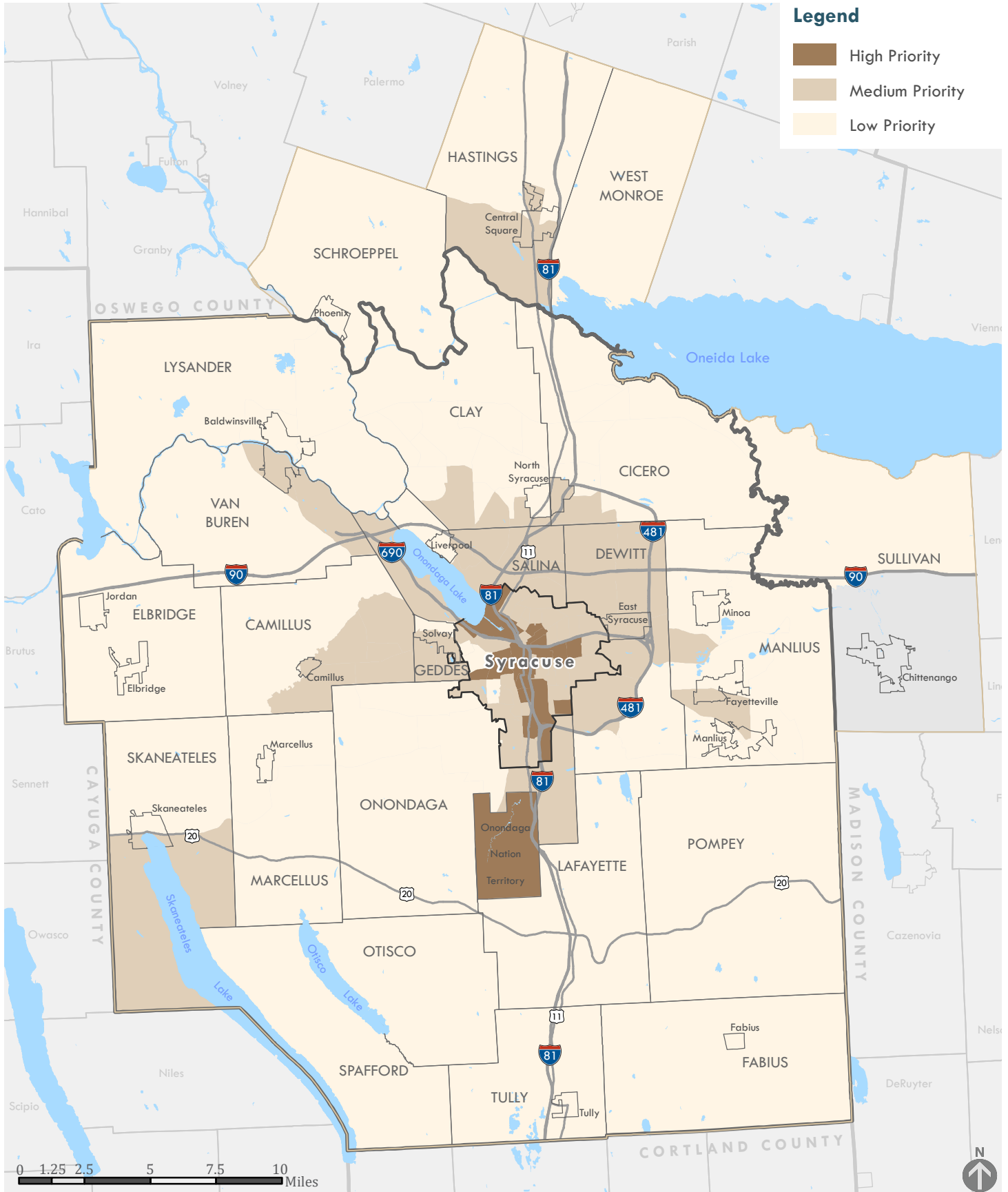


2018 Environmental Justice Analysis



Limited English Proficiency Race Age

FIGURE 4.6: ENVIRONMENTAL JUSTICE PRIORITY TARGET AREAS



Data Source: SMTC, 2018

4.8.2 FACILITY CONDITIONS

Another approach to measuring the degree to which transportation funds are being utilized in an equitable manner is to compare the condition of existing facilities in the identified Priority Target Areas to the condition of facilities throughout the MPA. Key facilities to examine include road pavement, pedestrian infrastructure, and transit facilities. Accessibility is also considered.

Pavement and bridge conditions. Pavement conditions in Priority Target Areas can be compared to pavement conditions throughout the SMTC's area. Of the FAE centerline mileage within Priority Target Areas, 9 percent had excellent pavement scores, 45 percent were good, 26 percent fair and 20 percent were poor as compared to the non-EJ priority areas where pavement scores were 14 percent excellent, 41 percent good, 27 percent fair and 17 percent poor. Meanwhile, 22 percent of the bridge deck area in the EJ priority areas were considered good, 70 percent fair, and 8 percent poor, compared to in the non-EJ target areas where bridge decks area was 19 percent good, 68 percent fair, and 13 percent poor.²⁷

Sidewalks. As described in Section 4.7.2, the SMTC has inventoried the extent to which sidewalks in the City of Syracuse comply with City ordinances. Comparing the average compliance rating of sidewalks within Priority Target Areas with the rest of the city, 90 percent of city sidewalks are within Priority Target Areas, and the percentage of sidewalks in those Priority Target Areas with very good or perfect compliance is 57 percent, slightly lower than the 59 percent of sidewalks in very good or perfect compliance city-wide.

In June 2020, the City of Syracuse completed and adopted its Americans with Disabilities Act (ADA) Transition Plan.²⁸ Under the City's on-going sidewalk policy, the City has had an active corner and sidewalk replacement program (since the 1980s) and continues to upgrade required facilities in the City right-of-way annually. Through

²⁷ Source: 2018-2019 NYSDOT Bridge Ratings.

²⁸ADA Transition Plan: Pedestrian Facilities in the Public Right-of-way (June 2020), City of Syracuse is accessible on the web at: <<http://www.syr.gov.net/uploadedFiles/Departments/Engineering/Content/City%20of%20Syracuse%20ADA%20Transition%20Plan.pdf>>

their Transition Plan, the City identified 6,733 curb ramps, rating 41 percent as either accessible (meaning they may need additional improvements, such as detectable warnings at curb ramp locations, or improved width) or fully accessible (designed to current standards), with 22 percent being rated as not accessible (meaning there is significant discontinuity such as steps, no ramps, more than 100 feet of unpaved walkway, heaving, vertical displacement, other severe stress, and/or flooding). Addressing the 22 percent is a key priority for the City of Syracuse. Intersections serving local government facilities (city offices, schools, community centers, etc.) will be addressed first, followed by intersections serving commercial and employment centers (Central Business District, hospitals, university areas) and finally intersections serving other areas (parks, historic sites, etc.). Centro bus stops and shelters, and similar facilities, are the responsibility of Centro (and/or other providers), who also need to ensure that their facilities meet the required ADA standards.

The SMTC examined the accessibility of pedestrian resources on State facilities using data from NYSDOT, as a part of the 2016 Update to the NYSDOT ADA Transition Plan. As a part of the Plan, NYSDOT regularly updates the inventory of infrastructure that needs upgrades to ensure compliance with ADA standards. According to the Plan, based on projected federal and state transportation resources, NYSDOT estimates that by 2027, approximately two-thirds of the state’s population that is currently within one-quarter mile of an inaccessible sidewalk or curb ramp will see that facility corrected and brought into compliance. On State facilities within the SMTC MPA, there were 6.98 miles of access-limited sidewalks and 146 access-limited curb ramps in 2017.²⁹

Bus Shelters. The vast majority of Centro’s bus shelters are located in Priority Target Areas (98 out of 126 total shelters in the MPA), and the average rating for these shelters is 3.4 on a scale of 1 (“poor”) to 5 (“new”). This is comparable to the average rating for shelters not located in Priority Target Areas: 3.5 out of 5.

²⁹NYSDOT’s ADA Transition Plan (2016 Update) defines “access-limited” locations as those having a rating of 2 (Not Accessible) or 3 (Partially Accessible).

4.8.3 ACCESS TO JOBS

In the City of Syracuse, the neighborhoods with the highest poverty levels also have the lowest levels of education, the highest unemployment rates, and the lowest levels of car ownership. Without a car, many job seekers must limit their job searches to places and work times that they can reliably reach by bus. Centro's transit service is extensive, with more than 100 routes and over 18,000 riders daily. But in a mid-sized metropolitan area, no fixed-route transit system can run to all of the region's job sites without being extremely inefficient. As a result, gaps in the transit system are unavoidable. One measure of transit's effectiveness is the degree to which low-income workers can reach employment centers by bus.

In 2019, the SMTC analyzed travel time by bus between the Transit Hub in Downtown Syracuse and jobs in the region that require no more than a high school diploma. According to this analysis, 33.5 percent of all such jobs are within a 25-minute bus trip of the Transit Hub.³⁰ Centro and the SMTC are committed to ensuring that this number increases through both adjustments to the transit system and by encouraging more job creation in areas that can be easily accessed by transit.

As noted in Section 4.4.3, one local not-for-profit organization's mission is specifically focused on providing transportation to low-income workers: Providence Services. Additionally, Onondaga County job training agency JOBSPlus! is partnering with employers to offer transportation to work through Lyft. Other transportation options for commuters who do not own their own vehicles include:

- Greater Syracuse HOPE, in partnership with Jubilee Homes, provides transportation to workers who are underserved by public transportation;
- CenterState CEO, with support from the Alliance for Economic Inclusion, operates the CommuteCNY program, which offers vanpool services to connect workers from underserved areas to workplaces in remote locales;

³⁰This analysis reflects outputs from the IBI Group's Conveyal transit modeling tool, given the following parameters: number of jobs requiring no more than a high school diploma that are accessible by way of a 25-minute bus ride from the Transit Hub on a normal weekday.

- The not-for-profit Oswego County Opportunities offers a wide variety of services to residents of Oswego County, including a fixed-route transit system;
- In 2020, Centro was awarded \$5 million in federal funds to expand mid-day and second- and third-shift service to employment centers.

Table 4.11: Equity performance measures

<i>Goal: Ensure that transportation system performance improvements are distributed equitably.</i>				
Objective	Performance Measure		2015 condition	2020 Condition
Improve transit service between employment centers and priority target areas (as identified in SMTC’s Environmental Justice Analysis).	Proportion of the region’s jobs requiring no more than a high school diploma accessible within a 25-minute bus trip of the Transit Hub.		NA*	33.5%
Improve transportation options for off-peak commuters without cars.	Range of commuting options available to workers and job-seekers in the MPA		<i>See Section 4.8</i>	
Ensure that pavement condition ratings within priority target areas are at or above ratings for remainder of MPA.	Percent of pavements in “Good”** condition	Priority Target area:	40%	54%
		Remainder of MPA:	48%	55%
	Percent of pavements in “Poor” condition	Priority Target area:	31%	20%
		Remainder of MPA:	20%	17%
Provide accessible sidewalks and curb ramps, in accordance with ADA requirements.	Miles of access-limited sidewalk in the MPA		NA	6.98 miles
	Number of access-limited ramps in the MPA		NA	146 ramps

*This performance measure was developed for this LRTP. Pre-2020 data is not available.

**For the purposes of this performance measure, a rating of 7 or higher (encompassing both “Good” and “Excellent” pavements) was considered “good”.

Chapter 5:

Assessment of Future Conditions

5.1. ANTICIPATED FUTURE POPULATION AND EMPLOYMENT

In addition to documenting the current usage and performance of the transportation system, which was detailed in the previous chapter, the LRTP is required to examine the future usage and performance of the transportation system as well. This assessment makes use of the regional travel demand model, with future population and employment projections and the transportation projects that we anticipate completing during this plan.

The SMTC's travel demand model was recently updated to a base year of 2017 and a horizon year of 2050 for the purposes of this LRTP and other planning efforts, including the work for I-81. The socioeconomic data (households and jobs) in the model were updated based on a variety of datasets, including 2016 American Community Survey (ACS) 5-year data¹ and 2017 NYS Department of Labor employment data. Horizon year socioeconomic data was developed using various available forecasts and analyzing trends, as well as meetings with local planning agencies and municipal representatives. In meetings with local representatives, the previous horizon year (2035) household and population data were used as a starting point. The general consensus was to retain the 2035 conditions out to 2050 with a few exceptions. The local representatives identified site-specific locations of growth or decline in their geographic areas of expertise. This information was used to refine future development patterns in the region, without altering the estimated total future population and employment numbers. The projections for the City of Syracuse were updated based on Census data trends, which showed a lower level of decline than had been previously

¹ The model update is a lengthy process, which began in 2018. At that time, the 2016 ACS was the latest available 5-year data set.

What is a travel demand model?

SMTC’s travel demand model is a “four step model” that can be used to predict the amount, type, and location of travel that residents will undertake, now and in the future. The model uses inputs such as population and economic forecasts, the geographic dispersion of people and jobs throughout the region, and a description of the transportation system (roads and transit system). The model outputs can be used to evaluate the regional impact of changes to the transportation system, changes in land use, or changes in policy (such as pricing). The travel demand model cannot forecast future land use or evaluate traffic operations at specific intersections. In addition to its use for the LRTP and CMP, the SMTC utilizes

the travel demand model in subarea or corridor studies, which may include evaluating different development patterns, such as infill development or more dispersed development, or the impacts of different levels of density or types of uses (commercial or residential, for example). The model can also be used to evaluate the impact of additional road connections on travel patterns in the region. Recent studies such as the US 11 Corridor Study and the Fayetteville Route 5 Transportation and Land Use Analysis have included use of the travel demand model to determine the potential impacts of future development, and inform the creation of planning-level concepts for land use and transportation system changes.



expected. Feedback from local representatives also supported using the previous 2035 employment numbers for the new 2050 horizon year. There was an overall consensus on this assumption since current economic conditions have slowed growth for several years and in some sectors have created a decline. In addition, local representatives provided updated information on site-specific development plans as well as projected job gains/losses by sector. However, the horizon year employment total increased slightly in the most recent model update based on Woods and Poole Economics' employment projections and trend analysis using newly available employment data from the NYS Department of Labor and U.S. Bureau of Labor Statistics.

Socioeconomic data updates for the travel demand model

Part of the recent updates to the travel demand model involved moving the base year from 2007 to 2014 and then to 2017, and the horizon year from 2035 to 2050. The SMTC met with a variety of stakeholders to update the socioeconomic data in the model. The Empire State Development Corporation and the New York State Department of Labor provided information on current conditions and trends at the state level. The Central New York Regional Planning and Development Board, Syracuse-Onondaga County Planning Agency, Onondaga County Office of Economic Development, CenterState Corporation for Economic Opportunity, City of Syracuse Department of Neighborhood and Business Development, City of Syracuse Industrial Development Agency, and the City of Syracuse Bureau of Planning & Sustainability provided feedback on socioeconomic data at the city, county and region level. Additionally, in 2009, the SMTC collected information from local representatives from the Towns of Camillus, Cicero, Clay, DeWitt, Lysander, Manlius, Onondaga, Salina, and Van Buren. These municipalities were determined to be the most dynamic in regards to household and employment change over the 33 year modeling period.

In addition to the database compiled during meetings with local representatives, other datasets were referenced to update the model data to 2017 and 2050, including:

- 2010 U.S. Census data
- 2016 U.S. Census American Community Survey (ACS) 5-year data
- 2017 parcel data for Onondaga County (Syracuse-Onondaga County Planning Agency)
- 2017 Infogroup data on employers with 10+ employees (NYSDOT)
- 2017 Onondaga County employment totals by sector (New York State Department of Labor)
- 2015-2018 aerial photography for household and employment location confirmation (NYSDOT)
- 2017 U.S. Bureau of Economic Analysis (BEA) Onondaga County full-time employment by industry sector (CA25N)
- 2050 employment projections by sector and population projections for Onondaga County (Woods and Poole Economics, Inc.)
- 2040 population projections for Onondaga County (Cornell University Program on Applied Demographics).

