2015

Congestion Management Process

Syracuse Metropolitan Planning Area

Congestion Management Process (CMP)

Final Document
2015

SMTC
Syracuse Metropolitan Transportation Council

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Executive Summary

Introduction

According to the Federal Highway Administration, a Congestion Management Process (CMP) is a "systematic approach to addressing congestion through effective management and operation." A Congestion Management Process is required by federal legislation in metropolitan areas with populations greater than 200,000, also known as Transportation Management Areas. As the state designated Metropolitan Planning Organization for a planning area with a population over 200,000, the Syracuse Metropolitan Transportation Council (SMTC) is required to maintain a CMP. This process aids in identifying locations that may need improvements to relieve congestion. The Syracuse Metropolitan Transportation Council will offer assistance to its member agencies to establish strategies for addressing congestion at the identified locations. These strategies could be included in various municipal capital programs, the SMTC's Long Range Transportation Plan, Transportation Improvement Program, or the Unified Planning Work Program as necessitated through the metropolitan transportation planning process.

The Congestion Management Process has been developed to align with eight steps suggested by the FHWA for completing a CMP and is inclusive of multimodal data, analysis, objectives, performance measures and strategies:

- Develop Congestion Management Objectives;
- Identify Area of Application;
- Define System or Network of Interest;
- Develop Performance Measures;
- Institute System Performance Monitoring Plan;
- Identify and Evaluate Strategies;
- Implement Selected Strategies and Manage Transportation System; and
- Monitor Strategy Effectiveness.

The locations analyzed in the 2015 CMP process are based on site identification using outputs from the SMTC's travel demand model. The current travel demand model has been significantly enhanced and calibrated to a variety of socio-economic and traffic related data. Analysis within this document is limited by the level of detail and capabilities of a regional model. Segment capacities are generalized by functional classification and number of lanes, while intersection capacities are generalized by a limited selection of intersection types (i.e., number of through and turn lanes). The network of interest for this 2015 report focused exclusively on road segments categorized as "primary commuter corridors" inside the urban area. These corridors were identified with the assistance of several member agencies as part of the CMP update and the development of the SMTC's 2050 Long Range Transportation Plan.

Analysis and Results

Like past reports, analysis is provided for both morning and evening peak intervals. The 2015 CMP documentation includes multimodal performance measures such as volume to capacity ratio (v/c), Level of Service (LOS), Speed Index, Travel Time Index, Crashes, Transit Ridership and, Bicycle and Pedestrian Facility Availability. The CMP Working Group determined that if the v/c ratio was greater than or equal to 0.90, the location was considered to be congested. Transportation system analysis completed for this report revealed that only 5 miles were congested under the v/c ratio in either the morning or evening peak. For the Speed Index, a threshold of less than or equal to 50% was established as the congestion indicator. The travel demand model outputs depicted 25 miles as congested under the Speed Index. Lastly, for the Travel Time Index, greater than or equal to 1.5 was established for the congestion threshold. Approximately 95 miles have been summarized as congested under the Travel Time Index. In addition to the various corridors, intersections along the "primary commuter corridors" were examined as well for their relevance within this congestion documentation. Based on the review of existing intersection operations analyses where available, only four intersections depicted a LOS of either E or F. While Level of Service E may be an acceptable level of service for most intersections, particularly in an urban setting, it can indicate that an intersection is congested. A Level of Service F indicates that an intersection is failing.

Conclusion

Various improvement strategies that will most likely benefit the identified congested locations have been included in this documentation. Planning for such future improvements can take place through the SMTC Unified Planning Work Program and capital funding can be programmed through the Transportation Improvement Program. As congestion in the SMTC urban area typically takes place during peak commute times, strategies focused on the reduction of single occupancy vehicles are recommended for implementation prior to capacity expansion activities. Additionally, as development patterns expand outside of the urban core into the suburban and rural localities of the SMTC planning area, a greater emphasis should be created to promote more sustainable and efficient transportation and land use patterns.

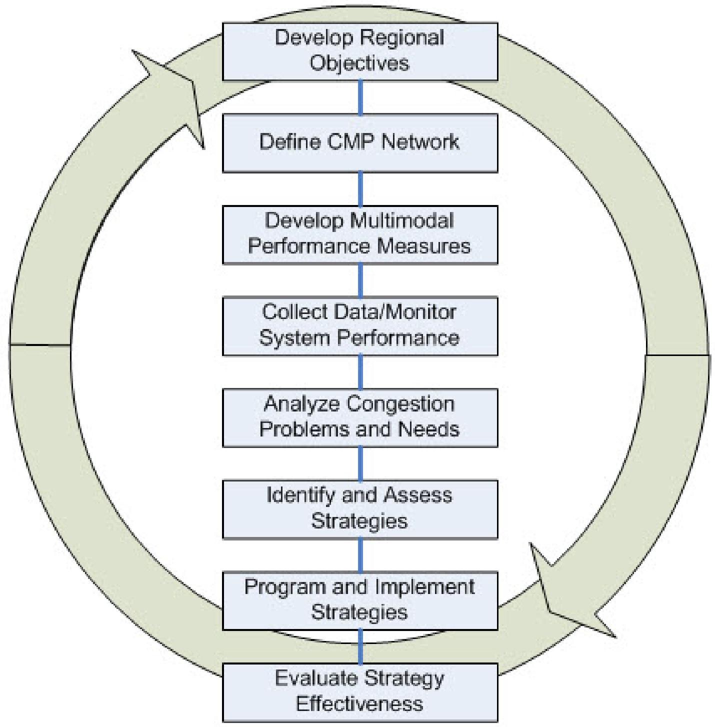
The Congestion Management Process report is an ongoing project that should be completed in advance of a Long Range Transportation Plan. During the years when a complete report is not warranted, the SMTC will produce a performance monitoring document. This document will present the status of performance measure management and strategy implementation.

The findings of this analysis are similar to all previous congestion management documents that identified only a very limited number of segments and intersections that are considered congested according to performance measure analysis. These localized, peak period segments are identified primarily during the morning and evening commute times along interstate segments in the City of Syracuse, and a few roadways to the east and north of the City where the majority of households exist.

1 Introduction and CMP Framework

1.1 Overview

The current Congestion Management Process (CMP) was initiated by the Syracuse Metropolitan Transportation Council (SMTC) as part of the 2014-2015 Unified Planning Work Program (UPWP) in response to the 2013 Federal Certification Review of the SMTC's metropolitan planning process. The prior iteration of the CMP was completed in 2011 to align with the eight steps at right identified by the Federal Highway Administration (FHWA) for completing a CMP.



Source: FHWA

The certification review noted that the prior CMP did not sufficiently encapsulate the intention of the various "steps". In particular, while performance measures and strategies were suggested there was no explicit data collection plan, monitoring plan or approach to monitor the strategy effectiveness. This 2015 CMP rectifies these deficiencies and identifies additional varying methods of multimodal data collection, monitoring and strategy implementation.

According to the FHWA, a CMP is a "systematic approach to addressing congestion through effective management and operation."[1] A CMP is required by federal legislation in metropolitan areas with populations greater than 200,000, also known as Transportation Management Areas (TMAs). As the Metropolitan Planning Organization (MPO) for a Metropolitan Planning Area (MPA) with a population over 200,000, the SMTC is required to maintain a CMP. This process aids in identifying locations that may need improvements to relieve congestion. The SMTC will offer assistance to its member agencies to establish strategies for

[1] Report No. FHWA-HOP-09-2008, "An Interim Guidebook on the Congestion Management Process in Metropolitan Transportation Planning", February 2008, Glossary, p C-2.

addressing congestion at the identified locations. These strategies could be included in various municipal capital programs, the SMTC's Long Range Transportation Plan (LRTP), Transportation Improvement Program (TIP), or the Unified Planning Work Program (UPWP) as necessitated through the metropolitan transportation planning process (see Section 1.2).

Congestion is described in 23 CFR Part 500.109 as "the level at which transportation system performance is unacceptable due to excessive travel times and delays."

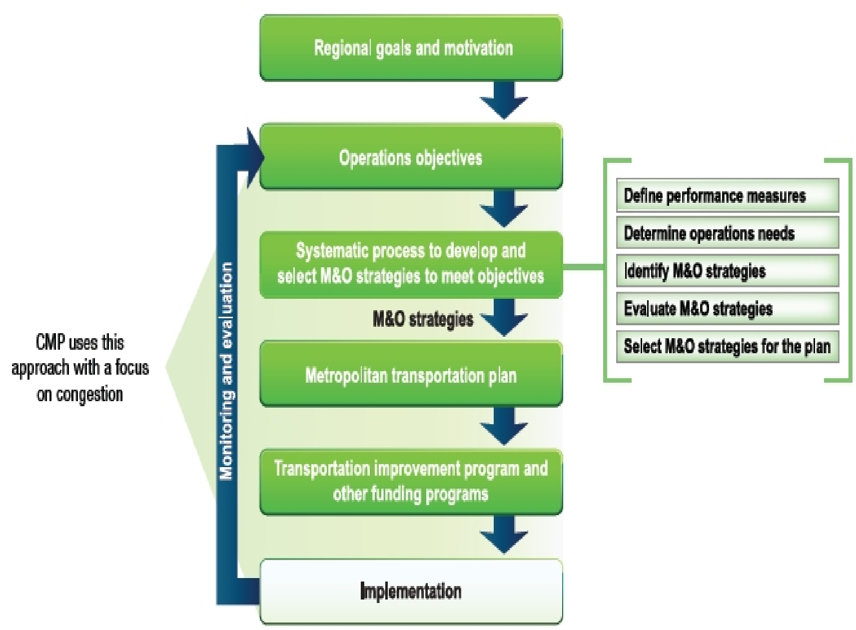
A Working Group consisting of representatives from the Central New York Regional Transportation Authority (Centro), City of Syracuse (Department of Public Works and Engineering Department), New York State Department of Transportation (NYSDOT), and Onondaga County (Departments of Planning [SOCPA] and Transportation [OCDOT]) was established.

CONGESTION MANAGEMENT DEFINED

"**Congestion management** means the application of strategies to improve system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods in a region. A **CMP** is a systematic and regionally accepted approach for managing congestion that provides accurate, up-to-date information on transportation system operations and performance and assesses alternative strategies for congestion management that meet State and local needs." Federal Register 23 CFR Part 500.109

1.2 RELATIONSHIP TO TRANSPORTATION PLANNING PROCESS

The CMP is intended to be integrated into the transportation planning process (figure at right) and is an example of an outcome-based, performance-driven approach to planning, including operations. The Final Rule on Statewide and Metropolitan Transportation Planning (23 CFR Part 450.320) makes the connection between management and operations (M&O) strategies and the CMP, stating:



Source: FHWA

(a) The transportation planning process in a TMA shall address *congestion management* through a process that provides for safe and effective *integrated management and operation* of the multimodal transportation system, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities eligible for funding under title 23 U.S.C. and title 49 U.S.C. Chapter 53 through the use of travel demand reduction and operational management strategies.

(b) The development of a *congestion management process* should result in multimodal system performance measures and strategies that can be reflected in the metropolitan transportation plan and the TIP. The level of system performance deemed acceptable by State and local transportation officials may vary by type of transportation facility, geographic location (metropolitan area or subarea), and/or time of day. In addition, consideration should be given to strategies that manage demand, reduce single occupant vehicle (SOV) travel, and *improve transportation system management and operations*. Where the addition of general purpose lanes is determined to be an appropriate congestion management strategy, explicit consideration is to be given to the incorporation of appropriate features into the SOV project to facilitate future *demand management strategies and operational improvements* that will maintain the functional integrity and safety of those lanes.