For full details on the data used in the model update, see the SMTC Travel Demand Model Documentation.

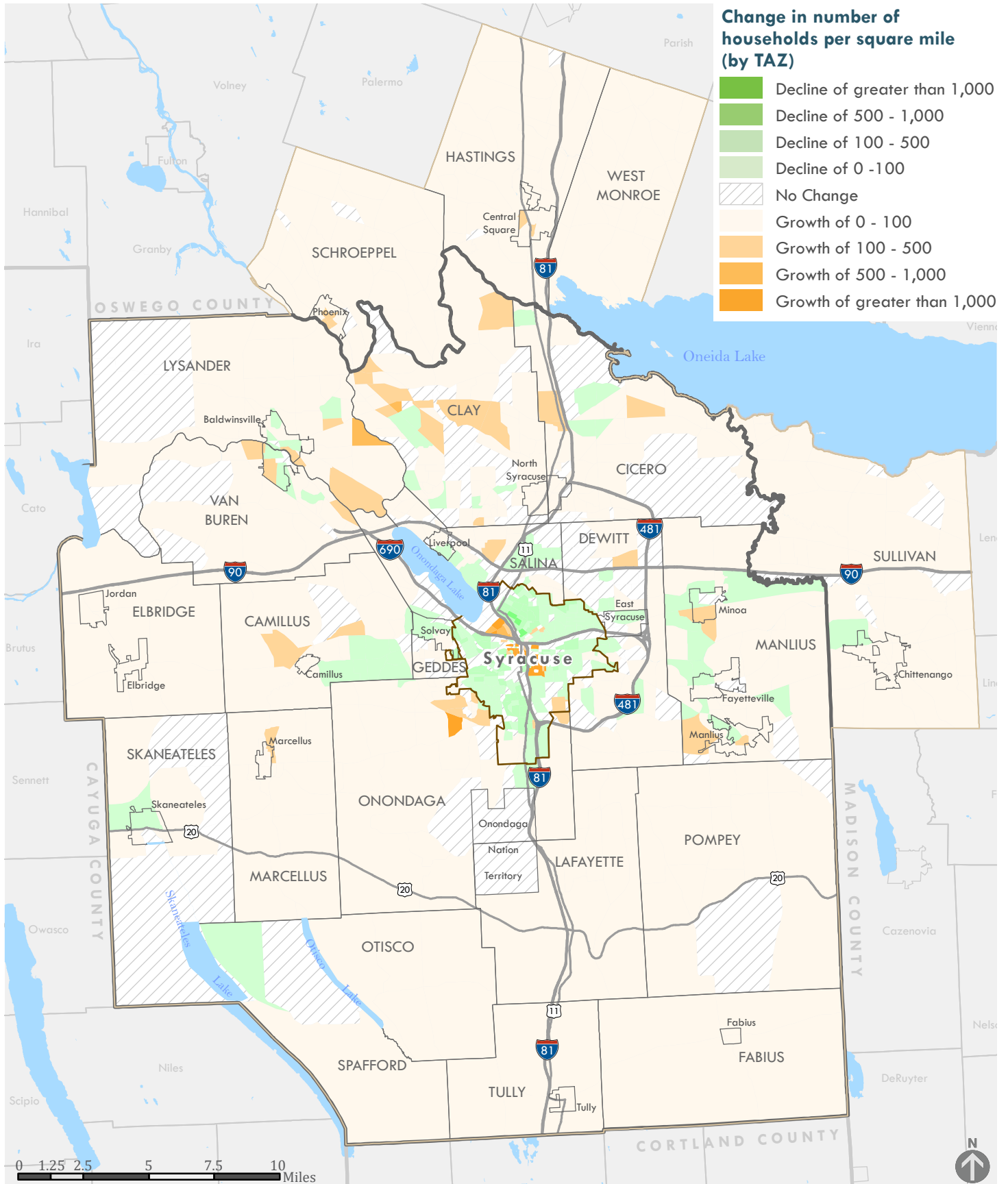
Table 5.1 summarizes the household and employment data by municipality for the SMTC’s travel demand model. The total number of households in the region is projected to grow by 5.8 percent between 2017 and 2050, and the number of jobs in the region is projected to grow by 13.4 percent over the same timeframe. Figure 5.1 and Figure 5.2 show the change in household density and employment density, respectively, from 2017 to 2050.

Table 5.1: Households and jobs by municipality in the SMTC travel demand model

Town/ City	Households				Jobs			
	2017	2050	Change	Percent Change	2017	2050	Change	Percent Change
Camillus	10,230	11,017	787	7.7%	7,975	8,850	875	11.0%
Cicero	12,502	13,570	1,068	8.5%	13,039	14,418	1,379	10.6%
Clay	24,141	26,322	2,181	9.0%	22,736	30,207	7,471	32.9%
DeWitt	11,737	12,039	302	2.6%	44,185	48,655	4,470	10.1%
Elbridge	2,360	2,497	137	5.8%	2,466	3,391	925	37.5%
Fabius	728	778	50	6.9%	605	619	14	2.3%
Geddes	7,490	7,472	-18	-0.2%	7,805	8,396	591	7.6%
Granby	44	47	3	6.8%	9	10	1	11.1%
Hastings	3,901	4,253	352	9.0%	2,508	2,799	291	11.6%
LaFayette	2,000	2,240	240	12.0%	1,079	1,131	52	4.8%
Lysander	8,945	10,476	1,531	17.1%	6,364	8,444	2,080	32.7%
Manlius	13,731	14,647	916	6.7%	10,530	11,213	683	6.5%
Marcellus	2,479	2,835	356	14.4%	1,651	1,797	146	8.8%
Onondaga	9,263	10,527	1,264	13.6%	7,586	8,283	697	9.2%
Onondaga Nation	306	306	0	0.0%	125	126	1	0.8%
Otisco	978	1,013	35	3.6%	290	311	21	7.2%
Pompey	2,557	2,832	275	10.8%	446	512	66	14.8%
Salina	15,179	15,331	152	1.0%	20,189	21,654	1,465	7.3%
Schroepfel	3,357	3,570	213	6.3%	1,722	1,823	101	5.9%
Skaneateles	3,019	3,128	109	3.6%	4,646	5,061	415	8.9%
Spafford	724	738	14	1.9%	172	183	11	6.4%
Sullivan	6,253	6,717	464	7.4%	3,587	4,168	581	16.2%
Syracuse	69,978	71,642	1,664	2.4%	102,078	114,971	12,893	12.6%
Tully	1,083	1,173	90	8.3%	1,063	1,158	95	8.9%
Van Buren	6,074	6,672	598	9.8%	3,997	4,483	486	12.2%
West Monroe	1,428	1,516	88	6.2%	423	462	39	9.2%
MPA Total	220,487	233,358	12,871	5.8%	267,276	303,125	34,849	13.4%

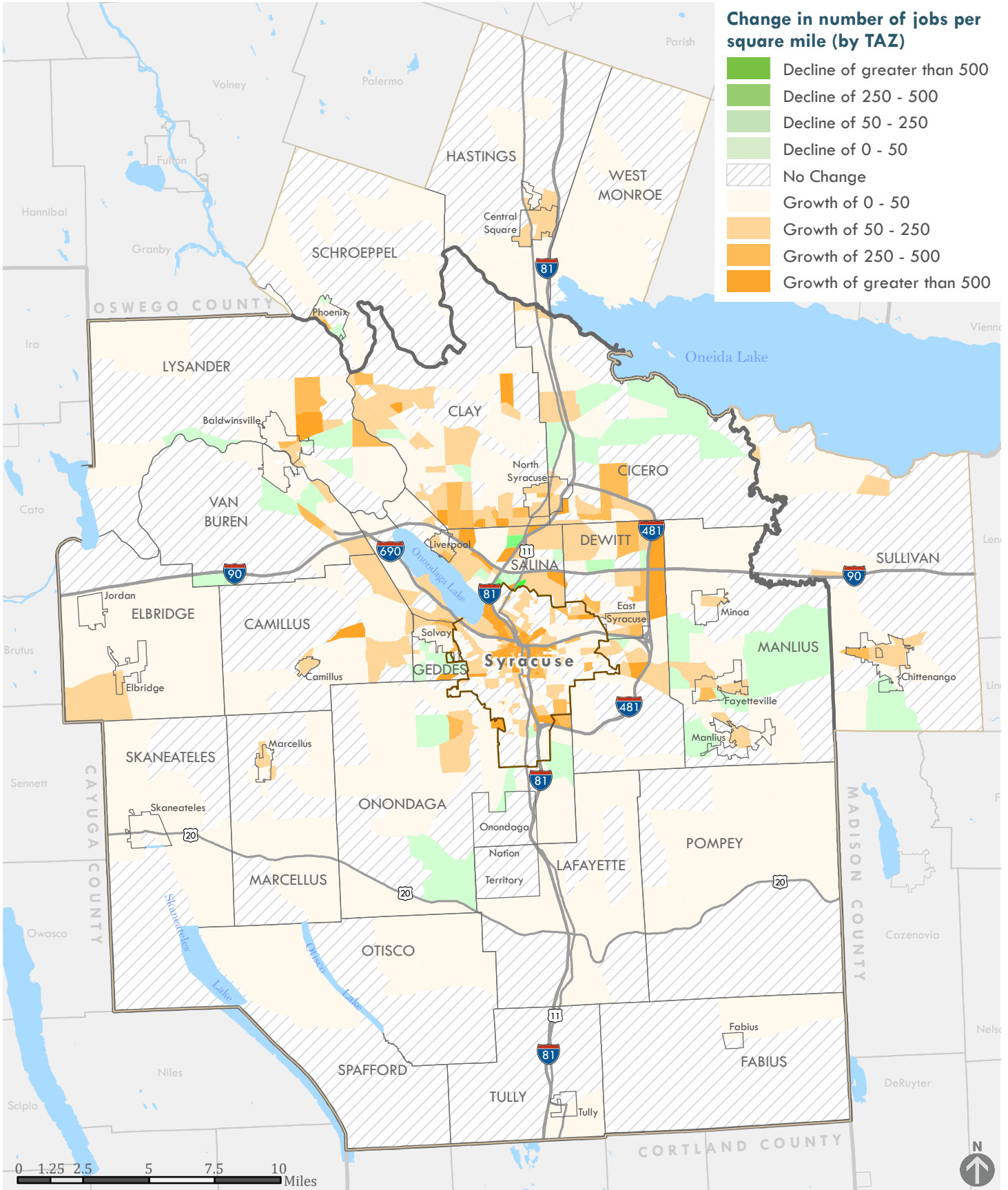
Note: Households include group quarters

FIGURE 5.1: CHANGE IN HOUSEHOLD DENSITY, 2017-2050



Source: SMTc Travel Demand Model

FIGURE 5.2: CHANGE IN EMPLOYMENT DENSITY, 2017-2050



In absolute terms, the greatest increase in households is anticipated in the Town of Clay, with a gain of 2,181 households, or 9.0 percent growth. The second largest anticipated gain is in the City of Syracuse, with a net gain of 1,664 additional households (a 2.4 percent increase over 2017 conditions). Growth in the number of households within the city is concentrated within Downtown, University Hill, and the Lakefront area. A total of 2,876 new households are expected within these three areas, but since declines in households are anticipated within other areas of the city, the result is a net gain of 1,664 households in the city.

On the employment side, the city far outweighs any other municipality in the sheer number of new jobs anticipated (nearly 13,000). The towns with the most significant (in absolute terms) expected job growth include Clay (7,471 new jobs), DeWitt (4,470 new jobs), and Lysander (2,080 new jobs).

The future household and employment data were used to model a “Future No-Build” scenario. This scenario examines how the transportation system would operate in the future with the household and employment changes expected by 2050 but with no modifications to the existing transportation network. In other words, the transportation system would stay the same as it is today, but population and jobs would continue to grow/decline as noted in Table 5.1.

5.2 ANTICIPATED FUTURE TRANSPORTATION PROJECTS

In addition to a Future No-Build scenario, the SMTC also modeled a scenario that included anticipated future transportation projects in combination with the 2050 household and employment projections. This represents the Anticipated Future scenario, since it includes the projects that the member agencies anticipate completing over the life of this LRTP. The City of Syracuse, NYSDOT, Onondaga County Department of Transportation (OCDOT), and Centro developed lists of future projects that they would like to complete to address known capacity or accessibility concerns, in addition to the priority projects identified at the beginning of the LRTP process (completion of the I-81 Viaduct Project, enhanced transit system, and regional trail network).

Modeled scenarios

This chapter presents results from travel demand modeling results for three different scenarios.

2017 Base: this is the existing condition using the most recent demographic and economic data available as inputs, with the current transportation system. Future scenarios are compared to this base scenario.

2050 Future No-Build: includes projections of household and job changes in the region from 2017 to 2050, but with no changes to the current transportation system (all roads, intersections, etc., and transit routes are assumed to remain as-is).

2050 Anticipated Future: includes the same household and job projections as the Future No-Build, but with the addition of the anticipated transportation projects as defined by the City of Syracuse, NYSDOT, Onondaga County, and Centro.

The following projects were included in the 2050 Anticipated Future scenario for travel demand modeling:

New York State

- Route 370 at John Glenn Boulevard intersection improvements
- Onondaga Lake Parkway safety improvements
- Reconstruct Route 11 at Route 49 intersection
- NY 31 at Thompson Road and South Bay Road intersection improvements
- Route 481 northbound off-ramp at Circle Drive
- I-81 interchange at Route 31
- Intersection improvements at NY 5 and NY 257

Onondaga County

- Caughdenoy Road and NY 31 improvements
- Buckley Road shared turn lane and Buckley Road/Bear Road intersection upgrades
- 7th North Street at Buckley Road intersection upgrades

City of Syracuse

- North/south/east/west corridors interconnect expansion
- James Street 3-lane cross-section from State Street to Grant Boulevard/Shotwell Park
- Conversion of downtown streets to two-way operation
- Roundabout at James Street/Shotwell Park/Grant Boulevard
- Water Street closure

Centro

- Reduction of peak and off-peak headways
- Express I-81 route with Park-n-Ride facilities
- Bus rapid transit (BRT) on James Street/South Avenue and from University Hill area to Destiny USA.

Additional details about these projects and how they were incorporated into the travel demand model can be found in the SMTC Travel Demand Model Documentation.

5.3 FUTURE SYSTEM PERFORMANCE

5.3.1 VEHICLE MILES TRAVELED

Using the household and employment data as inputs, the travel demand model can provide estimates of daily vehicle miles traveled (DVMT) in the region. Table 5.2 provides DVMT estimates for the Syracuse MPA for the base year condition (2017), the 2050 Future No Build, and the 2050 Anticipated Future scenarios. As described in the previous sections, the 2050 Future No Build includes the household and employment projections developed by SMTC staff in coordination with various planning and economic development agencies and municipalities. The No Build scenario does not include any modifications to the existing transportation system. The 2050 Anticipated Future includes the same household and employment forecasts, but also includes transportation projects that the SMTC member agencies anticipate completing over the life of this plan.

The model outputs indicate a 3.5 percent increase in per capita DVMT and an increase in total DVMT of 10.7 percent from the 2017 existing conditions to the 2050 Anticipated Future conditions. The increase in VMT is a result of the household and job growth conditions used as inputs to the model. The population is anticipated to grow by about 6 percent from 2017 to 2050, with much of this growth expected in towns at the edges of Onondaga County (especially in the northern half of the county). Based on this scenario, the model predicts longer travel distances to the primary job centers in the city. Although a downward trend in VMT has been observed nationally in recent years, the VMT estimates for the SMTC MPA are the result of a model that is driven primarily by land use assumptions, not forecast based on VMT trend data. Note that the Anticipated Future transportation projects result in a very small increase in overall regional DVMT and per capita DVMT as compared to the 2050 Future No Build condition.

Total daily VMT in our region is anticipated to increase by 10.7% from 2017 to 2050, based on the projected household and employment growth pattern for our region.

Table 5.2: Daily vehicle miles traveled in the Syracuse MPA

Analysis year/scenario	Total DVMT (miles)	DVMT per capita (miles)
2017 Base (existing)	12,190,000	24.28
2050 Future No Build	13,490,000	25.11
2050 Anticipated Future	13,500,000	25.13
Percent change, 2017 to 2050 Anticipated Future	10.7%	3.5%

Decreasing future VMT would require a significant change in predicted development patterns and a reduction in suburban growth levels, as well as a significant shift to transit.

Changing the projected VMT will require changes to the anticipated future pattern of development or shifts in mode choice. Achieving a significant VMT decrease would require a significant change in predicted development patterns and a reduction in suburban growth levels, as well as a significant number of drivers shifting to mass transit for a variety of trips.



**Congestion Management Process
2019 Status Update**

5.3.2 CONGESTION MEASURES ON PRIMARY CORRIDORS

As discussed in Section 4.4.2, SMTC’s 2019 Congestion Management Process (CMP) examined various measures of congestion on a set of primary commuter and freight corridors in our region using 2018 NPMRDS data. That analysis provides a detailed assessment of existing congestion in the region. To examine the impacts of future growth and anticipated projects on congestion, outputs from the SMTC’s travel demand model were analyzed. Two measures of congestion were considered using the model outputs: volume-to-capacity (V/C) ratio and travel time index (TTI). Road segments were considered to be congested if V/C ratio is at or above 0.9, or if the TTI is 2.0 or greater. The results for each modeled scenario are summarized in Table 5.3.

In all scenarios – existing and future in both the AM and PM peak conditions – congestion as measured by V/C ratio is very low, at fewer than 5 miles, or less than 2 percent of the mileage of the primary commuter and freight corridors. More miles are considered congested when considering TTI, with 11 to 16 percent of the total primary commuter corridor mileage and 3 to 6 percent of the total primary freight corridor mileage operating with a TTI of 2.0 or higher.

Table 5.3: Congestion on primary commuter and freight corridors

Analysis year/scenario	Miles with V/C \geq 0.9 (% of total mileage)		Miles with TTI \geq 2.0 (% of total mileage)	
	AM peak	PM peak	AM peak	PM peak
Primary commuter corridors (313 miles total)				
2017 Base (existing)	1.94 (0.6%)	3.75 (1.2%)	34.67 (11.1%)	46.85 (15.0%)
2050 Future No Build	2.86 (0.9%)	4.46 (1.4%)	39.03 (12.5%)	50.13 (16.0%)
2050 Anticipated Future	2.97 (0.9%)	4.80 (1.5%)	39.02 (12.5%)	50.04 (16.0%)
Primary freight corridors (234 miles total)				
2017 Base (existing)	1.84 (0.8%)	2.94 (1.3%)	7.87 (3.4%)	12.18 (5.2%)
2050 Future No Build	1.92 (0.8%)	3.24 (1.4%)	8.59 (3.7%)	13.55 (5.8%)
2050 Anticipated Future	2.03 (0.9%)	3.24 (1.4%)	8.69 (3.7%)	13.40 (5.7%)

Telework in response to COVID-19

In March 2020, attics, basements, and spare bedrooms became the most valuable new office space in New York State. Governor Cuomo's response to the coronavirus pandemic resulted in the temporary closure of all non-essential businesses on March 20th, forcing many office workers to work from home. By March 23rd, daily VMT in Onondaga County had fallen by 48 percent (StreetLight, 2020), video conferencing surged in popularity across the country (marketwatch.com, 2020), and webcams became such a critical piece of home office equipment that they were

nearly impossible to buy (washingtonpost.com, 2020). While the technology for teleworking has been available for years (the term was coined in 1973), it has been slow to catch on for a variety of reasons. If the coronavirus pandemic demonstrates that telework is a viable alternative to commuting, it could have a long-term effect on how Americans view work and workplaces and could reduce daily traffic congestion. This is a trend that transportation planners will be monitoring carefully for long-term implications.

Sources:

- StreetLight VMT Monitor Map for Onondaga County, New York, March 23, 2020.
- MarketWatch.com; "Zoom Video earnings and sales blow away expectations, stock rises toward more records"; Owens, Jeremy C.; 6/3/30; <https://www.marketwatch.com/story/zoom-video-earnings-and-sales-blow-away-expectations-stock-rises-toward-more-records-2020-06-02>
- Washingtonpost.com, "The hunt for a work-from-home webcam: A story of broken supply chains, 'sold-out' messages and refreshing online carts"; Lerman, Rachel; 5/21/20; <https://www.washingtonpost.com/technology/2020/05/21/webcam-backorder-coronavirus-pandemic/>

By both measures, congestion increases from the 2017 Base condition to the 2050 Future No Build scenario, but the increase is relatively small. The largest increase indicated by these results is an additional 4.4 miles of the primary commuter corridors in the AM peak with a TTI of 2.0 or higher. The 2050 Future No Build and the 2050 Anticipated Future show nearly identical results for the congested mileage based on both measures.

5.3.3 EMISSIONS AND ENERGY ANALYSIS

In addition to the existing emissions assessment discussed in Chapter 4, the SMTC also utilized the U.S. EPA's MOVES2014b model to estimate on-road mobile source emissions and energy usage associated with the 2050 Future No Build and 2050 Anticipated Future scenarios. The results of this analysis are shown in Tables 5.4 and 5.5, and a more detailed explanation of this analysis can be found in Appendix D.

This analysis indicates a significant drop in emissions from the 2017 Base scenario to the 2050 Future No Build scenario. This is primarily because the MOVES model assumes increases in vehicle efficiency in future years. As older vehicles leave the fleet and are replaced by

The modeling indicates a slight increase in congestion between 2017 and 2050.

Table 5.4: Emissions summary

All figures in tons per year.

Analysis year/ scenario	Total Gaseous Hydrocarbons	Carbon Monoxide (CO)	Oxides of Nitrogen (NO _x)	Non-Methane Hydrocarbons	Volatile Organic Compounds	Atmospheric CO ₂
2017 Base (existing)	1,208	19,853	3,056	1,112	1,143	2,145,097
2050 Future No Build	379	6,418	714	318	327	1,560,872
2050 Anticipated Future	379	6,411	714	318	327	1,560,872

Table 5.5: Energy usage summary

All figures in millions of BTUs per year.

Analysis scenario/year	Total Energy	Petroleum Energy	Fossil Fuel Energy
2017 Base (existing)	28,465,921	26,049,800	26,144,756
2050 Future No Build	20,668,917	18,727,580	18,769,783
2050 Anticipated Future	20,658,367	18,717,029	18,759,232

Future emissions are expected to decline substantially, primarily due to anticipated increases in fuel efficiency for passenger vehicles.

newer vehicles with the higher standards, the average fleet efficiency will increase. Currently, the federal Corporate Average Fuel Economy (CAFE) standards are set to increase by 1.5 percent per year for model years 2021 through 2026 (NHTSA, 2020). By 2050, the majority of the vehicles on the road will meet the 2026 CAFE standards.

New York State's 2015 Energy Plan includes the goal of achieving a 40 percent reduction in greenhouse gas emissions from 1990 levels by 2030. One element of this plan is encouraging drivers to switch over to zero emission vehicles (ZEV) such as plug-in electric vehicles. Through the ChargeNY program, the state is supporting new electric vehicle charging stations and offering rebates to consumers who buy electric vehicles. There are over 3,400 charging stations statewide (NYSERDA, 2019a). Annual electric vehicle registrations in New York increased from 4,600 in 2014 to over 17,000 in 2018 (NYSERDA, 2019b).

While VMT is expected to increase in the Syracuse MPA from 2017 to 2050, the overall on-road mobile source emissions are expected to decrease substantially. Similarly, the energy analysis shows a decrease in total energy use between the 2017 Base and 2050 Future No Build scenarios. An additional, though relatively small, decrease in energy use is associated with the 2050 Anticipated Future scenario.

5.4 FUTURE MODELING SUMMARY

The SMTC's regional travel demand model and the MOVES emissions model were used to determine the expected future usage and performance of the region's transportation system. In addition to the existing 2017 Base scenario, the modeling was completed for two future scenarios: 2050 No Build (with no changes to the current transportation system) and 2050 Anticipated Future (with transportation projects identified by the SMTC's member agencies as likely to be implemented before 2050). Based on various data sources and input from local planning and economic development agencies, the future model scenarios include an increase in total households and total jobs in the MPA of about 6 percent and 13 percent, respectively.

Total DVMT in the region is expected to increase by 10.7 percent from the 2017 condition to the year 2050 with the Anticipated Future transportation projects. The Anticipated Future transportation projects result in a very small increase in overall regional DVMT and per capita DVMT as compared to the 2050 Future No Build condition. The travel demand modeling for the Future No Build scenario indicates a small increase in congestion from the existing conditions, and minimal additional change with the anticipated future transportation projects.

The emissions and energy analysis both showed substantial improvement (fewer emissions and less energy consumed) from the 2017 Existing scenario to the 2050 Future No Build scenario, largely related to the anticipated efficiency increases in the vehicle fleet. The addition of the transportation projects identified in the 2050 Anticipated Future scenario results in a small decrease in energy consumed as compared to the 2050 Future No Build.

In summary, the modeling provides future estimates of congestion, emissions, and energy consumed. By nearly all measures, the projects included in the 2050 Anticipated Future scenario result in minimal changes, therefore, all of these projects were retained in the LRTP process and progressed to the financial analysis, as described in Chapter 6.

New technology brings new acronyms

Autonomous Vehicle (AV): A vehicle that has some degree of automated driver assistance, including full or partial automation in which the vehicle no longer requires the active participation of a driver.

Connected Vehicle (CV): A vehicle that is able to communicate wirelessly with other vehicles, infrastructure, and other roadway users. Connected vehicles have on board equipment that is able to receive, process, and transmit signals.

Light Detection and Ranging (LIDAR): High-resolution radar that provides a detailed real-time digital map of the surrounding area. Typically used on vehicles to provide a precise situational awareness for on-board systems to react to.

Roadside Unit (RSU): Devices that operate from a fixed position or on a portable device that send messages to, and receive messages from, nearby vehicles via short-range radio signals.

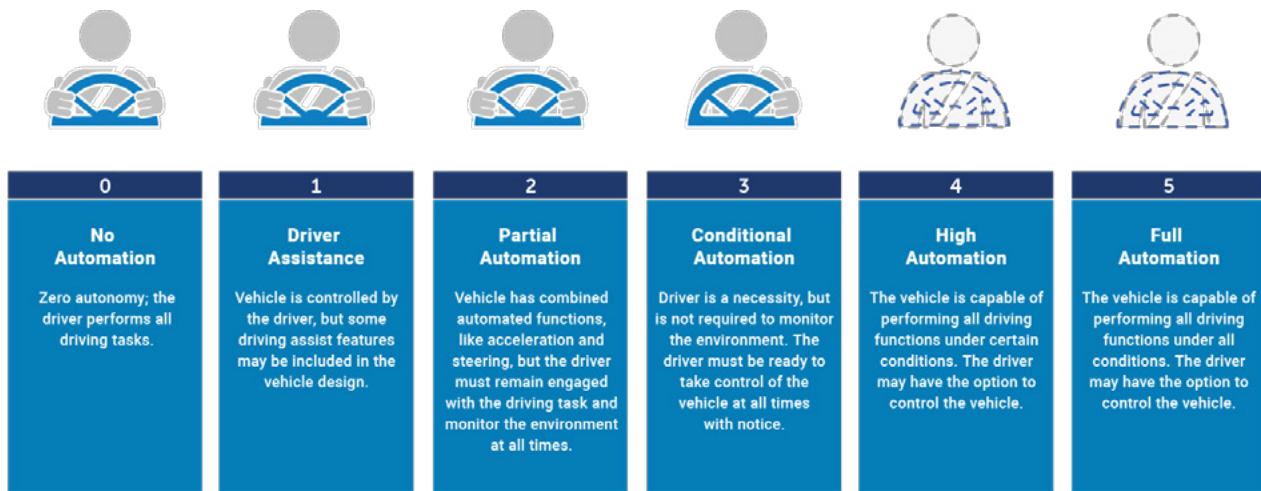
5.5 EMERGING TRENDS IN TRANSPORTATION TECHNOLOGY

In the second half of the 20th Century, improvements in transportation were primarily variations on existing technologies, with safety and fuel efficiency being two of the areas in which consumers saw the most dramatic progress. In the past ten years, several transportation innovations with revolutionary possibilities have emerged, including transportation network companies (TNCs) like Uber and Lyft, drone technology, and driverless vehicles. Artificial intelligence, remote sensing, wireless connectivity, and communications have been integrated into transportation in unprecedented ways, reshaping our expectations for both personal mobility and goods movement. Looking ahead, it is not unrealistic to imagine a transportation system that is orders of magnitude safer, cleaner, and more efficient than ever before. Some of the critical elements of such a system are already in place in cities around the country.

5.5.1 AUTONOMOUS VEHICLES

Over the past 20 years, the idea of the fully autonomous vehicle (AV) has gone from science fiction to nearly attainable. In 2019, Tesla released a “Smart Summoning” feature that – while imperfect – gave its vehicles the ability to navigate through parking lots for up to 200 feet on their own to find their owners (Hamilton, 2019). Also in 2019, Waymo, the self-driving car startup from Alphabet (Google’s parent company), began deploying driverless cars (without a human behind the wheel) to a pre-selected group of ride-hailing app users in a 50-square-mile area in Arizona (Hawkins, 2019). Meanwhile, the technology being built into consumer vehicles gets more advanced every year, bringing greater levels of automation into the market.

The terms “self-driving” and “autonomous” are sometimes broadly applied to all of these automated systems, but no vehicles on the market today are truly autonomous, in the sense of being able to operate on all roads in all kinds of weather without a driver. The Society of Automotive Engineers (SAE) uses the following six levels to describe vehicle automation, ranging from totally controlled by a human driver to totally controlled by autonomous systems:



Source: National Highway Traffic Safety Administration (<https://www.nhtsa.gov/technology-innovations/automated-vehicles-safety>)

Level 0, No automation: a human driver directly controls how fast the vehicle goes and where it goes. Features like lane departure or blind spot warning are still considered Level 0 automation, since the system only warns the driver - it does not take control of steering to avoid the problem.

Level 1, Driver assistance: a human driver controls most of the vehicle’s functions, but a driver support feature, such as adaptive cruise control or lane centering technology, is able to take over either steering or braking/acceleration.

Level 2, Partial automation: at this level, the vehicle can both steer and accelerate/decelerate on its own, but a human driver must be ready to take over in an emergency. Critically, the human driver is clearly responsible for whatever the vehicle does (Peng, 2018). This level of automation is being built into vehicles now, for example, in GM’s Super Cruise, Tesla’s Autopilot, and Nissan’s ProPilot Assist.

Level 3, Conditional automation: Level 3 is the automation level at which many autonomous vehicles have been tested in recent years. At this level, the vehicle can navigate through city streets and obey traffic signals, but a driver must be behind the wheel ready to take over at all times. Some car manufacturers have been hesitant to implement

Adaptive Cruise Control & Lane Centering Technology

Adaptive cruise control uses remote sensing (typically radar-based) to detect the vehicle ahead and ensure that your car remains a set distance behind it. In some cars, particularly higher-end models, this means that in stop-and-go traffic the car effectively drives itself: the car can come to a complete stop and will resume acceleration based on what it “sees” the car in front of it do. Some adaptive cruise control systems include cameras capable of reading speed limit signs and setting the car’s speed accordingly. Several car makers package adaptive cruise control with other driver support systems, including blind spot monitoring and lane centering. Lane centering uses cameras to detect lane markings and ensure that the vehicle remains between them. This feature relies on lane markings being clear and visible, even in rain, snow, and fog.

Level 3 technology for consumers, because a human driver who is only periodically needed may tend to get distracted. Also, because the driver is present but not necessarily in control of the vehicle at all times, it is not clear whether the automation or the human is responsible for what the car does at this level (Bigelow, 2019).