(c) The congestion management process shall be developed, established, and implemented as part of the metropolitan transportation planning process that includes *coordination with transportation system management and operations activities*.[2]

1.3 BACKGROUND

The Syracuse Metropolitan Transportation Council's CMP is an evolving document. As of the passage of the SAFETEA-LU legislation in August 2005, Congress replaced the requirement for a "congestion management system that provides for effective management" with a requirement for a "congestion management process (CMP) that provides for effective management and operation".[3] Prior to the passing of SAFETEA-LU, previous versions of the SMTC's CMP were known as Congestion Management Systems, or CMS.

Earlier congestion management reports, such as the SMTC's 2004-2005 CMS, were designed to identify and monitor congestion biennially at selected locations throughout Onondaga County. At that time, the Working Group discussed and agreed that the CMS should be improved to function as a more useful tool for the SMTC and its member agencies. To that end, the SMTC hosted a collaborative effort with the other Metropolitan Planning Organizations in New York State (NYSMPOs)

[2] Federal Register: February 14, 2007 (Volume 72, Number 30), "Statewide Transportation Planning; Metropolitan Transportation Planning; Final Rule."

[3] Interim Guidance for Implementing Key SAFETEA-LU Provisions on Planning, Environment, and Air Quality for Joint FHWA/FTA Authorities, September 2, 2005, http://wwwcf.fhwa.dot.gov/hep/igslpja.htm (February 1, 2007).

to work with a consultant to complete an examination of CMSs. For the smaller and medium-sized MPOs, such as the SMTC, the CMS had not developed a close fit with existing planning practices. Where congestion was a marginal or absent issue, the CMS appeared to offer partial benefits while consuming staff and member agency time and resources. A study was contracted, administered, and managed by the SMTC but served the interests of all the NYSMPOs that looked at innovative approaches from around the country focused on congestion management. This effort resulted in the writing of the *Congestion Management Process (CMP) Innovation: A Menu of Options*, which was completed on February 24, 2006. The Menu provides information on innovative approaches, at that time, to congestion management activities relevant for complying with Federal requirements and for increasing the value of congestion management activities within the transportation planning process, including support for regional transportation goals that go beyond addressing congestion. One of the options contained within the SCI document was the utilization of travel demand models to assist in the identification of congested road segments within a respective planning area.

Through consultation with the CMP Working Group, a determination was made to continue use of the SMTC's travel demand model for CMP analysis purposes. The model would be used to identify potential congested locations through a variety of performance measures. Multimodal performance measures are discussed in the sections that follow. Although several performance measures are included in this 2015 CMP report, not all measures rely on outputs from the travel demand model. The travel demand model used by the SMTC is a traditional four-step model and provides outputs for three time periods: 24-hour, A.M. and P.M. peaks over various years (i.e., 2014 [base year] and 2050 [horizon year]). The current travel demand model has been significantly enhanced and calibrated to a variety of socio-economic and traffic related data. Analysis within this document is limited by the level of detail and capabilities of a regional model. Segment capacities are generalized by functional classification and number of lanes, while intersection capacities are generalized by a limited selection of intersection types (i.e., number of through and turn lanes). For additional information on specifics of the regional travel demand model, please refer to the SMTC's travel demand model technical documentation.

The Syracuse Metropolitan Transportation Council has maintained a CMP for several years, yet it has been focused primarily on identifying roadways or intersections where congestion might be occurring; otherwise known as re-occurring congestion. This document is intended to provide an enhanced CMP for the SMTC metropolitan area that not only identifies areas of likely congestion, but also further transcribes a coordinated process for monitoring, evaluating, and assessing the effectiveness of implemented multimodal strategies and projects.

1.4 MAP-21

In July 2012, President Obama signed into law the Moving Ahead for Progress in the 21st Century (MAP-21) surface transportation authorization. MAP-21 is the first national transportation bill that calls for an outcome-based, performance driven process to metropolitan and statewide planning. As such, MPO's shall within the LRTP identify multimodal objectives, performance measures and associated targets to track performance of the transportation network in a given metropolitan area. The national goals outlined in MAP-21 are:

1. **Safety**: Achieve reduction in fatalities and serious injuries on all public roads.
2. **Infrastructure condition**: Maintain highway infrastructure assets in state of good repair.
3. **Congestion reduction**: Achieve reduction in congestion on the National Highway System.
4. **System reliability**: Improve the efficiency of the surface transportation system.
5. **Freight movement and economic viability**: 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**: Enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. **Reduced project delivery delays**: Reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion.

Coincidental with the seven national goals, MAP-21 contains twelve Performance Management Measures:

1. Minimum standards for bridge and pavement management systems to be used by States
2. Pavement condition on the Interstate System
3. Pavement condition on the National Highway System (excluding interstates)
4. Bridge condition on the National Highway System
5. Performance of the Interstate System
6. Performance of the National Highway System (excluding interstate)
7. Minimum levels for pavement conditions on the Interstate System
8. Serious injuries and fatalities per vehicle mile traveled
9. Number of serious injuries and fatalities
10. Traffic congestion
11. On-road mobile source emissions
12. Freight movement on the Interstate System.

MAP-21 also continues the requirement for MPO's with an urban population over 200,000 to complete a CMP. The federal regulations (23 CFR Part 450.320(c)) specify that a CMP should include the following:

- Methods to monitor and evaluate the performance of the multimodal transportation system, identify the causes of recurring and non-recurring congestion, identify and evaluate alternative strategies, provide information supporting the implementation of actions, and evaluate the effectiveness of implemented actions.

- Definition of congestion management objectives and appropriate performance measures to assess the extent of congestion and support the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies for the movement of people and goods.

- Establishment of a coordinated program for data collection and system performance monitoring to define the extent and duration of congestion, to contribute in determining the causes of congestion, and evaluate the efficiency and effectiveness of implemented actions.

- Identification and evaluation of the anticipated performance and expected benefits of appropriate congestion management strategies that will contribute to the more effective use and improved safety of existing and future transportation systems based on the established performance measures.

- Identification of an implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies) proposed for implementation.

- Implementation of a process for periodic assessment of the effectiveness of implemented strategies, in terms of the area's established performance measures.

1.5 Objectives

The Congestion Management Process is inclusive of, and an essential component of the overall transportation planning process depicted in Section 1.2. As described in FHWA's Guidebook to the Congestion Management Process, "the development of objectives for the CMP responds to the goals and vision for the region established early in the transportation planning process."[4] The relationship of the CMP to the overall planning process, particularly the LRTP, is one that aids in establishing objectives and potential strategies to promote efficient system management and operations for implementation in a given metropolitan area that are multimodal in context.

[4] FHWA, Congestion Management Process: A Guidebook, April 2011

The SMTC's current LRTP (i.e., LRTP 2011 Update) contains several objectives, which directly or indirectly, relate to congestion in the metropolitan area. These are:

1. To enhance the **safety** of the people using the transportation system.
2. To improve the **mobility** options for people within the Syracuse Metropolitan Planning Area
3. To enhance the area's **economic competitiveness**, thereby increasing opportunities for employment.
4. To promote the **development of an efficient urban area** and a sense of community through transportation planning.
5. To provide safe, clean, well-maintained, and efficient transportation infrastructure.

Beginning in 2013, the SMTC initiated a complete rewrite of the area's LRTP. This 2050 LRTP incorporates a new vision, goals, objectives, and for the first time, performance measures and various performance targets as directed by the MAP-21 surface transportation authorization. Although the 2050 LRTP has not been approved at time of writing, this 2015 CMP relates directly with, or comparable to, the 2050 LRTP. The relevant goals and objectives from the 2050 LRTP, of which are essentially all management & operational based and applicable to the CMP are noted in the table below.

Table 1-1: 2050 LRTP Goals and Objectives

Goal 1: Provide a high degree of multi-modal **accessibility and mobility** for individuals. This should include better integration and connectivity between modes of travel.
Objective 1.A. Reduce congestion in primary commuter corridors.
Objective 1.B. Provide essential transit service to urban and suburban areas.
Objective 1.C. Provide more on-road bicycle facilities throughout the community.
Objective 1.D. Provide more pedestrian facilities to connect destinations throughout the community.
Goal 2: Protect and enhance the **natural environment** and support energy conservation and management.
Objective 2.A. Reduce VMT in the region.
Objective 2.B. Increase the percentage of commute trips made by bicycling or walking.
Objective 2.C. Increase the percentage of commute trips made by transit.
Goal 3: Improve the **reliability** of the transportation system and promote efficient system management and operations.
Objective 3.A. Maintain a high degree of reliability on primary commuter routes.
Objective 3.B. Improve transit on-time performance.

Objective 3.C. Improve utilization of transit vehicles.
Objective 3.D. Increase the use of park-and-ride lots.
Objective 3.E. Implement TDM strategies with a focus on strategies for downtown and University Hill that have been recommended through previous SMTC studies.
Goal 4: Increase the **safety, security, and resiliency** of the transportation system.
Objective 4.A. Reduce serious injuries and fatalities from vehicle crashes.

Using the above objectives as a starting point, the 2015 CMP objectives have been developed to encapsulate SMART[5] criteria. SMART criteria are defined as:

Specific – The objective provides sufficient specificity to guide formulation of viable approaches to achieve the objective without dictating the approach.

Measurable – The objective facilitates quantitative evaluation, saying how many or how much should be accomplished. Tracking progress against the objective enables an assessment of effectiveness of actions.

Agreed – Planners, operators, and relevant planning participants come to a consensus on a common objective. This is most effective when the planning process involves a wide-range of stakeholders to facilitate regional collaboration and coordination.

Realistic – The objective can reasonably be accomplished within the limitations of resources and other demands. The objective may require substantial coordination, collaboration, and investment to achieve. Factors such as population growth, economic development, and land use may also have an impact on the feasibility of the objective and should be taken into account. Based on data on system performance and analysis, the objective may need to be adjusted to be achievable.

Time-bound – The objective identifies a timeframe within which it will be achieved.

Taking the LRTP 2011 Update and draft 2050 LRTP goals and objectives under consideration, the Working Group developed the following SMART objectives for the CMP.

[5] ibid

Table 1-2: CMP Objectives

1	• Reduce CMP network congestion by 10% over the next 10 years.
2	• Reduce the share of major intersections operating at LOS E or F by 10% over the next 10 years.
3	• Increase the percentage of transit ridership by 5% in the next 10 years.
4	• Improve the average on-time performance of transit buses by 5% over the next 10 years.
5	• Increase the percentage of commuting trips made by bicycling or walking by 5% in the next 10 years.
6	• Decrease the number of crashes along the CMP network over the next 10 years.

The sections that follow discuss the various performance measures selected by the Working Group relative to the above goals and objectives.

1.6 CMP Study Area (Area of Application and Network of Interest)

1.6.a Area of Application

The entire Syracuse MPA and the urban area were used as the geographic extents for the CMP Analysis, depending on the various performance measures. The metropolitan area consists of Onondaga County and small portions of Oswego and Madison counties. The entire road network within the planning area contains over 4,000 centerline miles of road, the majority of which are under the ownership of towns and villages. The study area and a representative road network are shown in Figure 1.

1.6.b Transportation Network

Upon review with the Working Group, the specific network of interest focuses exclusively on roadways the SMTC categorize as a "primary commuter corridor" inside the urban area. These facilities were identified using a combination of qualitative and quantitative criteria; 1) on the NHS (functionally classified as principal arterial [interstates, expressways and other principal arterials]); 2) minor arterials with over 10,000 AADT; and 3) relevance of facility to interregional connectivity. The decision to narrow the network of interest was made given the limited extent of congestion identified in all congestion management reports completed by the SMTC. Furthermore, the principal arterial roadways, with emphasis placed on the interstate system are prioritized for national importance in the current surface transportation authorization. The principal arterial roadways along with minor arterial roadways to a somewhat lesser extent are examined first for funding consideration through the established capital improvement project evaluation and selection process and, these roadways carry the majority of traffic in the urban area. These facilities, principal and minor arterials, collectively carry approximately 78% of all daily vehicle miles traveled in the urban area.[6] Figure 2 shows the functional classification of each "primary commuter corridor." Additionally, although not utilized specifically within the proceeding sections, "primary freight corridors" were also identified. These freight corridors relate to various objectives of the 2050 LRTP and overlap many of the "primary commuter corridors."

In general, 268 centerline miles in the urban area are classified as principal arterial, while 239 centerline miles carry the minor arterial classification in the urban area. Of the 268 principal arterial centerline miles, the NYSDOT owns 70%, OCDOT 11%, Syracuse 8%, and Thruway 11%. Similarly, of the total minor arterial centerline miles, the NYSDOT has ownership of 35%, OCDOT 34%, Oswego County 1%, Syracuse 27%, and towns and villages 3%. Collectively, the "primary commuter corridors" identified in the urban area for this CMP cover 328 centerline miles, representing 14% of all centerline miles in the urban area and, 8% of all centerline miles in the metropolitan area.

In addition to the roadway network, public transit in the SMTC MPA is served by Centro. The entire Centro service area consists of four counties (i.e., Cayuga, Oneida, Onondaga, and Oswego) and provides numerous transit routes and paratransit service throughout the area. Transit routes within the SMTC MPA are shown in Figure 3. Further information on transit in the area is found in the following pages. Lastly, the metropolitan area, particularly in the urban core (i.e., the City of Syracuse) contains a wealth of bicycle and pedestrian specific facilities. Presently, there are over 13 miles of dedicated bicycle lanes or cycle tracks in the City of Syracuse along with approximately 586 miles of sidewalks. Outside of the city, no bicycle lanes are present; however, numerous roadways contain wide shoulders that are able to accommodate bicycle, and in many instances, pedestrian travel. Relative to sidewalks outside of the City of Syracuse, 226 miles of sidewalk are in place, which are generally located in village centers and several other population-dense areas.

[6] Based on HPMS urban area VMT data

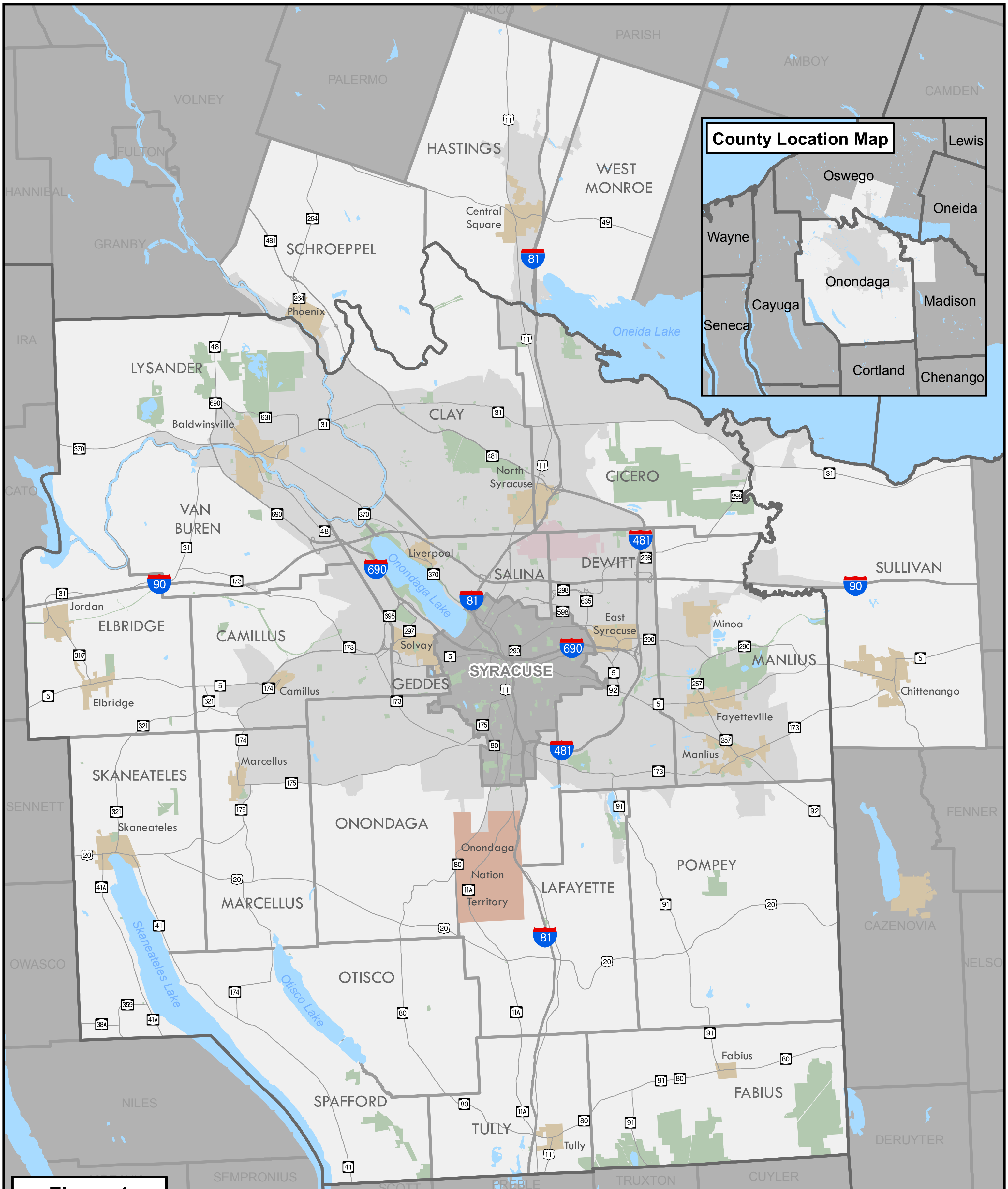


Figure 1

Study Area Map

Congestion Management Process

County Boundary	City of Syracuse
Water Features	Villages
Onondaga Nation	Urban Area
	SMTC MPA

0 1.25 2.5 5 7.5 10 Miles

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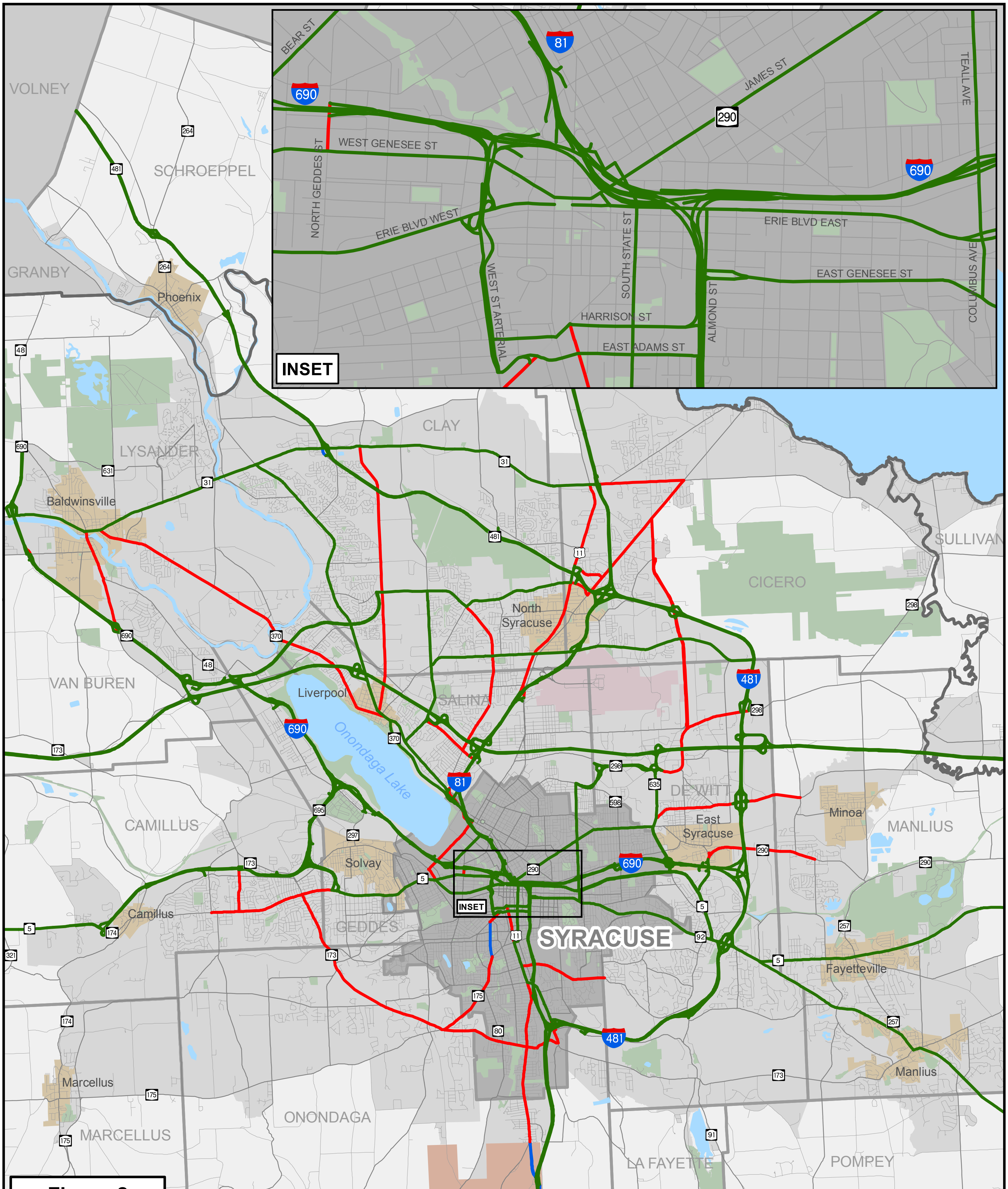

Figure 2

Functional Classification

Congestion Management Process

0 0.5 1 2 3 4 Miles

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Functional Classification

- Principal Arterial
- Minor Arterial
- Major Collector
- Not a Primary Commuter Corridor