Level 4, High automation: the human driver is necessary for some aspects of driving, like getting the car to the freeway, but not needed for other tasks, such as self-parking or driving in a specific geographic area or on a specific route. The distinction between Level 3 and Level 4, according to the SAE, is that, if the automated system fails for some reason, Level 4 vehicles can get themselves to a “minimal risk condition” (such as pulling over to the shoulder and stopping) without human intervention. Waymo’s self-driving vehicles, currently operating within specific geographic limits in Arizona, are Level 4 vehicles. It seems likely that vehicles with Level 4 automation will become widely available to consumers (especially via ridesharing) between 2020 and 2025.

Level 5, Full Automation: a human driver is not needed, automated systems are always in operation, the vehicle’s autonomous operation is not limited by weather, and the vehicle can go anywhere at any speed. This is the definition of a truly “autonomous” vehicle. Getting to full Level 5 automation has proven challenging and estimates of when it will be available to consumers typically fall between 2025 and 2030.

The implications of Level 1 and 2 vehicles in the mass market are fairly straightforward. These technologies offer safety improvements without dramatically altering the experience of driving. Level 2 automation is advertised primarily in the context of freeway driving. Level 3 vehicles are slightly less straightforward: drivers gain a greater ability to disengage from the road, particularly on the freeway, but may not be ready to take control when needed. Turning commute time into relaxation or productive time may not be possible, or recommended, at this level.

At Levels 4 and 5, however, vehicles can be programmed for routines like a daily commute, or to park themselves after dropping off passengers. This may mean that new options are available for people

who do not own, or no longer wish to own, a car: they may be able to subscribe to a service that lets them summon a car. The car would drive its passenger to their destination and, from there, either pick someone else up or park itself. If cars can park themselves, it may not be necessary to have large parking facilities in cities' business districts. Parking areas could be moved to suburban or rural areas, freeing up space in cities for new development.

Given existing land use and commuting patterns, however, one implication of a world of shared AVs is that many trips would include a "zero occupant vehicle" (ZOV) leg that would equate to added vehicle miles traveled. During morning commute periods, for example, the number of people interested in getting from suburban communities to Downtown Syracuse is much greater than the number of people interested in the reverse commute. Most of the AVs returning to the suburbs to pick up passengers would be ZOVs, adding a completely new source of VMT and vehicle emissions (assuming the vehicles in question run on fossil fuels).

At Level 5 automation, travel time may no longer be considered wasted time (Schneider, 2018). If the vehicle is able to drive itself, passengers' options for how to spend travel time expand. Commute time could be used for entertainment, sleeping, working, or a variety of other productive uses, altering how commuting is perceived and making long commutes less onerous. In some places, an onerous commute is one of the few checks on how far from a city development will sprawl. If commute time is no longer considered wasted time, it could alter the development potential of exurban areas, extending the reach of suburban sprawl.

In the Syracuse region, commute time is not a major factor limiting the range of suburban development. The average commute time in our region is 20.5 minutes - five minutes below the national average. There are plenty of undeveloped, rural areas within a 20 to 25-minute drive of the employment centers in the heart of Syracuse. Level 5 vehicle automation may not have the same effect on rural development here that it could have in larger, more thoroughly developed, metropolitan areas.



Waymo has been testing its autonomous minivans in the Phoenix, Arizona region since 2017. Photo: Daniel Lawrence Lu, Wikimedia Commons, CC-BY-SA-4.0.

5.5.2 CONNECTED VEHICLES AND INFRASTRUCTURE

Like autonomous vehicles (AVs), connected vehicles (CVs) have come a long way in a short period of time. Connected vehicles use a combination of communications technology, including Wi-Fi and short range radio frequencies, to send signals from one vehicle to another (vehicle-to-vehicle connections, also called V2V), between vehicles and infrastructure (vehicle-to-infrastructure, also called V2I), and between vehicles and “nomadic devices” – possibly mobile phones, possibly some yet-to-be-developed device – worn or carried by pedestrians and cyclists to communicate their position to nearby vehicles. Because of the number of different connections that these technologies make possible, all of these forms of communication are sometimes called “V2X” – vehicle to everything – communication (McLellan).

Connected vehicle (CV) technology is currently being piloted in New York City, Tampa, Columbus, on the Interstate 80 corridor in Wyoming, and in a variety of other cities in the U.S. and around the world. In Tampa, 1,000 volunteers have had onboard units (OBUs) added to their vehicles to both send and receive messages. Nearly 50 small transmitters, called roadside units (RSUs) have been deployed on freeways and city streets. Radio signals from the RSUs can warn drivers of back-ups on freeway off-ramps, tell traffic signals to give buses a little more green-light time so they can make it through an intersection, and notify drivers of nearby pedestrians.

In the future, connected vehicle technology is a natural fit with Level 3, 4, and 5 autonomous vehicles. Vehicles in the CV pilot cities are currently able to send basic information to RSUs: their transmitters emit a signal that indicates their current position, speed, and heading. A vehicle that can not only “see” vehicles and pedestrians with LIDAR and other cameras, but can communicate with them via V2X signals, can stop or slow down before a collision happens. If a group of cars can form a platoon, in which all the vehicles are communicating speed, position, and heading with one another, they can safely move at high speeds with much less space between vehicles than with human drivers. This may mean that streets and highways can handle more vehicles than they currently do – effectively increasing roadway capacity without adding lanes.

Getting the most out of CV technology will mean large public investments in communications technology that is connected to infrastructure and that can both send signals to and receive signals from vehicles. This means not only the deployment of RSUs and other hardware (such as LIDAR units and cameras), but developing the capability to coordinate, maintain, and control these new technologies. This may not be very difficult for some roadway owners: NYSDOT has a long history of working with ITS. But at the county, city, town, and village levels, CV technology may challenge both budgets and organizational structures.

CV costs. CV technology costs vary widely depending on the type of equipment used. The National Operations Center of Excellence, which has been encouraging states to install CV technology in test corridors, says that the cost to install “a working system at an intersection can vary from \$15k to \$50k.” Recent installations have gotten as low as \$5,000 per intersection, depending on the quality of existing signal hardware. (National Operations Center of Excellence, 2017).

RSUs, which are the lynchpin for signal transmission and reception at an intersection, are fairly inexpensive: most recent sources put their cost at \$1,300 to \$3,000. Additional costs include installation at, and calibration to, a specific intersection, as well as annual operations and maintenance costs.

Backhaul communication – the connection between an intersection and a regional transportation control center – can be extremely expensive and, depending on the location, a technical challenge. A 2014 estimate of average per-site backhaul costs developed by FHWA ranged from \$3,000 to \$40,000, depending largely on the availability of existing infrastructure, such as fiber optic cable or dedicated wireless communications (FHWA, 2014).

On-board units. To date, the greatest benefit of CV technology installations has been to give states and cities the opportunity to test ideas and create a body of research to draw on in the future, as this technology becomes ubiquitous. Very few vehicles have the equipment (generically referred to as on-board units, or OBUs) that can send

information to and receive information from RSUs. This kind of two-way communication is necessary, both for the system to work properly and to provide a benefit to drivers.

Automakers are not currently including OBUs in most vehicles – in fact, Toyota announced in early 2019 that it was suspending its V2X program (Caparella, 2019). In part this is due to a lack of consensus among automakers on which form of V2X communication to implement: some favor the Wi-Fi-like dedicated short-range communications (DSRC), but more are moving toward a cellular system. No automaker wants to be in the position of committing to one technology over the other until a consensus emerges as to which “language” cars and infrastructure will be “speaking”. On the other hand, it seems likely that the information supplied from RSUs on things like construction detours and signal phase information at complex intersections will be critical to the safe operation of Level 4 and 5 AVs.



This rendering imagines an intersection in Downtown Syracuse with connected technology. Cars and infrastructure communicate with one another, and can also detect pedestrians in the crosswalk and warn them of oncoming vehicles by way of handheld devices. All of Downtown’s traffic signals could be connected to a central transportation management center.

5.5.3 TRANSIT

Over the next 20 years, mass transit systems will face increasing competition from on-demand transportation alternatives. Many sources report that TNCs have already had a negative effect on transit ridership, as well as contributing to an overall increase in VMT in some cities (Bresiger, 2018; Clewlow, 2017; Ehrhardt, 2019).

If Level 4 or 5 automation makes it possible to summon a relatively inexpensive AV in the near future, transit may lose even more riders. Centro, the transit operator in our region, is constantly battling funding shortfalls – it cannot afford to lose a substantial percentage of its ridership. And our region cannot afford to lose Centro. Most serious observers agree that the need for mass transit will remain for decades to come, notwithstanding major improvements in vehicles. Improvements to cars are unlikely to make people want to use cars less. Additionally, automation may add vehicles to streets and highways in the form of ZOVs. In terms of dealing with traffic congestion, AVs do not necessarily offer less congestion, they offer more ways to ensure that time spent in congestion is not purely “lost”. Transit, on the other hand, takes vehicles off of the road, reduces VMT, and offers the ability to move more people than a single-occupant vehicle. Improvements in transportation should be implemented in ways that make transit more viable and relevant, not less.

To remain competitive with other forms of transportation, transit operators are working to make bus service more appealing to riders. Improvements that are being implemented in other cities include:

- “Bus Only” lanes, often painted red, that give buses the exclusive right to use certain lanes. Dedicated bus lanes can dramatically speed up transit times.
- New ways to pay for transit rides, including paying by smartphone.
- Electric buses, which have been shown to be more reliable than buses with internal combustion engines.
- “Mobility as a service” systems that bring several modes of transportation, including transit, TNCs, and micro-mobility services (such as bike share or scooter share) together in a single digital platform.



In Northern California, an autonomous shuttle helps workers get from one end of a sprawling business park to the other. Photo: Contra Costa Transportation Authority

Like other AVs, driverless buses exist, but are extremely rare and only work within very specific constraints, like running up and down a single street or on a pre-programmed route in an office park. The long-term promise of autonomous shuttles is that they will be significantly less expensive to operate than vehicles that involve a driver, making it possible to deploy more vehicles on more routes. In Contra Costa County, where Bishop Ranch office park has been experimenting with providing transit service by way of a driverless shuttle, the county’s transportation authority envisions deploying dozens of small, autonomous shuttles to ferry people between their homes and transit hubs (ABC7, 2018).

5.5.4 MOBILITY AS A SERVICE

The key to the future of personal mobility may already be in your pocket or purse. Smartphones can summon a ride through Uber, Lyft and other TNC apps. Smartphone apps also let people rent bikes and (in some cities) electric scooters. And your smartphone can help you figure out whether or not your bus is running on time. Around the world, companies are developing apps that bring all of these modes together, making it possible to plan and pay for them all in one place: micro-mobility (scooters and bikes), car sharing, ride sharing, and transit.

In its ideal form, this “mobility as a service” (MaaS) model would convert each household’s transportation expenditures (fuel, insurance, maintenance, monthly lease or loan payments) into a subscription-based system that expands mobility options, improves safety, and reduces travel times. Household car ownership may become as outdated as a shelf full of compact discs. MaaS could do this in a few different ways, but generally MaaS systems are characterized by autonomous, connected, electric, and shared transportation. In most cases, MaaS concepts are built around a robust mass transit system. As of August 2020, electric scooters and bicycles with electric assist motors are legal in New York State², making it easier to imagine a local

² For more information on the legalization of electric scooters and bicycles with electric assist, see the New York State Department of Motor Vehicles’ website: <https://dmv.ny.gov/registration/electric-scooters-and-bicycles-and-other-unregistered-vehicles>.

MaaS system that would combine, for example, a bus rapid transit line with bus shelters that are also scooter and bike-sharing hubs, allowing riders to move seamlessly between modes. A commuter's trip to work might mean stepping off a bus and into a waiting AV or onto a reserved electric scooter, all pre-paid and planned with a smartphone app.

As MaaS programs evolve, they will mean investing in transit, modifying the use of curbside space, and creating micro-mobility hubs and the infrastructure to support them in suburban areas. In our region, suburban commuters have limited options: transit does not compete well with private vehicles, and the transit system is oriented around a central, downtown hub. MaaS could change this by putting Centro's service at the heart of a larger system that includes a variety of transportation options.

5.5.5 FREIGHT

Like passenger vehicles and transit, land-based freight vehicles are moving toward greater automation. Progress on driverless freight vehicles has been motivated, in part, by the large cost savings – on the order of \$168 billion by one estimate - that freight companies anticipate from converting to autonomous freight delivery (Morgan Stanley, 2013).

This transition has implications for commercial drivers. In the Central New York region, roughly 7,200 people are employed as heavy truck/tractor-trailer drivers or light truck/delivery services drivers. But given that AV technology will probably remain at Level 4 for the near future, and given the fact that relatively few truck drivers *only* drive a truck – many more also deliver freight from the truck to a house, office, or store – long-haul drivers may be affected by the conversion to autonomous freight vehicles in greater numbers than local delivery drivers. In our region, this would mean that some portion of the region's 4,800 tractor-trailer drivers would be impacted. It is not too early for job training centers in our region to develop ways to approach this transition, which will likely unfold over the next ten years.

Driverless freight vehicles also hold out the promise of safety and efficiency improvements. Level 4 trucks would presumably be able to operate on the interstate system without the current restrictions on

Moving Freight: Electricity vs. Diesel

Several companies are working to develop heavy vehicles with electric rather than diesel engines. There are significant obstacles to the widespread adoption of electric trucks, first among them the fact that there is currently no infrastructure in place across the country to serve long-haul electric trucks. But the potential benefits to human health of eliminating or reducing the number of diesel vehicles on the region's roads are substantial. Over the last 20 years, the connection between asthma cases and the particulate matter in diesel exhaust has been well documented in medical literature. A 2019 research paper in Environment International estimated that thousands of premature deaths from respiratory illnesses could be prevented annually and billions of dollars of health-related costs could be avoided by phasing out diesel trucks (Pan).



In December 2019, an autonomous truck (with a driver onboard) delivered 40,000 tons of butter from California to Pennsylvania. Photo: plus.ai



UPS Flight Forward drones can carry small packages. Photo: ww.ups.com

numbers of hours of driving in a 24-hour period. This would shorten trip times and increase efficiency. Similarly, safety improvements would be considerable: in 2017, 148,000 people were injured in crashes involving large trucks nationwide. As automation increases, this number would be expected to fall dramatically.

5.5.6 UNMANNED AERIAL VEHICLES (UAVS)

The idea that consumers would be able to click the “buy” button on an online retailer’s website and have a product delivered to their front door or backyard by a drone within the hour is neither new nor something that most consumers have a great deal of faith in at this point. Amazon’s drone delivery service, Prime Air, was unveiled in 2013, with the prediction that it would be in use around the country within five years. This prediction did not come to fruition. Currently, very little freight is delivered in the U.S. by drones. Drone deliveries tend to be relatively small (under five pounds), high-value items delivered over short distances – critical medical supplies being one of the most frequently-cited uses for this technology.

To date, the Federal Aviation Administration (FAA) has been very cautious in its approvals of the use of unmanned aerial vehicles (UAVs) to deliver packages. In October 2019, the FAA granted UPS Flight Forward (a subsidiary of UPS) permission to run the first official drone airline. While the company can operate its UAVs in any part of the country, it must still receive FAA permission to allow vehicles to fly beyond the operator’s line of sight. Local municipalities will need to be aware of developments related to UAV traffic management and how communities can proactively influence approved flight corridors in the region.

Industry experts see many possibilities for the delivery of freight by UAVs. Drones present the possibility of making the last-mile element of deliveries much more efficient than a box truck winding its way through neighborhood streets, with a delivery person carrying each parcel to a front door. In the future, delivery drivers may be able to launch multiple short-range drones from their vehicles to deliver lightweight items within a specific radius, saving fuel and driving time. In a similar vein, Amazon and Wal-Mart have proposed “floating warehouse” ideas:

concepts for storing merchandise on an airship stationed above (or moving between) metropolitan areas, with individual items delivered by drone to customers when they are ordered.