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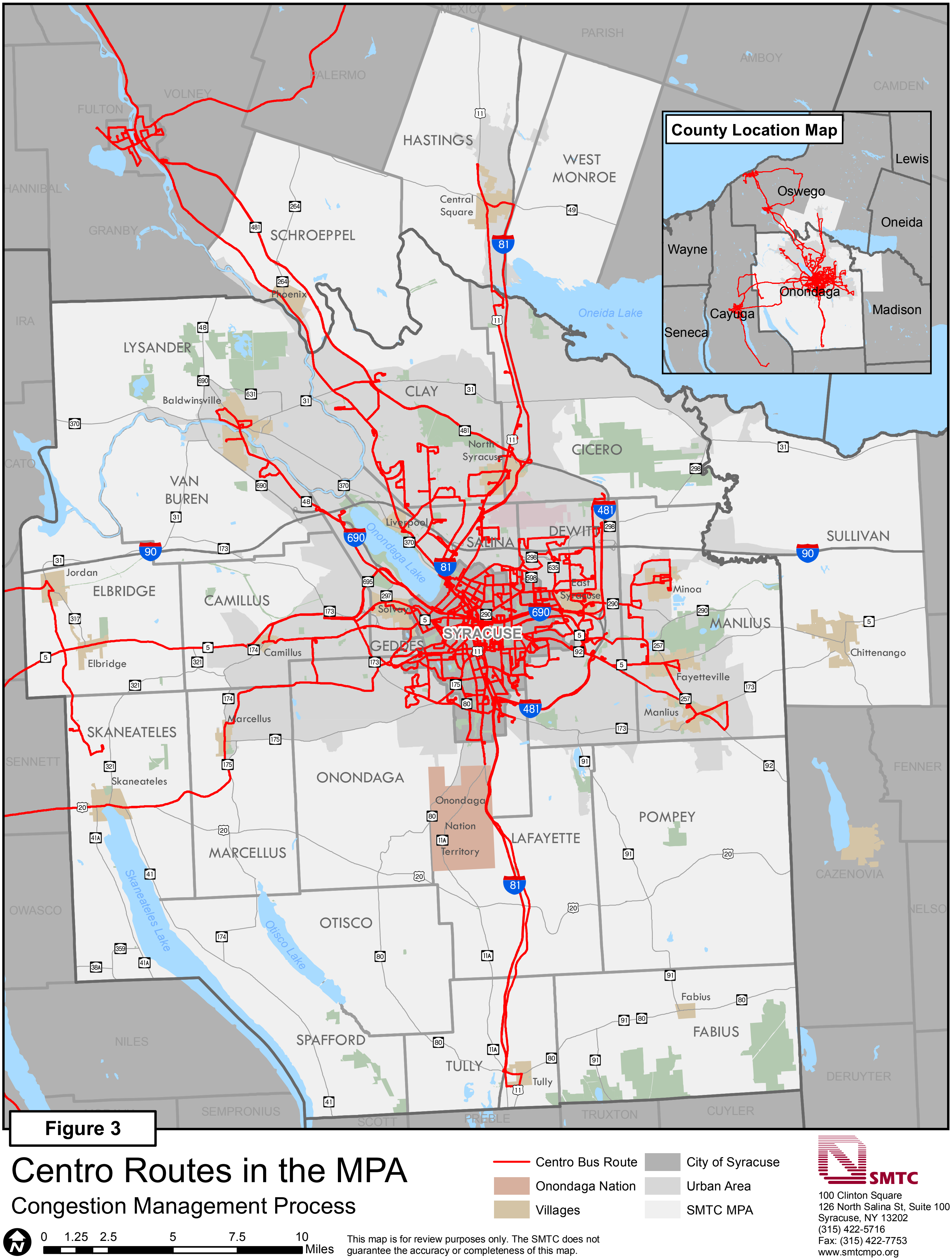

Figure 3

Centro Routes in the MPA

Congestion Management Process

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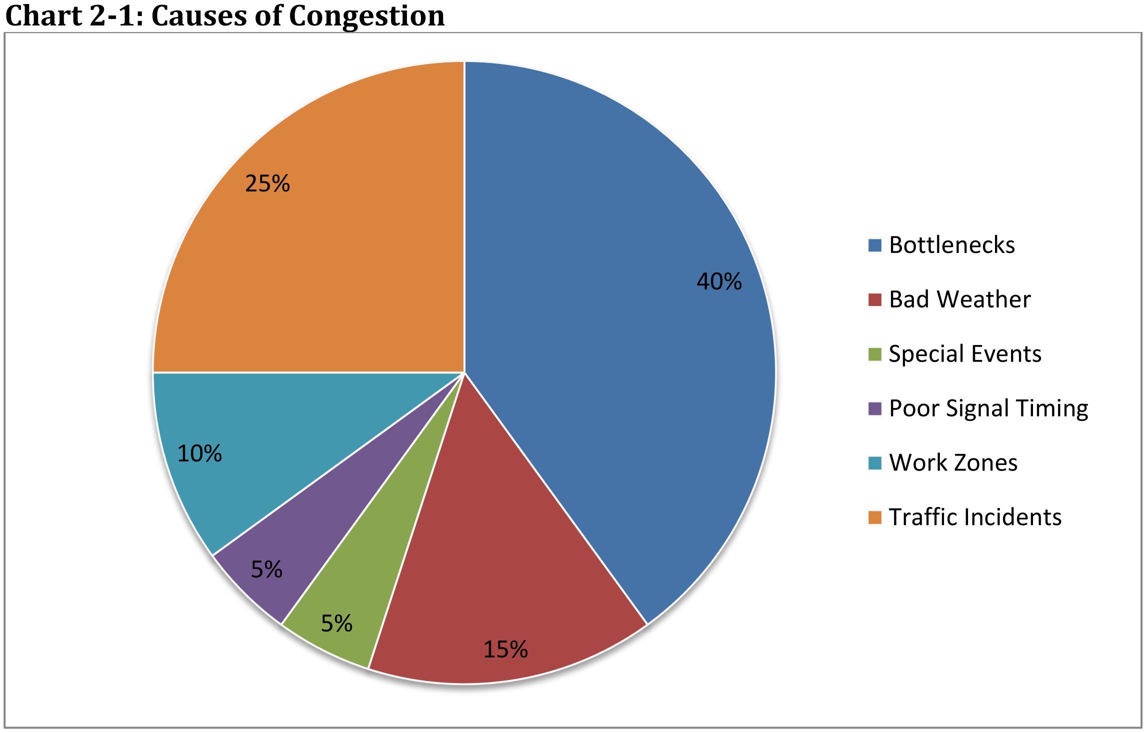
2 Congestion in the Area

2.1 Causes of Congestion

The Congestion Management Process incorporates roadways essentially from one classification of congestion, recurring congestion. Recurring congestion, or Peak period congestion, usually occurs daily along road segments or at intersections during the traditional work week morning (i.e., 7:00-9:00 a.m.) and evening (i.e., 4:00-6:00 p.m.) peak hours. In terms of factors that may cause congestion, the FHWA identifies six primary causes; 1) bottlenecks; 2) traffic incidents; 3) work zones; 4) bad weather; 5) poor traffic signal timing; and 6) special events. According to the FHWA, bottlenecks and traffic incidents account for over two-thirds of the causes, 40% and 25% respectively. Another classification of congestion, non-recurring congestion, as the name implies is not specific to a single road segment or intersection. Congestion under this classification occurs primarily due to incident based occurrences such as vehicle crashes, special events, or weather related and accounts for 60% of all congestion. This report attempts to also include non-recurring congestion through the examination of historical crash data.

Chart 2-1: Causes of Congestion

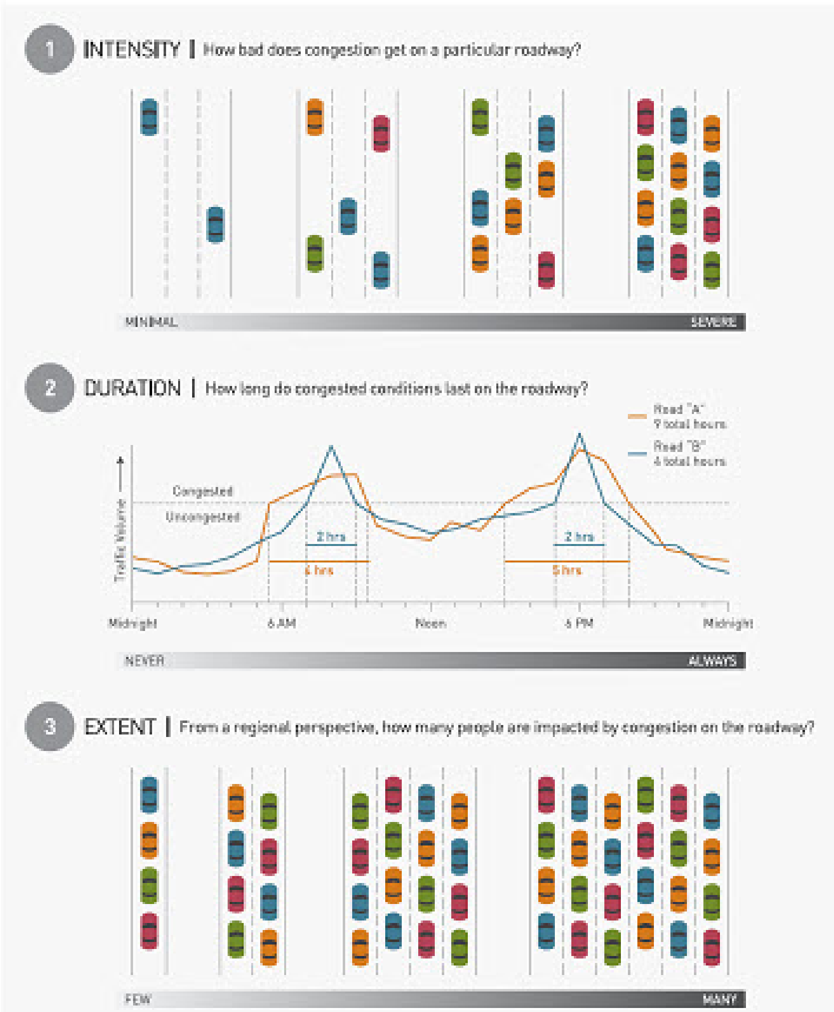


Source: FHWA

As reported in prior congestion management documents, contributing factors to congestion associated with several areas and classifications of roadways in the Syracuse metropolitan area include those identified above and:

- ❖ High single occupancy vehicle usage;
- ❖ Closely spaced expressway/freeway interchanges; and
- ❖ Lack of interconnected land uses.

Similarly, congestion can be thought of by four distinct criteria[7]:



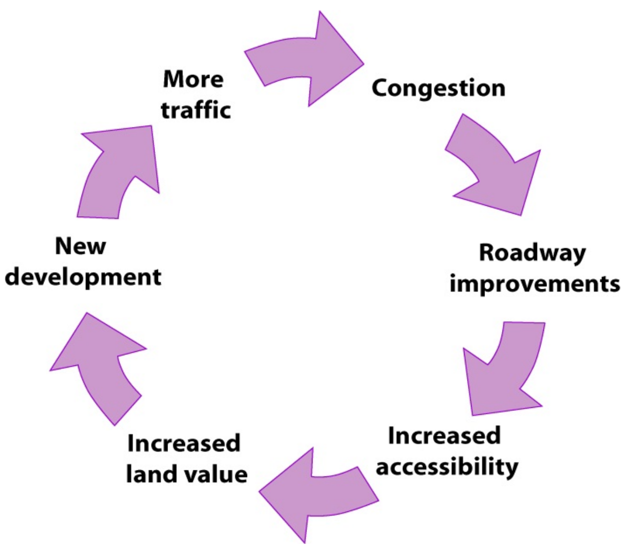
Source: Atlanta Regional Commission

- **Intensity** - The relative severity of congestion that affects travel. Intensity has traditionally been measured through indicators such as V/C ratios or LOS measures that consistently relate the different levels of congestion experienced on roadways.
- **Duration** - The amount of time the congested conditions persist before returning to an uncongested state.
- **Extent** - The number of system users or components (e.g. vehicles, pedestrians, transit routes, lane miles) affected by congestion, for example the proportion of system network components (roads, bus lines, etc.) that exceed a defined performance measure target.
- **Variability** - The changes in congestion that occur on different days or at different times of day. When congestion is highly variable due to non-recurring conditions, such as a roadway with a high number of traffic accidents causing delays, this has an impact on the ***reliability*** of the system.

[7] FHWA, Congestion Management Process Guidebook, 2011

2.2 COMMUTING

The Syracuse MPA has seen growth in Onondaga County, particularly in the northern towns (i.e., Cicero, Clay, and Lysander). Over the years, several large scale commercial developments have been constructed in close proximity of the New York Route 31 corridor that traverses through these towns. Between 2000 and 2010, these municipalities, and the City of Syracuse, have also seen the majority of new residential units within Onondaga County built in their towns. Development pressures have also extended the urban area to points west in the town of Camillus. Similar to the northern suburbs, various pockets of large scale commercial development have occurred. To the eastern side of the planning area in Madison County, new residential units continue to be constructed in the Town of Sullivan just over the county line.



Transportation/Land Use Cycle

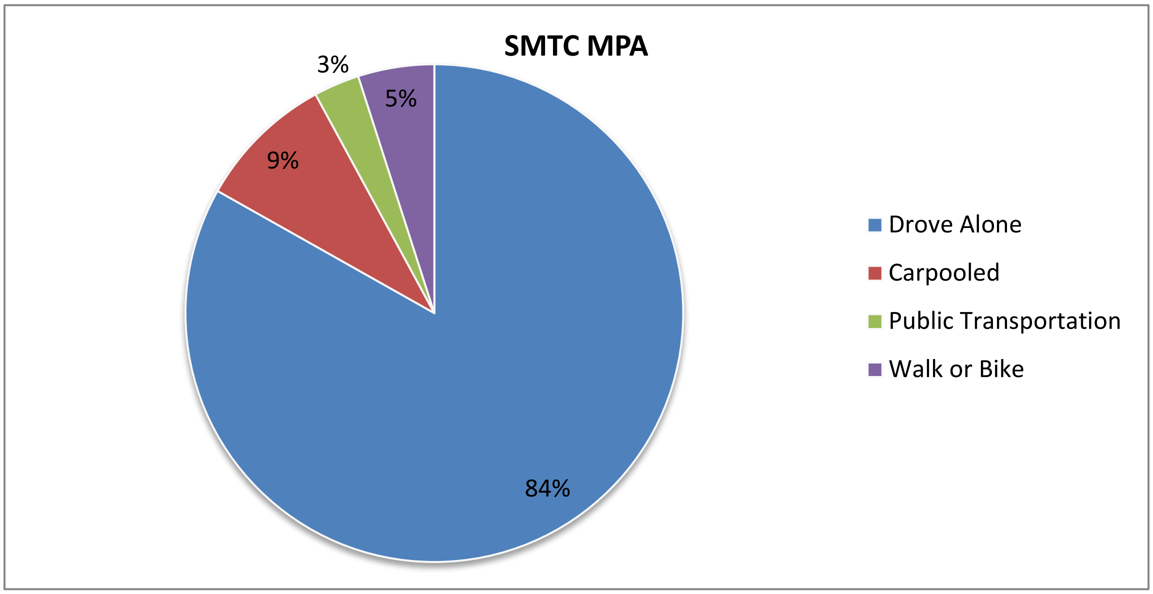
The graphic at left provides an example of the inter-relationship that transportation and land use have with each other. In the transportation/land use cycle, congestion generally leads to road widening to increase carrying capacity, which provides some temporary relief. This relief invites more development that in turn results in more congestion. Facility owners in the past have relied on road widening as the primary measure to relieve congestion. This CMP document attempts to establish other measures for consideration prior to the implementation of road widening projects.

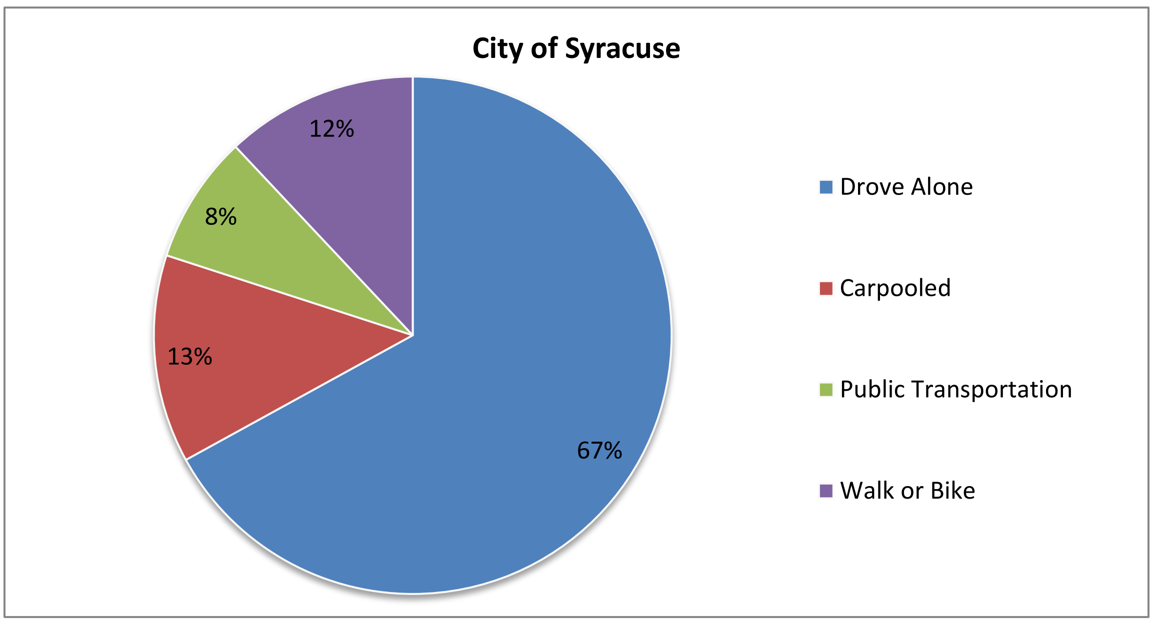
Regarding commuting information for the area, the single occupancy vehicle continues to be the preferred mode of travel to work for persons in the SMTC MPA (Chart 2-2). Based on information in the 2009-2013 American Community Survey (ACS), 84% of workers in the SMTC MPA drove alone to work. This percentage captures the large volume of drivers that contribute to the peak-period-based congestion found in the area; most notably facilities in and around the City of Syracuse. The 2009-2013 ACS figures also indicate that 9% of workers carpooled, 3% utilized public transportation, and 5% walked or biked to work. When looking only at the City of Syracuse, the figures change to 67% drove alone, 13% carpooled, 8% public transportation, and 12% walk or bike. As for commuting times, the average commute time for Onondaga County residents when looking at the 2009-2013 ACS is 20 minutes. This is below the national average of 26 minutes and well below the statewide average of 32 minutes. Figure 4 displays commuting times by place of residence for those workers age 16 and above.

Figure 5 shows commuter flows (i.e., number of people traveling from one town to another to get to work). The most substantial flow within the area is within the City of Syracuse with over 35,000 commuters who both live and work in the City. The second largest concentration of commuters is from the northern towns of Clay, Cicero, and Salina where 19,000 people work in Syracuse.

The City of Syracuse dominates as the single most significant commuting destination. Other notable commute flows include Clay to DeWitt, Syracuse to DeWitt and intra-municipal flow in Clay.

Chart 2-2: Means of Transportation to Work





Source: 2009-2013 ACS

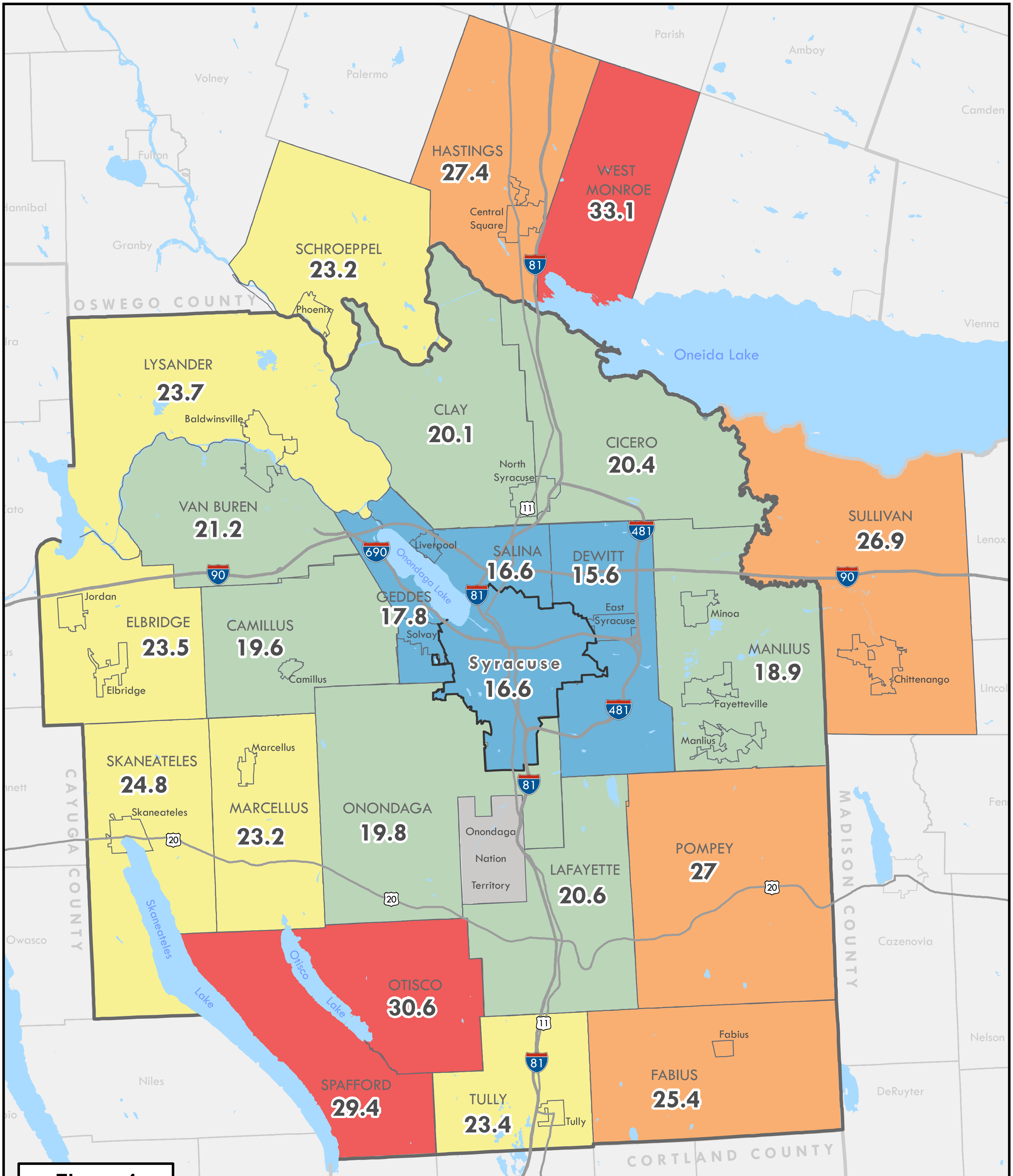


Figure 4

Mean Commute Time

Congestion Management Process

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

Mean Commute Time, by Place of Residence

- 15 - 18 minutes
- 18.1 - 22 minutes
- 22.1 - 25 minutes
- 25.1 - 27 minutes
- 27.1 - 33 minutes
- No Data