Merchandise delivery via drones may, in time, cut delivery times down from days to hours. If this proves to be the case, it will alter the value of land currently used for brick-and-mortar retail. Physical stores' greatest advantage over online shopping is instant gratification. Once online retailers can offer low-cost delivery by drone within one or two hours, that advantage is considerably reduced. In Central New York, we are already seeing the decline of two major shopping centers: Shoppingtown and Great Northern Malls. Other retail centers may follow as online shopping becomes more convenient and rapid delivery becomes the norm.

5.5.7 POLICY CONSIDERATIONS

In many U.S. cities, the emergence of ride sharing apps and micro-mobility services (such as electric scooters) caught planners and policy makers by surprise. These services caught on very quickly and became more popular than expected. Similarly, most Americans were not fully aware until well into the 2010s of the degree to which personal information is collected and turned into a marketable product by technology corporations.

As new technologies become available, it will be important for local and state governments and agencies to develop policies to protect residents and ensure that the benefits of new transportation options are shared equitably. Local leaders should consider developing regulations and plans that will:

- Ensure AV affordability, ADA-accessibility, and sharing;
- Make VMT reduction a goal;
- Ensure that personal data is managed based on general public interest, with an emphasis on privacy;
- Ensure conduit and fiber optic cables are available for new and reconstructed infrastructure;
- Develop a blueprint for rolling out regional transportation-communication infrastructure, including RSUs, signal controllers, and supporting personnel;

- Identify which corridors in our region should include lanes designated for AVs only;
- Focus on moving people rather than moving vehicles;
- Integrate new technologies into the public space in an organized, efficient way, i.e. parking fees and/or congestion pricing, curb access policies, dockless bike/scooter/etc. share; and
- Ensure new lane markings and signage are “machine readable”.

REFERENCES:

- ABC7 News. (2018, March 6). California’s first driverless bus hits the road in San Ramon. <https://abc7news.com/san-ramon-driverless-bus-test-testing-autonomous/3183813/>
- Bigelow, Pete. (2019, July 21). Why Level 3 automated technology has failed to take hold. Automotive News. <https://www.autonews.com/shift/why-level-3-automated-technology-has-failed-take-hold>
- Bresiger, Gregory. (2018, June 17). New Yorkers are spurning public transport for ride sharing. New York Post. <https://nypost.com/2018/06/17/new-yorkers-are-spurning-public-transport-for-ride-sharing/?smid=nytcore-ios-share>
- Caparella, Joey. (2019, April 29). Toyota puts connected car-tech plans on hold. Car and Driver. <https://www.caranddriver.com/news/a19855320/toyota-bets-big-on-connected-car-tech/>
- Clewlou, Regina; Mishra, Gouri Shankar. (2017, October). Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States. UC Davis Institute of Transportation Studies. https://itspubs.ucdavis.edu/wp-content/themes/ucdavis/pubs/download_pdf.php?id=2752
- Ehrhardt, Gregory; Sneha, Roy; Cooper, Drew; Bhargava, Sana; Mei Chen; Castiglione, Joe. (2019, May 8). Do transportation network companies decrease or increase congestion? Science Advances. <https://advances.sciencemag.org/content/advances/5/5/eau2670.full.pdf>
- Federal Highway Administration. (2014, June 27). National Connected Vehicle Footprint Infrastructure Footprint Analysis. <https://rosap.ntl.bts.gov/view/dot/3440>
- Hamilton, Isobel Asher. (2019, October 1). Tesla cars can now drive themselves to their owners with ‘Smart Summon’ but video shows the feature wreaking havoc. Business Insider. <https://www.businessinsider.com/teslas-smart-summon-feature-is-wreaking-havoc-2019-10>
- Hawkins, Andrew J. (2019, December 9). Waymo’s driverless car: ghost-riding in the back seat of a robot taxi. The Verge. <https://www.theverge.com/2019/12/9/21000085/waymo-fully-driverless-car-self-driving-ride-hail-service-phoenix-arizona>

- McLellan, Charles. (2019, November 4). What is V2X communication? Creating connectivity for the autonomous car era. ZDnet.com. <https://www.zdnet.com/article/what-is-v2x-communication-creating-connectivity-for-the-autonomous-car-era/>
- Morgan Stanley. (2013, November). Autonomous Cars - Self-Driving the New Auto Industry Paradigm. <https://orfe.princeton.edu/~alaink/SmartDrivingCars/PDFs/nov2013morgan-stanley-blue-paper-autonomous-cars%ef%bc%9a-self-driving-the-new-auto-industry-paradigm.pdf>
- National Operations Center of Excellence. (2017, July 1). The national connected vehicle SPaT deployment challenge – frequently asked questions. <https://transportationops.org/spatchallenge/resources/faq>
- National Highway Traffic Safety Administration (NHTSA). (2020, March 31). NHTSA and EPA finalize CAFE and carbon dioxide emissions standards for model years 2021-2026. <https://www.nhtsa.gov/corporate-average-fuel-economy/safe>
- National Highway Traffic Safety Administration (NHTSA). (2017, September 12). Automated Vehicles for Safety. <https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety>
- NYS Department of Labor. (2018). Wages and Occupations for Central New York, 2018. (Note that the New York State Department of Labor defines Central New York as including Cayuga, Cortland, Madison, Onondaga, and Oswego Counties.) <https://labor.ny.gov/stats/cen/cnyindex.shtm>
- New York State Energy Research and Development Authority (NYSERDA). (2019a). EValuateNY-Tool.xls, PivotTable, Level 2 Ports. <http://atlaspolicy.com/PowerBI/EValuateNY>
- New York State Energy Research and Development Authority (NYSERDA). (2019b). EV-Registration-Tables.xls, 'Original Over Time'. <https://www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/EV-Registration-Tables.xlsx>
- Oregon Department of Transportation. (2017, April). Oregon's Road Usage Charge: The OReGo Program Final Report. https://www.oregon.gov/ODOT/Programs/RUF/IP-Road%20Usage%20Evaluation%20Book%20WEB_4-26.pdf
- Pan, Shui; Roy, Anirban; Choi, Younsoo; Sun, ShiQuan; Gao, Oliver H. (2019). The air quality and health impacts of projected long-haul truck and rail freight transportation in the United States in 2050. Environment International. <https://reader.elsevier.com/reader/sd/pii/S0160412019300376?token=c8997315431ffe8c321f9178f58177a2d1bda737b73727fdabf2c7bd932332f5fbab28ab6edc4e92b89ba60acf0c77f9>
- Peng, Huei. (2018, May 23). What are these 'levels' of autonomous vehicles? Government Technology. <https://www.govtech.com/fs/transportation/What-Are-These-Levels-of-Autonomous-Vehicles.html>
- Schneider, Benjamin. (2018, February 7). Traffic's mind-boggling economic toll. CityLab. <https://www.citylab.com/transportation/2018/02/traffics-mind-boggling-economic-toll/552488/>

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Chapter 6:

Financial Analysis

6.1 REQUIREMENT FOR A FINANCIAL PLAN

The Fixing America's Surface Transportation (FAST) Act requires that the LRTP include a financial plan, including future revenue projections and future project costs. The legislation requires that the LRTP be "fiscally-constrained," meaning that it must include a financial plan that "demonstrates how the adopted transportation plan can be implemented" and "indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan." (23 U.S.C., Sec. 134 (i)(2)(E)(i)) In other words, the plan must show how the region will pay for any projects included in the anticipated future scenario, with revenues that are reasonably expected to be available. Thus, the LRTP is grounded in financial reality and is not simply a "wish list" of projects for the region.

The LRTP may include a list of "illustrative projects" representing additional investment priorities that would be considered if additional financial resources become available in the future.

6.2 FUTURE COSTS AND REVENUES

6.2.1 COST PROJECTIONS FOR ANTICIPATED FUTURE PROJECTS

As described in Chapter 5, the SMTC member agencies provided lists of future projects that they would like to complete to address known capacity or accessibility concerns, in addition to the priority projects identified at the beginning of the LRTP process (completion of the I-81 Viaduct Project, enhanced transit system, and regional trail network). These projects were included in the 2050 Anticipated Future scenario model. Member agencies also provided lists of desired maintenance projects, many of which would not impact the regional travel demand model. The financial analysis considers whether the

Federal legislation dictates that the LRTP must show how the region will pay for any projects included in the anticipated future scenario, with revenues that are reasonably expected to be available.

What is a capital project?

A 'capital project' is a major construction project or acquisition. It includes all transportation modes: facilities for pedestrians and cyclists, purchasing buses and maintaining, improving and constructing roads and bridges. 'Capital expenses' are the costs associated with capital projects.

Within this plan, “maintenance” includes capital projects that are “replacements in-kind,” such as bus replacements, transit facilities maintenance, paving or reconstructing roads, or rehabilitating or replacing bridges with no increase in the capacity of the current system.

region can reasonably expect to fund these projects over the next 30 years. However, inclusion in this financial plan does not guarantee that a project will be funded; each project must still compete for federal funding through the SMTC’s TIP process. Projects selected for inclusion on the TIP will be evaluated based on the updated LRTP goals, objectives, and performances measures, and weighed against the other projects proposed for that particular TIP update.

Centro provided details of their capital plan through Federal Fiscal Year (FFY) 2050 (updated September 2019), in year-of-expenditure (YOE) dollars, and SMTC staff summarized the data into preventive maintenance, rolling stock (i.e. bus replacements), equipment, and other capital project needs (for example, bus shelters, farebox system replacements, and fueling facility maintenance), as shown in Table 6.1.

Highway projects were grouped into three categories: non-maintenance, major maintenance, and minor maintenance. In this

How are capital projects selected and funded?

The SMTC prepares the Transportation Improvement Program (TIP), which is a multi-year listing of all capital projects within the MPA that have been selected for receipt of transportation dollars from the Federal Highway Administration and the Federal Transit Administration.

All SMTC member agencies are involved in some fashion in the selection process. In many cases, municipal planners and engineers generate lists of potential improvements based on studies, analysis, and public input. Projects are evaluated by the SMTC Capital Projects Committee, which consists of SMTC staff and representatives from city, county, and state agencies. The evaluation considers the relationship of the suggested capital project to LRTP transportation system performance goals, objectives, and performance measures. After projects are evaluated, an initial listing of recommended projects is released for public comment and then moved forward to the

SMTC Planning and Policy Committees for approval. The TIP and the selection process are described in more detail on the SMTC’s website and in the TIP Guidebook, which can be found on the site (<https://smtcmpo.org/about-us/planning-process/tip/>).

Typically, more than three-quarters of all federal transportation funding in our area goes to maintenance of existing infrastructure. Over \$428 million is programmed in the current 2020-2024 TIP (as of June 2020), with more than 75 percent of that total for maintenance activities (highway and transit). This includes activities that preserve or maintain our existing infrastructure or replace infrastructure ‘in-kind’ (i.e. replace with the same structure, without an increase in the capacity of the system). Examples include paving roads, reconstructing roads (without adding lanes), painting bridges, replacing or rehabilitating bridges (without adding travel lanes), or replacing buses.

Table 6.1: Anticipated future transit projects and costs

All costs are in millions of year-of-expenditure (YOE) dollars

Project	Short-term	Mid-term	Long-term	Total
	FFY 2020-2024	FFY 2025-2034	FFY 2035-2050	
Preventive Maintenance	39.09	93.72	221.45	354.26
Rolling stock (bus replacements)	48.99	69.16	163.09	281.24
Equipment	0.23	1.86	2.81	4.90
Other capital project needs	0.55	13.46	31.86	45.87
Total	88.86	178.20	419.21	686.27

Note: FFY 2020 runs from Oct. 1, 2019 through Sept. 30, 2020, etc.

context “maintenance” includes capital projects that are “replacements in-kind,” such paving or reconstructing roads, or rehabilitating or replacing bridges with no increase in the capacity of the current system. Major maintenance projects are those with an expected construction cost over \$3 million. Non-maintenance and major maintenance projects for the short- and mid-term timeframes are listed individually in Tables 6.2 and 6.3. Minor maintenance projects have been grouped together in categories by project type, also shown in Tables 6.2 and 6.3. All short-term costs are consistent with the current 2020-2024 TIP. Costs for mid-term non-maintenance and major maintenance projects were developed in consultation with the appropriate member agency. Mid-term minor maintenance cost projections were developed based on the total cost of short-term minor maintenance projects, inflated by 2 percent per five-year time block. Both the City and the County currently spend a portion of their own budgets on preventive and corrective maintenance of Federal-aid eligible (FAE) roads within their jurisdiction and this is expected to continue in the future; therefore, City and County projects on FAE roads are included in these tables.

The member agencies did not identify specific highway projects for the long-term timeframe (2035-2050). Recognizing that maintenance needs will continue to increase substantially beyond 2035, it was projected that 90 percent of long-term revenue would fund future maintenance projects, with the remaining ten percent expected to be used to address future safety or capacity issues, continue to build our pedestrian and bicycle networks, and expand transportation systems management and operations (TSMO). This is shown in Table 6.4.

Table 6.2: Anticipated future short-term (2020-2024) highway projects and costs

Project	Category	Agency	Total cost (mil- lions YOE \$)
Non-maintenance			62.113
Onondaga Lake Parkway safety improvements, Old Liverpool Rd. to I-81 ramp	Safety	NYSDOT	9.916
Freeway incident management technology enhancements along Interstates 81 and 481, and 695	TSMO	NYSDOT	5.600
Reconstruct Rt 11 at Rt 49 intersection	Capacity	NYSDOT	5.510
NY 31 at Thompson Rd & South Bay Rd intersection improvements	Capacity	NYSDOT	4.515
Upgrade and replace signal hardware	TSMO	NYSDOT	3.010
Safety appurtenance program (SAFETAP)	Safety	NYSDOT	2.029
Highway emergency local patrol (HELP)	TSMO	NYSDOT	1.560
Bridge improvements I-690 over John Glenn Blvd	Safety	NYSDOT	0.809
Rt 11 ADA sidewalk & pedestrian safety project, Stevens Dr to Factory St	Bike/ped	NYSDOT	0.766
I-481 at Kirkville Rd ramp realignment	Safety	NYSDOT	0.550
Railroad grade crossing improvements, CSX railroad, Old Liverpool Rd	Safety	NYSDOT	0.500
Railroad grade crossing improvements, CSX railroad, Vine St	Safety	NYSDOT	0.395
Onondaga Lake canalways trail – Salina extension project	Bike/ped	OCDOT	10.775
Caughdenoy Rd/NYS Rt 31 improvements	Capacity	OCDOT	4.120
Pedestrian signal safety project – 10 priority locations	Safety	OCDOT	0.693
N, S, E, W corridors interconnect expansion	TSMO	Syracuse	6.769
Intersection improvements, PSAP #2	Safety	Syracuse	1.837
Intersection pedestrian improvements	Safety	Syracuse	1.304
Creekwalk Improvements, bridge and walk maintenance	Bike/ped	Syracuse	1.185
Lodi Street Connector	Bike/ped	Syracuse	0.270
Major maintenance			183.725
Rt 635 bridge replacements, over I-690 and CSX railroad	Bridge	NYSDOT	17.500
Airport Rd bridges over I-81 minor rehabilitation	Bridge	NYSDOT	12.001
I-81 maintenance, Rt 31 south of Rt 49	Highway	NYSDOT	9.350
Bridge rehab, I-81 ramps to Hiawatha and CR 137	Bridge	NYSDOT	9.256
Paving, Rts 635 and 298, Town of DeWitt	Highway	NYSDOT	8.335
TMC/ITC operations and maintenance	TSMO	NYSDOT	7.388
Rt 20 MBC, Rt 175 TO Rt 80	Highway	NYSDOT	7.261
MBC Rts 5 AND 92, Rt 5 to Village of Manlius	Highway	NYSDOT	6.677
MBC, Rt 20, Cayuga Co. line to Rt 175	Highway	NYSDOT	6.631
Reconstruct Rt 20, I-81 bridge to Lafayette Rd	Highway	NYSDOT	6.357
MBC, I-81, Syracuse city line to Mattydale	Highway	NYSDOT	6.302
MBC, Rt 481, I-81 to Oswego Co. line	Highway	NYSDOT	6.213