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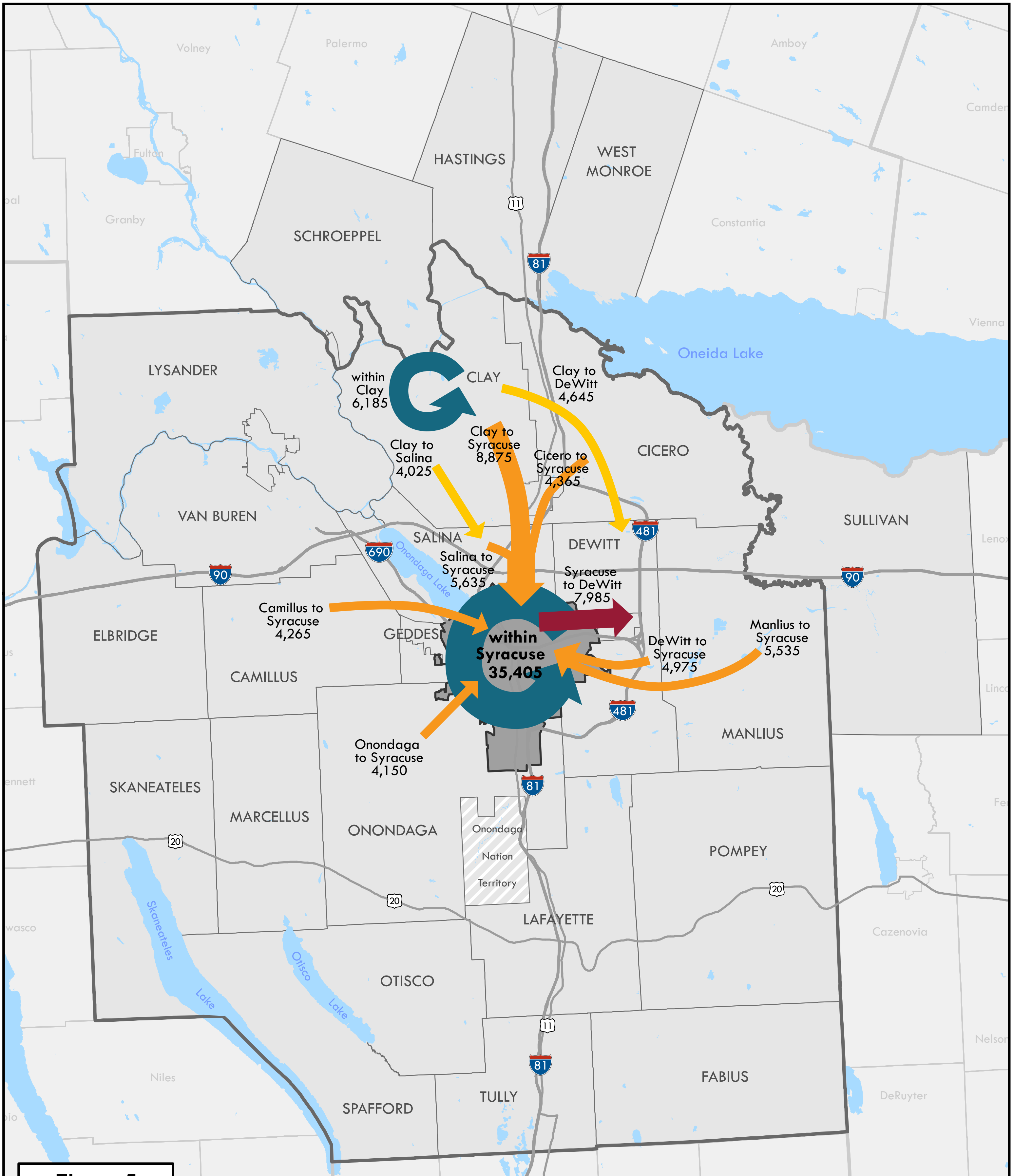

Figure 5

Commuter Flows

Congestion Management Process

0 1.25 2.5 5 Miles

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

Type of Commuter Flow

- Commuters who live and work in same town/city
- Commuters to the City of Syracuse
- Suburb-to-suburb commuters
- Commuters from Syracuse to suburb

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3 Congestion Performance Measures

3.1 PERFORMANCE MEASURES

This Congestion Management Process analysis, as with all previous congestion management reports required by federal transportation legislation, adheres to and mirrors in some form the goals and objectives established within the MPO's LRTP. For the purposes of this 2015 CMP analysis, several measures are used:

- **Volume to Capacity** (corridors);
- **Level of Service** (intersections);
- **Speed Index**;
- **Travel Time Index**;
- **Crashes**;
- **Transit ridership**; and
- **Availability of bicycle and pedestrian facilities**.

These measures were chosen due to the readily available data and the ability to cover the CMP network described in Section 1. Tables and maps associated with these performance measures are provided in the following pages that quantify the performance of the multimodal transportation system in the SMTC metropolitan area.

3.1.A VOLUME TO CAPACITY

Volume to Capacity ratio is a measure of the average traffic volume compared to the service volume or capacity of a given facility. For example, an interstate is designed to carry more vehicles per hour, per lane, than a local street. This performance measure is applied to all road segments that comprise the "primary commuter corridors" in the urban area discussed previously.

3.1.B LEVEL OF SERVICE

The Institute of Transportation Engineers (ITE) defines Level of Service as "the operational conditions within a traffic stream as perceived by users of the facility." Level of Service factors range from A - F. Level of Service A represents a free flow with individual vehicles unaffected by other vehicles, while a Level of Service E represents operating conditions at capacity, and a Level of Service F defines a breakdown in the flow of traffic. This performance measure is applied to intersections that include at least two primary commuter corridors in the urban area.

3.1.c Speed Index

This measure includes speed data derived from the travel demand model. The speed index is a ratio of average speeds during the morning and evening peak compared to the free-flow (i.e., off peak) average speeds in those same time periods. In several instances, data collected from travel time studies conducted by the SMTC or information provided by the NYSDOT as part of their annual traffic count program was used as an input to the model files. This measure provides an additional view of the extent of perceived congestion in the area and is also a primary criterion in defining/evaluating a Travel Time Index.

3.1.d Travel Time Index

Travel Time Index (TTI) is the ratio of travel time during the peak period to the time necessary to make the same trip at free-flow speeds. The SMTC's travel demand model was used to calculate the TTI. 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 readily understandable congestion measure.

3.1.e Crashes

Number of crashes and crash rates along roadways are analyzed in this CMP report as a proxy to identify non-recurring congestion. Crash rates are a measurement of the total number of crashes at a certain location, compared to the total traffic volume at the location. The rates are expressed as crashes per Million Vehicle Miles of Travel. The total number of crashes by collision type is also provided.

3.1.f Transit Ridership

For this measure, ridership data along the corridors discussed in Section 1 will be examined. This may serve as a primary measure when determining which routes to possibly expand or reduce service on. In future CMP reporting, on-time performance will also be included as a separate measure of transit performance.

3.1.g Bicycle and Pedestrian Facilities

An extensive assemblage of bicycle and pedestrian facilities are currently available in the SMTC metropolitan area; particularly in the City of Syracuse and the immediate surrounding municipalities that comprise the "first ring" suburbs. This measure includes specific facility types such as the presence of sidewalks, "sharrows" and bicycle lanes (or cycle tracks).

3.2 Definition of Congestion

The Congestion Management Process Working Group defines congestion in the SMTC metropolitan area based on various thresholds for four measures discussed in this report; volume to capacity ratio, Level of Service, speed, and travel time indices. Table 3-1 below lists the established thresholds. For intersections, LOS is the only established measure, while corridors or roadway segments rely on the other three measures. A corridor or intersection is identified as congested if it falls within one or more of these measures.

Table 3-1: Congestion Thresholds

Measure	Thresholds
Volume to Capacity ratio	Below 0.8 = not congested 0.8-0.89 = nearing congestion 0.9 and above = congested
Level of Service	LOS E or F during the AM and/or PM peak periods
Speed Index	0.7 and above = not congested 0.69-0.51 = nearing congestion 0.5 and below = congested
Travel Time Index	Below 1.25 = not congested 1.25-1.49 = nearing congestion 1.5 and above = congested

4 Data Collection & Management Plan

4.1 Data Collection

To make use of the performance measures discussed above, data availability will be essential. Table 4-1 lists the performance measure, data type, source of data (collector), and timeframe for data collection efforts (update cycle). The Syracuse Metropolitan Transportation Council staff and member agencies will continue to work together in the assembly/collection of data to improve data collection efficiency and expenditure of resources. In future CMP status reports and monitoring, the SMTC may investigate obtaining proprietary vehicle probe-based datasets that contain a wealth of “observed” information useful to reporting on travel time reliability, speeds and all forms of congestion (i.e., recurring and non-recurring). Also, the SMTC along with other NYSMPOs will have access in the next several months to a wealth of national average travel time data the FHWA has acquired on the National Highway System, referred to as the National Performance Management Research Data Set (NPMRDS). The University of Albany, in collaboration with the NYSDOT, is developing a user interface that disaggregates data on the National Highway System within individual counties. Like other commercial based vehicle-probe data, the NPMRDS will be another essential source of information to the ongoing monitoring and evaluation process.

4.1.a Traffic volume, travel time and travel speeds

The Syracuse Metropolitan Transportation Council has an established traffic count program that will be utilized to collect and periodically monitor traffic conditions throughout the SMTC MPA. Traffic counts and speed information, where appropriate based on site identifications from this analysis, will be gathered under the program on a cyclical basis and assembled from various member agency traffic count programs, primarily the NYSDOT annual count program. These updated data will be useful to gauge significant changes in traffic operations in the area, identify recurring or new congested road segments, and provide input for subsequent calibrations to the SMTC’s travel demand model. Two types of traffic counts are assembled 1) Annual Average Daily Traffic (automatic traffic recorders) and 2) turning movements. For turning movement counts gathered at intersections discussed in the CMP, capacity and operational analysis will take place over time. The analysis results will be useful when facility owners consider strategies to implement (see Section 6). In addition to counting motorized traffic, all turning movement counts will include a count of bicyclists and pedestrians by intersection approach.

The regional office of NYSDOT is scheduled to implement an Advanced Traffic Management System in the next several months that “provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies."[8] Once up and running, the near real-time and, archived traffic data will provide a wealth of information for monitoring the interstate system. Additionally, the system will be able to provide backup functionality for other regions throughout the state.

4.1.B Bicycle and Pedestrian Facilities

The Syracuse Metropolitan Transportation Council staff will periodically reach out to member agencies and other municipalities to update the in-house database of sidewalks, other pedestrian facilities, "sharrows", bicycle lanes/cycle tracks, and off-road trails. This information is also transposed for use in the agency's Geographic Information Systems (GIS) files.

4.1.C Transit Ridership

On an annual basis, Centro provides various operating statistics to the Federal Transit Administration. These performance statistics, as well as additional data from the transit authority will be used to monitor transit performance. Centro plans in the near future to have an Automatic Passenger Counter (APC) system operational in Onondaga County. The APC data will be assembled for transit routes along the "primary commuter corridors." Additionally, another transit related performance measure, on-time performance, will be included in the SMTC's congestion management process. The transit authority is scheduled to have GPS identified routing information in the near future. Once operational, on-time performance of bus routes that travel along the primary commuter corridors will be analyzed and included.

4.1.D Crash Rate (Non-Recurring Delay)

The New York State Department of Transportation's Accident Location Information System will be used to gather accidents over a three to four year time period. This information will be used, along with traffic volumes, to generate crash rates and total number of crashes.

Table 4-1: Data Collection & Management Plan

Performance Measure	Data Type	Collector	Analyst	Update Cycle
Level of Service	Turning movement counts, signal timings, geometrics	OCDOT, NYSDOT, Syracuse, SMTC	OCDOT, NYSDOT, Syracuse, SMTC	1/4 of intersections annually
Volume/Capacity	Traffic volume	OCDOT, NYSDOT, SMTC	SMTC	Annually (1/4 of facilities)

[8] The National ITS Architecture 7.0; http://www.iteris.com/itsarch/html/mp/mpatms07.htm; Accessed 4/2015

Performance Measure	Data Type	Collector	Analyst	Update Cycle
Speed Index	Average speed	OCDOT NYSDOT, SMTC	SMTC	Annually (1/4 of facilities)
Travel Time Index	Corridor or segment travel time	OCDOT, NYSDOT, SMTC	SMTC	Annually (1/4 of facilities)
Ridership by Route	Boardings/alightings or APC derived counts	Centro, SMTC	Centro	Annually (1/4 of routes)
Transit On-Time Performance	Schedule time v. actual time	Centro	Centro	Annually (1/4 of routes)
Bicycle Facilities	Facility type and location	Facility owners, SMTC	SMTC	Annually
Pedestrian Facilities	Facility type and location	Facility owners, SMTC	SMTC	Annually
Non-recurring delay	Crash records	Police Agencies, NYSDOT	SMTC	2 years

4.2 CMP REPORTING

Once data is assembled and analyzed, tables and maps of corridors, segments, intersections or the entire SMTC metropolitan area multimodal transportation system will be created to track changes, trends and performance of the system. This reporting may happen during those years when an update or new iteration of the CMP is not scheduled. Additionally, so as not to duplicate performance reporting, the congestion data analysis and reporting may take place solely through a LRTP report that the agency may develop once the 2050 LRTP is adopted. Whichever avenue is followed, information will be made publically available on the SMTC's web site and in print copy. The CMP report will provide information on the status and effectiveness of congestion mitigation strategies discussed in the following sections. Given the extensiveness of the primary commuter corridors and the effort to monitor the system, individual reports are unlikely to show differences from year to year. As more time elapses, performance reporting is more likely to show change.