Table 6.2, continued: Anticipated future short-term (2020-2024) highway projects and costs

Project	Category	Agency	Total cost (mil- lions YOE \$)
Sentinel Heights Rd over I-81	Bridge	NYS DOT	5.734
Hiawatha Blvd over I-81 rehab	Bridge	NYS DOT	5.696
Rt 481 MBC, Onondaga Co. to Fulton city line	Highway	NYS DOT	4.400
MBC, Rts 92 & 173, Rt 257 to Academy St & Flume St to Clinton St	Highway	NYS DOT	4.335
I-81 over Rt 11 rehab	Bridge	NYS DOT	4.194
Taft Rd over I-81 element specific bridge repairs	Bridge	NYS DOT	4.104
Rt 5 MBC, Thompson Rd to Rt 92	Highway	NYS DOT	4.049
VPP/CIPR Rt 80, Rt 20 to Vesper	Highway	NYS DOT	4.000
Rt 5 MBC, Terry Rd to Myrtle St	Highway	NYS DOT	3.920
Rt 298 over Barge Canal rehab	Bridge	NYS DOT	3.647
Old Liverpool Rd paving, Electronics Pkwy to Buckley Rd	Highway	OCDOT	7.858
Old Rt 5/ Warners Rd paving	Highway	OCDOT	3.938
W. Genesee St road improvement project, city line to S Salina St	Highway	Syracuse	7.859
E Brighton Ave paving, Thurber to city line	Highway	Syracuse	7.428
E Colvin St paving, Comstock to city line	Highway	Syracuse	5.148
Downtown mill & pave, various streets	Highway	Syracuse	4.144
Minor maintenance			126.620
NYS DOT bridge maintenance	Bridge	NYS DOT	29.245
NYS DOT highway maintenance	Highway	NYS DOT	24.361
OCDOT highway maintenance	Highway	OCDOT	36.974
OCDOT bridge maintenance	Bridge	OCDOT	7.374
OCDOT TSMO maintenance	TSMO	OCDOT	0.456
Syracuse highway maintenance	Highway	Syracuse	18.981
Syracuse bridge maintenance	Bridge	Syracuse	3.679
Syracuse TSMO maintenance	TSMO	Syracuse	1.648
Other municipal highway maintenance	Highway	Other	3.135
Other municipal bridge maintenance	Bridge	Other	0.767
SHORT-TERM TOTAL ALL PROJECTS			372.458

Note: TSMO stands for “Transportation Systems Management and Operations.” The FHWA defines TSMO as “a set of strategies that focus on operational improvements that can maintain and even restore the performance of the existing transportation system before extra capacity is needed.” TSMO may include activities such as signal coordination, incident management, and traveler information systems, for example. (<https://ops.fhwa.dot.gov/tsmo/index.htm>)

Table 6.3: Anticipated future mid-term (2025-2034) highway projects and costs

Project	Category	Agency	Total cost (mil- lions YOE \$)
Non-maintenance			212.686
I-81 interchange at Route 31	Interchange im- provements	NYSDOT	40.000
Construct new Region 3 Traffic Management Center	TSMO	NYSDOT	28.000
Reconstruct Hastings rest area and truck inspection station (I-81 SB)	TSMO	NYSDOT	15.000
New Hastings rest area (I-81 NB)	TSMO	NYSDOT	15.000
Route 31 intersection turn lanes, Morgan Rd to Route 11	Safety	NYSDOT	11.120
Route 175, Cedarvale Rd to NE Townline Rd reconstruction & safety improvements	Safety	NYSDOT	7.000
Intersection improvements, NY5 and NY257	TSMO	NYSDOT	5.000
Highway Emergency Local Patrol (HELP), Onondaga County interstates	TSMO	NYSDOT	3.214
Route 481 NB off-ramp at Circle Drive	Safety	NYSDOT	2.000
Buckley Rd shared turn lane and Buckley/Bear intersection upgrades	Safety	OCDOT	13.041
Soule Road widening	Capacity	OCDOT	12.355
South Bay Rd center turn lane, Bear Rd to Rt 31	Safety	OCDOT	6.672
7th North Street/Buckley Rd intersection upgrades	Safety	OCDOT	6.178
Henry Clay Blvd center turn lane, Wetzel Rd to Rt 31	Capacity	OCDOT	6.116
Morgan Road widening, Wetzel Rd to Rt 31	Capacity	OCDOT	5.560
Kirkville Rd widening, I-481 to Fremont Rd	Capacity	OCDOT	5.560
Commerce Blvd and Vine St intersection improvements and Vine St widening (center turn lane), Thruway to Henry Clay Blvd	Safety	OCDOT	2.224
Pedestrian signal safety project – 10 locations	Bike/ped	OCDOT	0.707
Onondaga Creekwalk Phase III	Bike/ped	Syracuse	13.728
James Street 3 lane cross section from State to Grant/Shotwell	Road diets/lane reductions	Syracuse	4.118
Syracuse Bike Plan build-out	Bike/ped	Syracuse	3.000
Conversion of downtown streets to 2-way	Road diets/lane reductions	Syracuse	2.746
Intersection pedestrian improvements	Safety	Syracuse	2.687
Roundabout at James/Shotwell/Grant	Capacity	Syracuse	1.373
Water Street closure, South Crouse Ave to Beech St	Road diets/lane reductions	Syracuse	0.288
Major maintenance			259.331
Bear St bridge over Onondaga Creek/Canal terminal reconstruction	Bridge	NYSDOT	35.000
I-481 over NY5	Bridge	NYSDOT	30.000
Ramp to I-690 WB over 690 and 930T over CR 80 bridge rehab	Bridge	NYSDOT	18.415
Rt 370 reconstruction, Liverpool N Village Line to Cypress St	Highway	NYSDOT	17.555
Joint TMC operation	Highway	NYSDOT	16.701

Table 6.3, continued: Anticipated future mid-term (2025-2034) highway projects and costs

Project	Category	Agency	Total cost (millions YOE \$)
NY 481 over Mud Creek	Bridge	NYSDOT	12.000
I-481 over I-90	Bridge	NYSDOT	12.000
I-81 over Church St	Bridge	NYSDOT	12.000
South Bay Rd over I-81	Bridge	NYSDOT	12.000
Rt 5 Bypass, Old Rt 5 to West Genesee St	Highway	NYSDOT	11.591
Rt 370, Heid's Corners to Cypress St & Rt 931G, Cypress St to Tulip St	Highway	NYSDOT	10.313
Paving, Route 48, Lysander/Baldwinsville, Brown Street to Evans Chevy	Highway	NYSDOT	9.000
Paving, Rt 264, Village of Phoenix	Highway	NYSDOT	9.000
Paving, Rt 290, Village of East Syracuse	Highway	NYSDOT	9.000
Paving, 7 th North St, Electronics Parkway to railroad bridge	Highway	OCDOT	4.495
Paving, John Glenn Blvd EB, I-690 to Buckley Rd	Highway	OCDOT	4.208
Paving, Onondaga Blvd, City boundary to Fay Rd	Highway	OCDOT	3.970
Paving, Rt 57 & Soule Rd	Highway	OCDOT	3.922
Jamesville Rd Paving Project, North St to Quintard Rd	Highway	OCDOT	3.657
South Salina St Repaving Project, East Florence Ave to City Line	Highway	Syracuse	8.801
Avery Ave Repaving Project, Grand Ave to West Genesee St	Highway	Syracuse	5.242
Paving, Midland Ave, W Brighton to Ballantyne	Highway	Syracuse	3.461
Reconstruct Genesee Street, Village of Camillus	Highway	V. Camillus	7.000
Minor maintenance			260.888
NYSDOT bridge maintenance	Highway	NYSDOT	60.256
NYSDOT highway maintenance	Bridge	NYSDOT	50.193
OCDOT highway maintenance	Highway	OCDOT	76.181
OCDOT bridge maintenance	Bridge	OCDOT	15.193
OCDOT TSMO maintenance	TSMO	OCDOT	0.940
Syracuse highway maintenance	Highway	Syracuse	39.108
Syracuse bridge maintenance	Bridge	Syracuse	7.580
Syracuse TSMO maintenance	TSMO	Syracuse	3.396
Other municipal highway maintenance	Highway	Other	6.459
Other municipal bridge maintenance	Bridge	Other	1.580
MID-TERM TOTAL ALL PROJECTS			732.905

Table 6.4: Anticipated future long-term (2035-2050) highway project costs by category

Category	Total cost (millions YOE \$)
Non-maintenance	147.402
TSMO expansion	45.890
Capacity	21.459
Interchange improvements	27.722
Safety	35.291
Bike/ped	12.083
Road diets/lane reductions	4.957
Maintenance	1,326.618
Highway	764.673
Bridge	550.890
TSMO	11.055
LONG-TERM TOTAL ALL PROJECTS	1,474.020

The project lists in Tables 6.2 and 6.3 clearly show the significance of maintenance projects to our region’s highway system. In both the short- and mid-term years of this plan, the major maintenance projects account for the largest share of the total anticipated future project costs (at approximately \$184 million and \$259 million, respectively). Many of these individual major maintenance projects are more costly than individual non-maintenance projects; in other words, the biggest highway projects in our region are often projects just to maintain the system that we already have. Our region spends (and expects to continue spending) most of our available funds to keep our current system functioning, with relatively little left over to expand or substantially alter the system. In general, the non-maintenance projects that we expect to complete are those that address safety issues or expand our bicycle and pedestrian network. For example, in the short-term the most expensive non-maintenance project is an extension of the Onondaga Lake trail (at just under \$11 million), but two maintenance projects (both bridge projects - replacement in-kind or rehabilitation) are expected to be more costly. Capacity projects included in the mid-term projects list are related to recent and anticipated economic development projects with significant job growth (see Section 3.2.4). These projects have the potential to impact traffic volumes and travel patterns, which may warrant future capacity increases. These changes will be observed closely in the next few years.

Anticipated project costs through 2050 total over \$3.26 billion. As shown in Figure 6.1, highway and bridge maintenance project costs alone make up 66 percent of the anticipated future project costs. Transit projects - all considered maintenance - make up another 22 percent of the total project costs. The remaining 12 percent of total anticipated project costs are expected to be for non-maintenance projects.

6.2.2 REVENUE PROJECTION

Revenues were projected for the short-, mid-, and long-term timeframes for both transit and highway funding sources, as shown in Table 6.5. Transit revenue estimates were based on data provided by Centro from their capital plan. Centro operations are primarily funded

FIGURE 6.1: ANTICIPATED FUTURE PROJECT COSTS BY CATEGORY

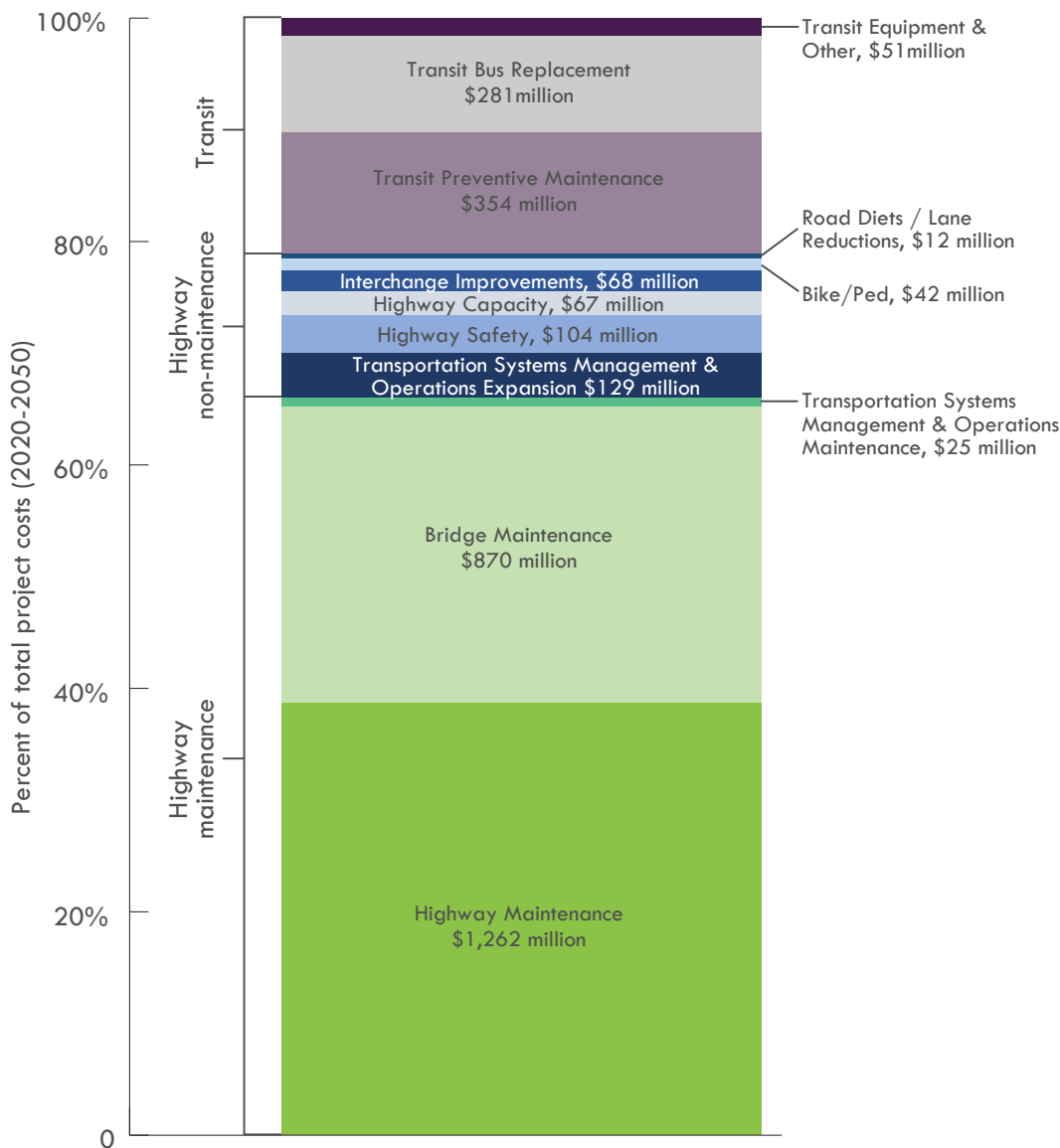


Table 6.5: Anticipated revenues for transit capital projects and projects on Federal Aid Eligible highways

All revenues are in millions of dollars

Revenue Source		Short-term		Mid-term		Long-term		Total
		FFY 2020-2024		FFY 2025-2034		FFY 2035-2050		
Transit								
Federal Aid	Sections 5307 + 5339	37.68		103.16		228.42		369.26
	Competitive 5339	0		3.60		0		39.60
	Subtotal	37.68		106.76		228.42		460.77
Local match to Federal Aid		9.42		26.69		57.11		93.22
Federal Aid + match		47.10		133.45		285.53		466.08
State dedicated funds (SDF)		37.73		48.75		139.75		226.23
TRANSIT TOTAL, Fed Aid + match + SDF		84.83		182.20		425.28		692.31
Highway		Suballo-	Addi-					
		cation	tional					
Federal Aid	Core programs	229.77	20.00	513.25	1,065.01	1,827.98		
	HSIP	8.59	8.92	19.18	39.81	76.50		
	NHPP	164.12	10.98	366.60	760.71	1,302.40		
	STBG-Flex	29.19	0	65.20	135.29	229.67		
	STBG-Off System Bridge	2.39	0	5.33	11.06	18.77		
	STBG-Urban	25.49	0.06	56.94	118.15	200.65		
	TAP	1.45	2.00	8.00	12.72	24.16		
	HPP	0	0.57	NA	NA	0.57		
	CMAQ	0	1.61	3.32	5.24	10.17		
	NHFP	19.00	0	NA	NA	19.00		
	Subtotal	250.22	24.14	524.56	1,082.96	1,881.87		
Local match to Federal Aid		57.10		107.43		221.79		386.32
Federal Aid + match		331.46		631.99		1,304.75		2,268.20
Other sources	State dedicated funds (SDF)	10.02		20.04		30.06		60.12
	CHIPS (FAE roads only)	16.49		32.99		52.78		102.25
	Other County and City funds on FAE roads	28.81		57.62		86.44		172.87
	Subtotal	55.32		110.65		169.27		335.24
HIGHWAY TOTAL, Fed Aid + match + Other sources		386.79		742.63		1,474.02		2,603.44
Summary								
Total Federal Aid (transit + highway)		312.04		631.32		1,311.38		2,254.73
Total match		66.52		134.12		278.89		479.54
Total other sources		93.05		159.40		309.02		561.47
GRAND TOTAL AVAILABLE REVENUE		471.61		924.83		1,899.29		3,295.74

Table 6.5 notes:

- 20% local match assumed for FTA fund sources; average of 17% local match assumed for FHWA fund sources, consistent with average from current TIP.
- FTA Section 5307 and 5339 expected revenues were provided by Centro. Centro assumed a 2.5% per year increase in funding.

by Statewide Mass Transportation Operation Assistance (STOA), provided by NYSDOT, and local sources (including farebox revenues). These are established revenue sources that are expected to continue to be used for operations in the future. Revenues for highway projects in the short-term are consistent with the current 2020-2024 TIP (as of October 2019), with an average 17 percent local match. Federal Aid for highway projects was projected for all current programs based on a 2 percent per year increase in the total allocation, as agreed upon by NYSDOT in consideration of previous authorizations and the future uncertainty in the Federal program. Since other fund sources are also used for projects on the Federal Aid system, these sources are also included in the revenue estimates shown in Table 6.5. These include State dedicated funds, Consolidated Local Street and Highway Improvement Program (CHIPs) funds, and municipal funds. (Note that only CHIPs and municipal funds spent by Onondaga County and the City of Syracuse were included because there are so few miles of Federal aid-eligible roads owned/maintained by towns and villages.)