5 System Performance & Analysis

5.1 Identifying Congestion

5.1.a Volume to Capacity

As mentioned previously, this document utilized the SMTC's regional travel demand model that is calibrated for 2014 conditions to aid in the identification of congested road segments. The Congestion Management Process Working Group suggested that any "primary commuter corridor" segment within the urban area with a v/c ratio greater than or equal to 0.8 be categorized as "at" or "nearing" congestion. Using travel demand model outputs from the 2014 base year, the CMP Working Group determined that road segments with a v/c ratio greater than or equal to 0.9 were considered congested (Table 5-1). Segments are based on a roadway GIS file. In some instances along the interstate system, segments may be described as starting or ending at a roadway although there may not be a direct, physical connection from/to the interstate system. Segments with a v/c ratio of 0.8 or above are shown in Table 5-2 and contain road name, segment, FHWA-approved functional classification, road owner, municipality and, estimated travel demand model v/c ratio for the A.M. and P.M. peak period. These locations are also shown in Figures 6 and 7. Overall, 14.21 miles, represented by 25 different roadway segments have a v/c ratio equal to or greater than 0.8 in either the A.M. or P.M. peak.

Broken down further, all but one road segment with a v/c ratio over 0.9, congested, is under the ownership of the NYSDOT. Segments of Interstates 81 and 690 comprise the majority of the congested segments. Approximately 5 miles have been identified from this CMP analysis as congested according to a segment's modeled v/c ratio. As a comparison, there are 4,052 centerline miles of road in the SMTC area. Nearly half of all roads in the planning area (49%) are owned and maintained by towns and villages, none of which are at or near the 0.9 threshold. Relative solely to the primary commuter corridor mileage inside the urban area, less than 2% of these roads have a v/c ratio greater than or equal to 0.9.

Table 5-1: Volume to Capacity Congested Miles by Facility Owner

Road Owner	Congested Miles in Urban Area*	Total Miles in Urban Area*	Percent Congested in Urban Area
NYSDOT	3.85	210	1.8%
OCDOT	1.16	55	2.1%
Total	5.01	265	1.9%

*Centerline miles of primary commuter corridors in Urban Area

Source: SMTC

Table 5-2: Volume/Capacity Ratio

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Max VC AM	Max VC PM
1.57	Interstate 690	EB	Bridge St ramp to I-690	Hiawatha Blvd	Principal Arterial	NYSDOT	Geddes/Syracuse	0.81	0.51
0.37	Interstate 690	EB	West St NB ramp to I-690	I-81 SB ramp	Principal Arterial	NYSDOT	Syracuse	**1.07**	**0.94**
1.33	Interstate 690	WB	Teall Ave ramp to I-690	I-81 NB ramp	Principal Arterial	NYSDOT	Syracuse	0.75	0.84
0.27	Interstate 690	WB	I-81 NB ramp	West St SB ramp	Principal Arterial	NYSDOT	Syracuse	0.73	**0.99**
0.34	Interstate 690	WB	West St SB ramp	West St NB ramp to I-690	Principal Arterial	NYSDOT	Syracuse	0.54	0.83
1.3	Interstate 690	WB	Hiawatha Blvd	State Fair Blvd off-ramp	Principal Arterial	NYSDOT	Syracuse	0.42	0.84
0.49	Interstate 81	NB	I-81 ramp to Adams St	E Genesee St	Principal Arterial	NYSDOT	Syracuse	**1.01**	0.78
0.16	Interstate 81	NB	E Genesee St	I-81 ramp to I-690 E	Principal Arterial	NYSDOT	Syracuse	0.85	**1.01**
0.24	Interstate 81	NB	I-81 ramp to I-690 E	I-81 ramp to I-690 W	Principal Arterial	NYSDOT	Syracuse	**1.04**	**1.26**
0.37	Interstate 81	NB	I-81 ramp to I-690 W	Pearl St ramp	Principal Arterial	NYSDOT	Syracuse	0.74	0.85
0.35	Interstate 81	NB	Pearl St ramp	Butternut St ramp	Principal Arterial	NYSDOT	Syracuse	**0.91**	**1.12**
0.35	Interstate 81	NB	Butternut St ramp	Danforth St ramp	Principal Arterial	NYSDOT	Syracuse	0.67	**0.92**
0.33	Interstate 81	NB	Danforth St ramp	Sunset Ave ramp to I-81	Principal Arterial	NYSDOT	Syracuse	0.63	0.89
0.21	Interstate 81	SB	7th North St	I-90	Principal Arterial	NYSDOT	Salina	0.83	0.66
0.1	Interstate 81	SB	I-81 ramp to Hiawatha	Hiawatha Blvd	Principal Arterial	NYSDOT	Syracuse	0.8	0.64
0.39	Interstate 81	SB	Hiawatha Blvd	Genant Dr ramp to I-81	Principal Arterial	NYSDOT	Syracuse	**0.9**	0.73
0.25	Interstate 81	SB	Genant Dr ramp to I-81	I-81 ramp to Genant Dr	Principal Arterial	NYSDOT	Syracuse	**0.92**	0.82
0.09	Interstate 81	SB	I-81 ramp to Butternut St	North Clinton St ramp	Principal Arterial	NYSDOT	Syracuse	**1.14**	**1.05**
0.6	Interstate 81	SB	North Clinton St ramp	I-690 ramp to I-81	Principal Arterial	NYSDOT	Syracuse	0.75	0.85
0.26	Interstate 81	SB	I-690 ramp to I-81	E Genesee St	Principal Arterial	NYSDOT	Syracuse	**1.11**	**1.13**
0.52	Interstate 81	SB	E Genesee St	Adams St ramp to I-81	Principal Arterial	NYSDOT	Syracuse	0.63	**0.96**
1.16	Kirkville Rd		I-481	Fremont Rd	Minor Arterial	OCDOT	DeWitt/Manlius	**0.91**	0.88
2.32	NY 290		Bridge St	N Burdick St	Minor Arterial	NYSDOT	DeWitt/Manlius	0.83	0.75
0.73	NY 370		River Rd	John Glenn Bvd	Minor Arterial	NYSDOT	Lysander/Salina	0.71	0.83
0.11	NY 936C	EB	I-690	Thompson Rd SB ramp	Principal Arterial	NYSDOT	Syracuse	**0.96**	**0.96**

Table includes any segment showing a V/C >= 0.8 in AM or PM. Those in bold, >= 0.9, are congested

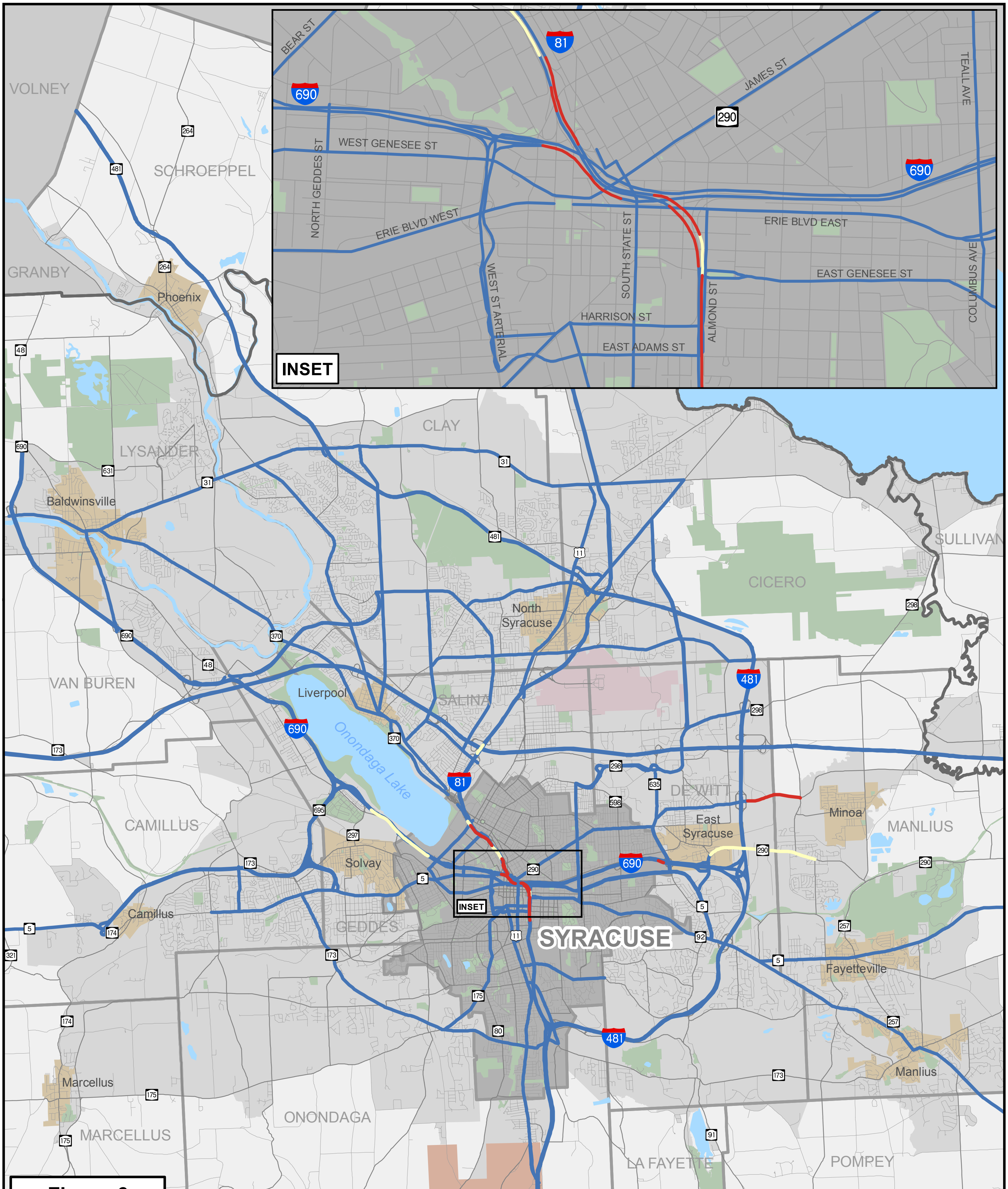

Figure 6

AM Peak Hour V/C Ratios

Congestion Management Process

AM Peak Hour V/C Ratio

- Not Congested (0.00 - 0.79)
- Nearing Congestion (0.80 - 0.89)
- Congested (0.90+)