The SMTC anticipates a total of nearly \$3.3 billion in revenue to be available for transit and highway capital projects in our planning area through the year 2050. These projections are based on the assumption of very modest increases in fund allocations over time (see the table notes for details). About 68 percent of the expected revenue is Federal

Table 6.5 notes, continued:

- Centro indicated that they expect to apply for \$3.6M in Competitive 5339 funds within the mid-term years of this plan.
- State dedicated funds (transit) in short-term are consistent with current TIP. Centro provided information on the amount of SDF they expect to receive for use in Onondaga County in the mid- and long-term years of the plan.
- "Additional" highway funds in the short-term timeframe are for programs that have had (or are expected to have) statewide solicitations.
- Highway Federal Aid total (core programs) for mid- and long-term were projected to increase at 2% per year starting from the five-year average total annual allocation in the current 2020-2024 TIP. The five-year average was calculated based on all Federal fund sources, including "additional" funds. Total Federal Aid was then assumed to be distributed among the core programs proportionally to the distribution in the current TIP.
- TAP and CMAQ funds were assumed to increase by 2% per five-year time block in the mid- and long-term from the current allocation. "Additional" TAP was assumed at \$1 million every two years, based on recent solicitations.
- HPP is a fund source from prior authorization acts, so no future funds are anticipated.
- State dedicated funds (highway) figure for short-term was provided by NYSDOT in June 2019 per their program update, for projects with letting dates in FFY 2020-2024. Conservatively assumed that this funding rate would remain constant for mid- and long-term years of this plan.
- The OCDOT indicated that approximately 27% of their annual paving work is on FAE roads. SMTC staff review of City of Syracuse paving work indicated that approximately 65% of their road reconstruction budget in 2018 and 2019 was spent on FAE roads. These percentages were applied to the CHIPs funding and other County and City funds (based on the respective Capital Improvement Plans and/or Department of Public Works budget) and assumed to remain steady (annually) throughout all timeframes in this plan.

Aid, with the remaining revenue about evenly split between local match funds and other sources (State dedicated, municipal funds, etc.). No new financing strategies or funding sources (such as private contributions) are included as their availability is not currently considered likely. However, if this situation changes, future L RTPs may include additional resources currently not available to member agencies.

These revenue projections were primarily developed prior to the COVID-19 pandemic and subsequent impacts to the U.S. economy. At this point, staff and member agencies are unable to predict what impact this crisis may have on the availability of Federal Aid in future years. The SMTC will monitor this situation, along with the anticipated reauthorization of the federal highway program (due to the FAST Act’s expiration on September 30, 2020).

6.3 FISCAL CONSTRAINT

Table 6.6 compares the anticipated future project costs to the anticipated available revenue from all sources identified in the previous section, and demonstrates how the SMTC will achieve fiscal

Table 6.6: Fiscal constraint

All figures in millions of year-of-expenditure (YOE) dollars.

	Short-term	Mid-term	Long-term	Total
	FFY 2020-2024	FFY 2025-2034	FFY 2035-2050	
Transit				
Federal aid + match (FTA)	47.10	133.45	285.53	466.08
Federal aid + match (FHWA)	4.03	0.00	0.00	4.03
State dedicated funds	37.73	48.75	139.75	226.23
Total capital project costs	88.86	178.20	419.21	686.27
Balance	0.00	4.00	6.06	10.07
Highways				
Federal aid + match (FHWA)	327.43	631.99	1,304.75	2,264.17
State funding (inc. SDF)	10.02	20.04	30.06	60.12
CHIPs, local funds	45.30	90.61	139.21	275.21
Total capital project costs	372.46	732.91	1,474.02	2,579.38
Balance	10.30	9.73	0.00	20.02
All projects				
Total revenue	471.61	924.83	1,899.29	3,295.74
Total capital project costs	461.32	911.10	1,893.23	3,265.66
Overall balance	10.30	13.73	6.06	30.08

constraint over the life of this plan. In the short-term years of the plan (2020-2024), transit project costs exceed FTA and SDF revenues by \$4.03 million. However, the current 2020-2024 TIP includes \$4.03 million in FHWA funds that are programmed to transit projects, and this is reflected in Table 6.6. Fiscal constraint is demonstrated in all timeframes of this plan, with an overall balance of about \$30 million (less than 1 percent of total anticipated revenues) and no deficits in any timeframe for highway or transit projects.

6.4 PUBLIC FEEDBACK ON FINANCIAL PLAN

During the development of the original 2050 LRTP in 2015, the SAC and SMTC staff developed a list of projects to consider if additional funding became available. This list of projects was presented at the April 2015 public meetings (see Appendix C), and meeting attendees were asked to indicate which projects, if any, should be prioritized if transportation funding increases in the future. Bicycle and pedestrian projects (including “complete streets,” completion of the Erie Canalway Trail, and on-road bicycle infrastructure) as well as “increased maintenance work to bring pavement and bridges to good condition” received the most support from the public meeting attendees. Expanding the regional trail network was already identified early-on in the LRTP process as a regional priority, and a number of bicycle and pedestrian-related projects were included in the draft plan. The substantial unmet need for increased maintenance projects was also discussed throughout the original 2050 plan.

For the 2020 update to this LRTP, the SMTC utilized an online financial simulation tool called “Balancing Act” to share the draft financial plan with the public and collect feedback. The simulation allowed users to see the estimated mid- and long-term revenues and project costs by category, and to adjust these.

The Federal Aid + Local Match categories (highways and transit) were not adjustable, since, locally, we have no influence over this Federal Aid. The remaining revenue categories could be increased or decreased by \$1 million increments. All project cost categories could be adjusted in 1 percent increments to indicate a preference for more or less spending in that category. Two yes/no “scenario” questions were

SMTC shared the draft financial plan with the public and collected feedback using an online simulation tool in May/June 2020.

also included, with a lump sum cost for each if the user chose to add that project: \$3 million to expanding bicycle facilities in the City of Syracuse as shown in the City's Bicycle Plan, and \$40 million to implement the BRT system recommended in SMTC's SMART 1 Study and other transit enhancements along Erie Boulevard. Users could adjust the revenues and costs, but were required to submit a balanced budget. Comments could also be added in each category.

The simulation was available online from May 21, 2020, through June 19, 2020 and was advertised through the *2050 LRTP Update Newsletter*, email, and on SMTC's Facebook page. The simulation garnered over 190 page views, and 12 submissions. Of the 12 submissions received, only one included revenue adjustments (small increases in State Dedicated Funds and Competitive Federal Funds). All but one of the submissions included adjustments to the project costs. Highway capacity was the most common spending category to be reduced in the submissions, with eight respondents suggesting an average of \$27 million in reduced spending in this category (and no respondents suggesting an increase in this category). TSMO expansion spending was reduced in seven submissions, at an average decrease of \$13 million. The bicycle and pedestrian enhancements spending category was increased by the most respondents, with seven submissions suggesting an average \$7 million increase in spending. Ten out of the 12 respondents chose to include the City's Bicycle Plan completion project, and nine respondents added the BRT/transit enhancement project. As a result of this feedback, the City's Bicycle Plan project was added to the mid-term projects list (as reflected in Table 6.3). For a detailed summary of the submitted responses and comments, see Appendix H.

6.5 ADDITIONAL (ILLUSTRATIVE) PROJECTS

The SMTC acknowledges that non-traditional, competitive funding will be necessary to complete two significant projects: the I-81 Viaduct Project and an enhanced transit system. Both of these projects would require substantial additional funding and are included for illustrative purposes as important projects that would be added to the LRTP if additional resources could be identified. The NYSDOT's April 2019 Preliminary Draft Design Report/Draft Environmental Impact

Additional funding will need to be secured for the I-81 Viaduct Project and for the implementation of a BRT system.

Statement for the I-81 Viaduct Project indicates estimated total project costs of \$1.9 billion for the Community Grid Alternative and \$2.2 billion for the Viaduct Alternative. Consider that the total cost of all highway projects included in this plan - the 2050 Anticipated Future projects plus maintenance at current levels - is estimated at \$2.58 billion and that total revenue from FHWA sources (including match) is anticipated to be \$2.27 billion through 2050. The I-81 Viaduct Project alone could consume our region's entire allocation of traditional federal highway funds. Clearly, an additional fund source or financing mechanism must be identified to complete the I-81 work.

The BRT system identified by the Syracuse Metropolitan Area Regional Transit (SMART) Study, Phase 1, was included as an option in the financial plan simulation tool. The anticipated capital cost to implement both BRT corridors (Eastwood - OCC and SU - Destiny USA) is about \$34 million (plus an additional \$8 million annually for operations and maintenance). The potential exists to build the BRT system in phases or increments, utilizing some of the capital funds shown in the overall balance in Table 6.6. However, a consistent, reliable source of operating funds must still be identified in order to make this project successful and sustainable.

Two additional transit projects were also discussed in this planning process: a reduction of off-peak headways throughout the Centro system and implementation of an express route on I-81 north of Syracuse with park-n-ride facilities along the highway. The reduction of off-peak headways would result in increased operating costs only; since this financial analysis is focused on capital costs, this additional service was not included. Operating funds present a continual challenge for Centro each year. An express I-81 route with park-n-ride facilities was examined in the Syracuse Transit Systems Analysis (STSA), and the total capital and operating cost was estimated to be \$40 million over 20 years - far more than the available transit funds shown in Table 6.6 for the entire plan.

The need for additional highway maintenance projects was supported by the SAC members and the public input. The maintenance costs included in Tables 6.3 and 6.4 are based on what the SMTC has

An additional \$2 billion would be necessary to bring most of our roads and bridges into good condition over the next 10 years.

programmed in the most recent TIP, projected out over the life of this plan, and, therefore, assume that maintenance activities will continue at their current rate. But we know that the condition of our roads, bridges, and transit system has been declining faster than we can fix them (even though about 75 percent of the funds in our recent capital programs have been spent on pavement and bridge projects) and that additional money will be needed to stop further decline and bring the majority of the system into good condition. SMTC staff worked with our member agencies to estimate the funding that would be necessary to bring a substantial portion of our system into good condition by 2030. This figure was estimated to be on the order of \$2 billion for additional maintenance activities. This is a substantial investment in our transportation system above and beyond the funding that we currently anticipate for the foreseeable future. In recognition of the substantial financial needs associated with illustrative projects and increased maintenance, the SMTC will include an examination of innovative financing techniques, particularly those that may be most appropriate to a region the size of Central New York, in our next UPWP update.

Projects that are not included in this plan

Some projects that are discussed in our community have been examined in the past. Previous planning studies recommended that these projects not move forward, generally because the costs substantially outweighed the benefits or the project did not support the objectives of the LRTP. These projects include the following.

Completion of I-481 west of Syracuse (the “Western Bypass”). The NYSDOT’s I-81 Corridor Study (July 2013) indicated that the Western Bypass “would require extensive investment and have significant impacts to surrounding western communities without meeting the corridor needs. It would be generally located within built urban environments with significant impacts on property, community, economic and environmental resources and was therefore eliminated from further consideration as a stand-alone strategy.” An extension of I-481 to NYS Route 695 was considered as a possible mitigation measure associated with the boulevard strategy, but even this was found to have significant costs with minimal benefit and “the western bypass was ultimately eliminated from further consideration.”

New I-81 interchange between Route 31 and Brewerton. The SMTTC’s Clay-Cicero Route 31 Transportation Study (2010) evaluated options for a new I-81 interchange north of Route 31 and concluded that “additional interchanges should only be considered if a regionally significant development occurs within the study area.” Not only would this require substantial fiscal resources, but interchange spacing requirements (given proximity to existing interchanges) and environmental constraints would pose serious challenges. The study states that “more detailed analysis would be required to clearly demonstrate the need for a new interchange and show that less resource-intensive mitigation measures, such as upgrading existing roads and employing travel demand management techniques, are not

adequate to provide safe and efficient access.” At this time, additional analysis of this interchange is not warranted.

Extension of the Baldwinsville Bypass (Route 631) to Route 48. The construction of Route 631 was split into two phases due to the availability of funds when the project was initially approved in 1998. Phase 1 was constructed between Route 31 and Route 370 in 2000/2001 at a cost of around \$3 million. The second phase would have included a new bridge over the Seneca River, making the cost significantly higher than the first phase (on the order of \$15 million in 1998). The project was also found to have relatively limited capacity benefits. Due to these factors, Phase 2 has not successfully competed for the limited capital funds available in our region over the past 15 years, and we do not expect this situation to change in the future as the maintenance needs throughout the transportation system continue to grow.

Extension or relocation of Route 290 in DeWitt and Manlius. This concept was discussed at length in the SMTTC’s original 2020 LRTP (published in 1995). According to the 2020 LRTP, the idea of relocating Route 5 from the vicinity of the I-481/I-690 interchange to the vicinity of Manlius Center was considered as far back as 1971, and the relocation of Route 290 was included in the 1994-99 TIP as an “unfunded project.” The 2020 LRTP states that “the purpose of the proposed facility was to increase highway capacity between Syracuse and the eastern suburbs in the towns of DeWitt, Manlius, and Sullivan.” The 2020 LRTP included an analysis of the Route 290 project in terms of its effectiveness at meeting the plan objectives, and found that the project would have only a minimal positive impact on the most congested areas in the eastern suburbs and the cost would be substantial. The 2020 LRTP concluded that “this project is ineffective at meeting 2020 Plan objectives.”

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Chapter 7:

Conclusion and Next Steps

7.1 SUMMARY OF ANTICIPATED FUTURE

7.1.1 DEVELOPMENT AND DEMOGRAPHIC TRENDS

Over the next 30 years, the region's demographic and economic growth is expected to continue along the lines established in previous decades, although more population growth is expected in the City of Syracuse than in the recent past – particularly in Downtown, University Hill, and the Lakefront. With continued population growth in the northern suburbs, as well as in the Towns of Camillus, Manlius and Onondaga, and continued employment growth in the City of Syracuse and the Towns of DeWitt, Salina, and Clay, existing commuting trends – primarily utilizing single-occupant vehicles – are likely to continue. The extent to which recent COVID-19-related impacts to commuting patterns will manifest in more permanent trends has yet to be seen, but is something that planners will monitor carefully over the next few years.

The LRTP will influence commuting trends by supporting new transportation options, like bus rapid transit and transit oriented development (TOD), and making existing alternatives, such as ride-share services and commuting by bike, more attractive. However, transportation options must be supported by land use decisions. Developments such as apartments, businesses, and senior facilities should be sited to take advantage of these existing and future transportation options.

The region's median age will continue to rise over the next few decades, with the Baby Boom generation aging into its 80s, 90s, and beyond, and relying on increasingly specialized transportation solutions. At the same time, the Millennials will be transitioning into adulthood and middle age. By dint of its unusual size and its predilection (to date)

for living in urbanized areas and avoiding or delaying car ownership, this generation is in a position to have a significant influence on how the region develops over the next 30 years. Transportation investments that complement these tastes may pay larger dividends than ever before. These trends will continue to be monitored in subsequent updates to this plan.

Technology will also continue to influence how we get around in the future. In the past ten years, several transportation innovations with revolutionary possibilities have emerged, including transportation network companies (TNCs) like Uber and Lyft, drone technology, and driverless vehicles. Continued improvements in fuel efficiency, autonomous vehicles, connected vehicles and the like, may dramatically alter elements of our travel and land use patterns (see Section 5.5), but the fundamentals of the suburban-urban commute via a vehicle will remain, with the associated infrastructure needs, such as good pavement conditions and well-designed facilities.

7.1.2 SYSTEM CONDITIONS

Private vehicle. From the point of view of a resident of the region who relies on a car or truck to get around every day, the existing transportation system is working fairly well. Low levels of congestion, overall safety, and an abundance of accessible freeways make it easy to get from Hastings to Tully and from Geddes to DeWitt. From the point of view of overall system conditions, however, there has been a persistent erosion of pavement and bridge conditions regionally. As seen in the financial projections in Chapter 6, maintenance of the existing system will use a large portion of the region's federal funding for the foreseeable future.

Transit. Centro's transit service is extensive and has seen changes in recent years, such as the opening of the Transit Hub in Downtown Syracuse. The SMTC completed the Work Link study, which examined transportation options for low-income workers, as well as the Syracuse Metropolitan Area Regional Transit Study Phase 1 (SMART 1) Study, which identified the locally-preferred alternative for an enhanced transit system as Bus Rapid Transit (BRT) in mixed traffic. Desired future improvements include frequency of service, adding more buses to Centro's routes during the non-commuting hours to connect people

to jobs, creating an express bus service with park and ride lots along I-81 north of Downtown Syracuse, and progressing the BRT system.

Bicyclists and pedestrians. The passage of New York State's Complete Streets law in 2012 made accommodating bicyclists and pedestrians an integral part of transportation planning and design. Just as the Americans with Disabilities Act has gradually transformed buildings and streets over the past two decades, the Complete Streets law will ensure that sidewalks, bicycle facilities, and trails are continuously built into the public right-of-way. In July 2019, the City launched a bike share system through Gotcha Bike, with 35 hubs that currently average 100 rentals per day. Through the Syracuse Bicycle Plan, the City has been working to upgrade its streets to continue to improve accommodations for bicyclists. Additionally, a municipal sidewalk snow removal program was piloted by the City of Syracuse in January 2019, and expanded during the most recent winter season. This LRTP includes performance measures to address both the quantity of facilities (e.g., sidewalk and bike infrastructure mileage) and the safety of cyclists and pedestrians. These items will be considered in the selection of future transportation projects.

Freight movement. The Syracuse region sees relatively little congestion on its primary freight corridor system and this is not expected to significantly change over the next 30 years. The presence of an international airport, the CSX DeWitt Rail Yard, and the I-81/I-90 interchange will continue to give the region a competitive advantage in terms of freight movement. The recent New York State investment in the CSX DeWitt Rail Yard will expand capacity and reduce costs for shipping, making the Central New York region more globally competitive. The region's relatively low congestion and easy access to rail and Interstate highway systems make it attractive to warehousing and distribution businesses, as evidenced by the two recent Amazon warehouse developments. It is likely that additional, related development proposals will follow.

Equity and accessibility. The SMTC's most recent (2018) Environmental Justice Analysis analyzed TIP spending in Priority Target Areas (geographic areas with higher than average proportions

The LRTP identified four regional priorities: the I-81 viaduct, an enhanced transit system, an expanded regional trail network, and an inland port facility.

of low income and/or non-White residents) and concluded that the SMTC's planning activities have been distributed throughout the region, in both Priority Target Areas and non-target areas. The SMTC has also examined pavement conditions in Priority Target Areas compared to the remainder of the MPA and found that overall condition ratings are very similar. Sidewalk compliance ratings in the city are also very similar between Priority Target Areas and the city overall. Both the City of Syracuse and the NYSDOT have adopted ADA Transition Plans for their pedestrian facilities.

SMTC's 2017 Work Link study focused on transportation options for low-income workers, and transit's effectiveness in getting workers to jobs. The study found that most suburban employment centers have good transit coverage in the morning commute period, but service drops off substantially in the off-peak periods and second- and third-shift jobs are often inaccessible for workers without a car. The Work Link study looked at a variety of options to address this situation including vanpools and rideshare subsidies. Also, the BRT system identified in the SMART 1 study would connect a number of city neighborhoods to jobs and educational institutions, with higher-frequency and more reliable transit service. This BRT system would increase accessibility for many of the region's low-income residents and households without vehicles, encourage more people to choose transit, and create economic development potential around BRT stations.

7.1.3 REGIONAL PRIORITY PROJECTS

Four projects remain regional priorities: the I-81 Viaduct Project, an enhanced transit system, an expanded regional trail network, and an inland port facility. As noted earlier, the first three projects have been the subject of substantial community discussion and there is broad public support for advancing these projects, and the state recently made a substantial investment in the CSX DeWitt Rail Yard.

Many of the public comments received during the original 2050 LRTP development process in 2015 focused on the need to make a decision about the I-81 viaduct in downtown Syracuse. Since that time, the NYSDOT has continued to progress this project, completing the Project Scoping Report and Preliminary Draft Design Report/Draft

Environmental Impact Statement, in 2015 and 2019, respectively. Once a decision is made, the SMTC will update this LRTP to reflect the chosen option for the future of I-81. Securing funding for the I-81 Viaduct Project – as well as many local projects that may be associated with whatever option is finally selected – will remain a top priority for the region.

The region’s transit system may be revolutionized by implementing the BRT system identified as the locally-preferred alternative in the SMART 1 study. Securing a sustainable source of operating funds for a BRT system will be a challenge, and will require a focused effort among regional stakeholders. Continued public involvement and support, as well as land use policies that support transit oriented development, will be crucial to the future success of this project.

Compared to the I-81 Viaduct Project and development of an enhanced transit system, expanding our regional trail network is the “low-hanging fruit” – the easiest to accomplish, while improving the quality of life for those that live in the region by offering non-motorized commuting options as well as recreational opportunity. The cost of bicycle, pedestrian, and trail amenities is relatively small (especially compared to the two projects above), but the potential benefits to the region are great. Progress has been made on the Onondaga Lake Trail, the Onondaga Creekwalk, and the Erie Canalway Trail (now part of the state’s larger Empire State Trail). Each of these trails has been expanded in the last two years, and are in the process of being connected (see inset “Current status of regional trail projects” on page 166).

Linking suburban communities and city neighborhoods to our regional trail network will expand options for cycling and strengthen the overall network. The SMTC’s 2013 Bike Commuter Corridor study identified preferred corridors for investments in bicycle lanes and other infrastructure for cyclists, in addition to existing accommodations (wide shoulders) on many roads throughout the region. The City of Syracuse has continued to expand its network of bicycle facilities over the past few years, as recommended in the Syracuse Bike Plan 2040 (a component of the City of Syracuse Comprehensive Plan 2040), which proposes bike infrastructure for over 65 miles of roads throughout

city neighborhoods, including 4.2 miles of priority areas in downtown. Additionally, the SMTC, CNYRPDB, and SOCPA are working together on the Onondaga County Empire State Trail Local Economic Opportunities Plan which is examining trail connections (both on- and off-road) from the EST to local municipalities.

7.1.4 OTHER ANTICIPATED FUTURE PROJECTS

The SMTC's member agencies identified projects that they are likely to complete through the mid-term years of this plan (through

Current status of regional trail projects

As of this writing, the Southwest Extension of the Onondaga Lake Trail is under construction and will add nearly three miles of trail to connect the West Shore Trail to the Syracuse Creekwalk/ Inner Harbor. The trail extension includes fishing access points, lighting, and connectivity to a NYSDEC boat launch, as well as an expansive pedestrian bridge over the rail lines on the south shore of Onondaga Lake. This segment will serve as a key portion of the New York State Empire State Trail system, and is expected to be complete by December 2020. The design of the southeast segments of the Onondaga Lake Trail (Lake Lounge and Murphy's Island) have begun where the canal meets Onondaga Lake, with construction anticipated to begin this year. This trail segment will feature access to wildlife viewing and connects directly to the Onondaga Creekwalk.

Phase Two of the Onondaga Creekwalk, connecting Armory Square to Kirk Park, opened in summer 2020, adding 2.2 miles of paved trail in the City of Syracuse. Cyclists and pedestrians can now travel from the Onondaga Lake Trail to Kirk Park by way of the Onondaga Creekwalk. Phase Three of the project, which is only a concept at this time, would extend the Creekwalk to the southern border of the City at Dorwin Avenue.

In his January 2017 State of the State addresses, Governor Cuomo announced plans for completing the Erie Canalway Trail and the Hudson River Valley Greenway by 2020, to create the Empire State Trail. As a result, one of the largest gaps in the Erie

Canalway Trail, the local segment between Camillus and DeWitt, will be completed by December 2020. Locally, the NYSDOT has taken the lead on completing the Empire State Trail. As of summer 2020, the pedestrian crossing at Warners Road, on-road improvements to Water Street including bike lanes and improved crosswalks, and the Towpath Road connection (from the Bridge Street/Erie Boulevard intersection to Butternut Drive) have been built. The new pedestrian/bicycle bridge over I-481 and shared-use path along the median of Erie Boulevard East from Beech Street to Bridge Street are currently under construction. Honeywell Corporation is also contributing to the Empire State Trail by extending a trail from Reed Webster Park in Camillus to the connection at I-695, and adding a trail segment along the old canal that parallels Gere Lock Road. Honeywell anticipates these pieces of the Empire State Trail to be open to the public by fall 2020.

As mentioned in Section 3.2.3, the CNYRPDB's Central New York Regional Recreation & Heritage Plan outlines a regional bicycle touring corridor network for Central New York with 29 potential recreation and bicycle touring corridors. This network will connect to the Onondaga Lake Trail, Onondaga Creekwalk, and local Empire State Trail segments, further solidifying and emphasizing trails and non-motorized transportation options within (and connections beyond) the MPA.

2034), which totaled over \$1.37 billion. For the long-term years (2034-2050), an additional \$1.89 billion in projects - primarily maintenance - is anticipated, for a total of over \$3.26 billion in project costs over the life of this plan. However, the projects listed in Chapters 5 and 6 of this document will still have to compete for capital funds through the SMTC TIP process and be judged against other projects proposed in the individual TIP cycle for their ability to meet the LRTP goals and objectives and to ensure progress on our performance measures. Also, as costs for I-81 become more clear and additional local projects associated with the I-81 construction are identified, some of the projects included in this LRTP may be pushed to later years or reprioritized.

Additionally, we know that the condition of our roads, bridges, and transit system has been declining faster than we can fix them even though we currently spend a substantial portion of our funds on maintenance activities. Public feedback during the LRTP's development reiterated the need for increased maintenance work on the existing system. Working with our member agencies, the SMTC estimated that around \$2 billion in additional funding would be necessary to bring a substantial portion of our system into good condition by 2030. Given the maintenance/replacement in-kind needs of the existing system, limited financial resources, and the fact that our existing road system generally operates very well, we do not anticipate spending significant funds to expand the capacity of the existing transportation system.

7.1.5 FISCAL OUTLOOK

Uncertainty about future funding levels remains, especially given that the FAST Act expires in September 2020, and the nation is still learning how to react and operate amid the COVID-19 pandemic. We are hopeful that the next transportation law will have a longer (6+ year) timeframe. This will enable transportation planners and departments of transportation to make longer-term plans for the transportation system, which may include completing more projects with local funds. Whatever the source of funds, unless funding levels are increased substantially, our maintenance need will continue to grow and the system will continue to deteriorate.

The LRTP does not anticipate significant expansion of the capacity of our existing transportation system. Maintenance/replacement in-kind on the existing system will continue to be a funding priority.

7.2 IMPLEMENTING THE PLAN

7.2.1 LINKAGE WITH CAPITAL PROGRAMMING

Projects selected to receive capital funds through the Transportation Improvement Program (TIP) must be aligned with the goals and objectives of the LRTP. Projects funded with TIP money should also help the region make progress towards performance targets. This LRTP update includes Federally-required performance measure reporting for freight reliability, safety, Interstate and National Highway System reliability, pavement and bridge conditions, and transit asset management.

7.2.2 SCHEDULE FOR UPDATING THE PLAN

The SMTC is required to update our LRTP at least every 5 years. However, a decision about I-81 will prompt an update of the LRTP significantly sooner.

Although there is uncertainty about the next transportation bill, we anticipate that performance-based planning will continue to part of the LRTP. Our system performance report will be updated to determine if the region is making progress towards our goals and objectives. The next update will also consider the continuing evolution of transportation technology, such as mobility as a service, connected and autonomous vehicles, and UAVs (drones), along with changes in commuting patterns.

7.3 VISION FOR OUR FUTURE

The 2050 LRTP articulates goals, objectives, and performance measures that, taken together, form a vision for the transportation system in our community over the next 30 years.

Transportation infrastructure investment decisions have a profound effect on how communities develop socially and economically. Canals and railroads supported the very early development of our city and villages, and eventually the highway systems of the mid-twentieth century enabled the redistribution of population and jobs throughout suburban towns in our region. Now, as we consider our future, we must address the challenges presented by our extensive and aging roads,

highways, railroads, and bridges, which were originally designed to accommodate the needs of a bygone manufacturing era. At the same time, we must consider the changing needs and preferences of our society and ensure that our transportation system provides access to opportunities for all members of our community.

As the crossroads of New York State, our strategic location will contribute to increases in intermodal freight activity in our region. This will place new demands on our railways, interstate highways, and state roadways. As our transportation system is improved to keep up with these demands, it should be designed to move freight safely and efficiently, while protecting and enhancing the character of our community and maximizing local economic benefits.

Looking to the future, we will support infrastructure investments that contribute to safe and walkable urban centers. Reinvesting in our aging streets and roads will mean opportunities to add green infrastructure and other design elements that will enhance our community. Local plans and initiatives envision a region of robust villages and town centers anchored by a revitalized and growing City of Syracuse, connected by roads, trails, bike lanes, and an enhanced transit system. We anticipate that our region will continue to add residents and jobs at a moderate rate, and recent trends suggest that employers and homeowners will seek out locations in established communities, where they will find that previous generations' investments in parks, streets, and sidewalks continue to pay dividends.

By investing in transportation projects that support the objectives of this LRTP, the Greater Syracuse region of the future should offer residents additional means to travel within and beyond their neighborhoods by embracing options to walk, bike, ride, and drive. Our infrastructure investment decisions will further strengthen our existing communities: our villages, suburban town centers, city neighborhoods, and the heart of our region, downtown Syracuse. Transportation infrastructure enhancements for all modes of travel will have a positive impact on our quality of life and the character of our communities.

This is our vision for moving towards a Greater Syracuse region.