0 0.5 1 2 3 4 Miles

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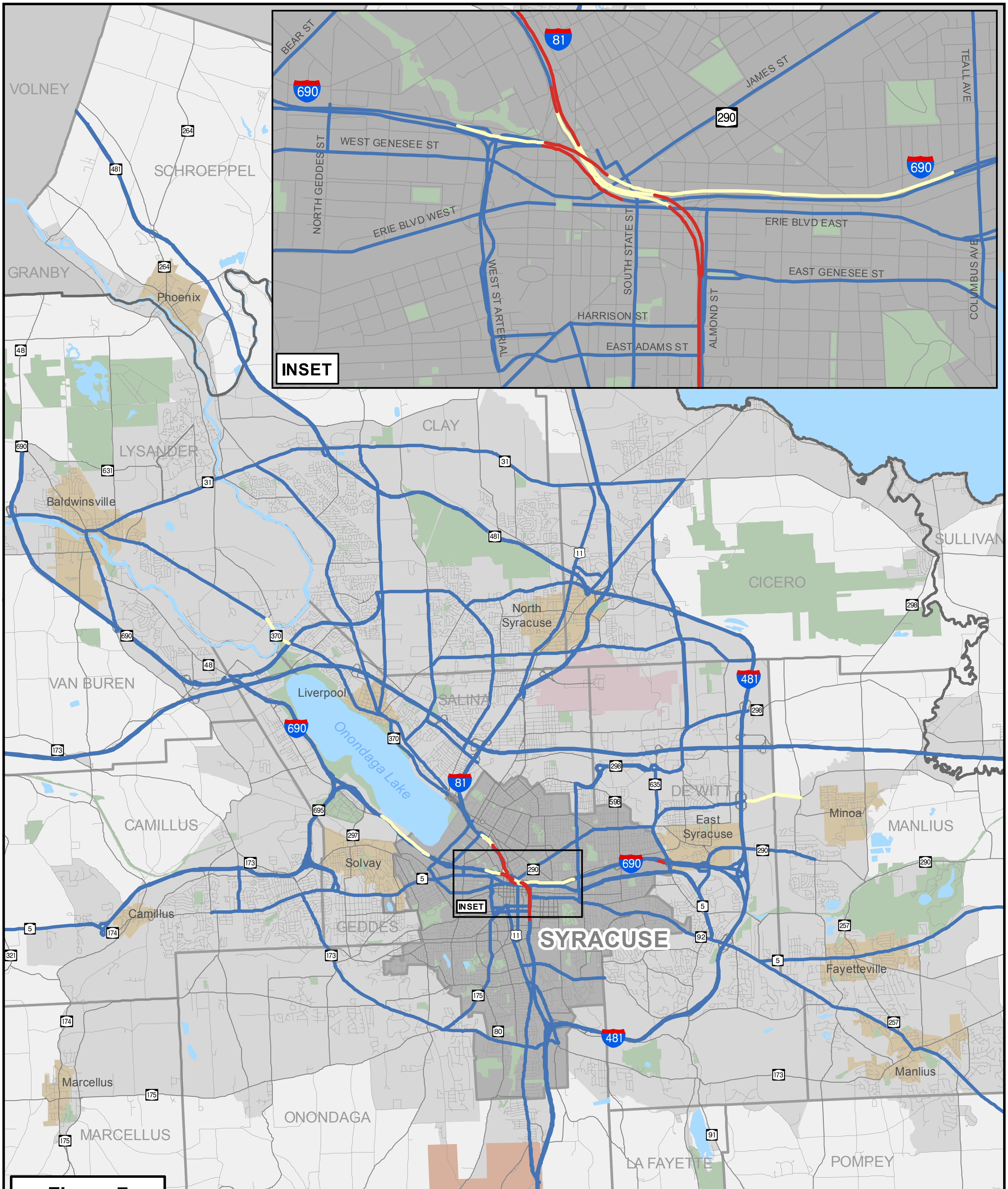

Figure 7

PM Peak Hour V/C Ratios

Congestion Management Process

0 0.5 1 2 3 4 Miles

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

PM Peak Hour V/C Ratio

- Not Congested (0.00 - 0.79)
- Nearing Congestion (0.80 - 0.89)
- Congested (0.90+)

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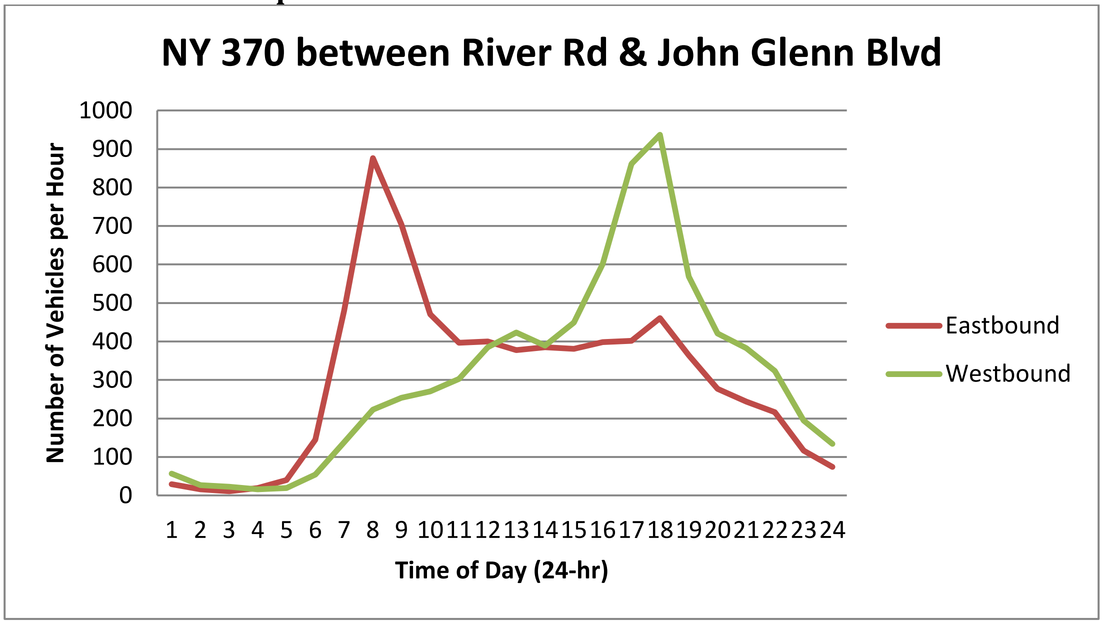
5.1.B SPEED INDEX

The agency's travel demand model was also used in the development of a Speed Index during the morning and evening peaks. Speed Index information is provided in Table 5-3. This table lists all segments with an index less than or equal to 50% in either the A.M or P.M. peak. Additionally, functional classification, facility owner, and municipality are provided as well. In general, 25 miles, represented by 47 different segments, have been identified as "congested" based on outputs from the SMTC's travel demand model. Nearly all interstate segments in the SMTC area have an acceptable speed index that would put them in the "not congested" category. However, several segments of Interstate 81 and Interstate 690 in proximity of the Interstate 81/Interstate 690 interchange in the City of Syracuse are identified as "congested." Once off of the interstate system, the speed indices begin to decrease considerably; meaning more segments fall below the threshold. This is particularly apparent at or adjacent to interstate exits that may be controlled by a traffic signal. Also, for the non-interstate segments the prevalence and spacing of stop signs and traffic signals, particularly within the City of Syracuse, is the primary influencing factor along the roadways identified as "at" or "nearing" congestion. Morning and evening speed indices are provided in Figures 8 and 9 respectively.

In addition to speed index data, speed distribution, and number of vehicles per hour as gathered from past NYSDOT traffic counts along various primary commuter corridors is presented for informational purposes as well. Appendix A provides information for those corridors with available data. The charts below provide two such examples. Chart 5-1 represents the duration of vehicles by direction in a 24-hour period. The segment of NY 370 between River Rd and John Glenn Blvd is one of many primary commuter corridors in the SMTC planning area. As the graph shows, there's an even distribution of the number of vehicles in both directions in the typical A.M. peak (7a.m.-9a.m.) and P.M. peak (4p.m.-6p.m.).

Chart 5-1: Vehicles per Hour



For travel speeds along the same segment of NY 370 (Chart 5-2), there is a slight variation between the directional average speeds. However, throughout the 24-hour period the average speed remains generally between 40 to 45 miles per hour. The posted speed along this stretch of road is 45 miles per hour. Based on the travel demand model, this segment of NY 370 is "nearing" congestion in the morning and evening under the Speed Index performance measure.

Chart 5-2: Travel Speed

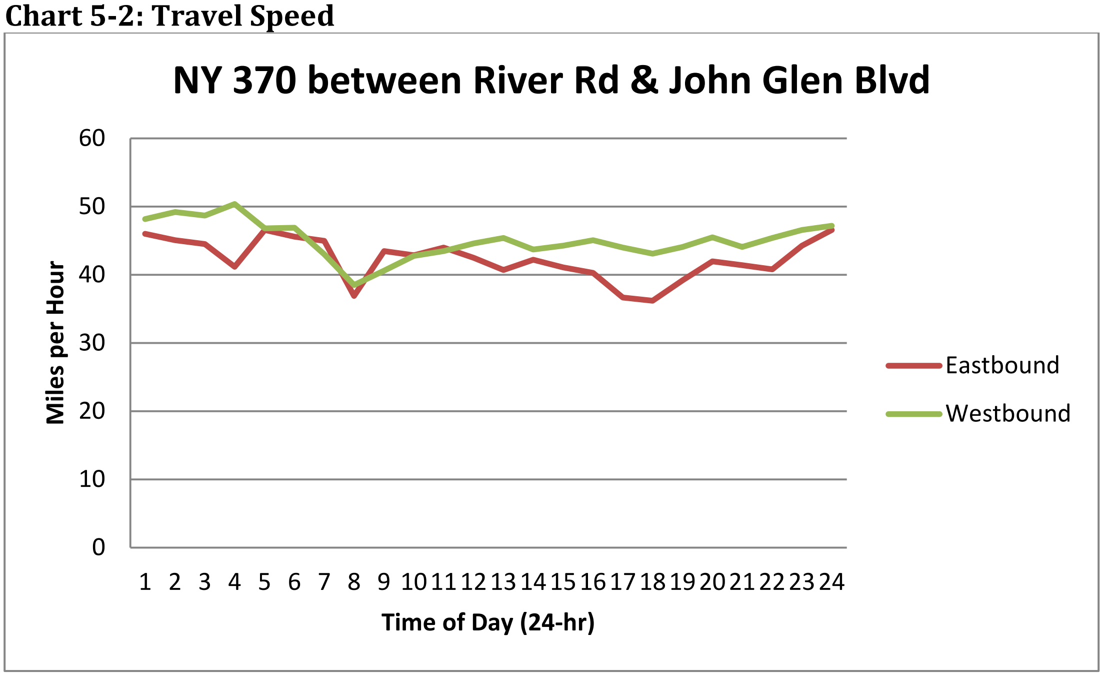


Table 5-3: Speed Index

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Speed Index AM	Speed Index PM
0.41	7th North St		Buckley Rd	I-81	Minor Arterial	OCDOT	Salina	28	27
0.42	Adams St		Shonnard St extension	State St	Principal Arterial	NYSDOT	Syracuse	26	24
0.37	Almond St	SB	Adams St	E Genesee St	Principal Arterial	NYSDOT	Syracuse	45	44
0.19	Almond St		E Genesee St	Erie Blvd East	Principal Arterial	Syracuse	Syracuse	30	27
0.85	Bear St		I-690	Sunset Ave	Principal Arterial	NYSDOT	Syracuse	51	48
1.09	Buckley Rd		John Glenn Blvd	Henry Clay Blvd	Principal Arterial	OCDOT	Clay	48	45
0.24	Columbus Ave		E Genesee St	Erie Blvd	Principal Arterial	Syracuse	Syracuse	22	22
0.1	E Brighton Ave		Salina St	State St	Principal Arterial	Syracuse	Syracuse	26	26
0.69	E Circle Dr		US 11	S Bay Rd	Minor Arterial	NYSDOT/Cicero	Cicero	51	46
0.91	E Genesee St		Forman Ave	Columbus Ave	Principal Arterial	Syracuse	Syracuse	47	47
0.36	Erie Blvd East		Salina St	Almond St	Principal Arterial	Syracuse	Syracuse	38	35
0.27	Erie Blvd West		W Genesee St	Hiawatha Blvd	Minor Arterial	Syracuse	Syracuse	47	45
0.59	Genesee St		Knowell Rd	Hinsdale Rd	Minor Arterial	OCDOT	Camillus	42	42
0.38	Genesee St		West St	Salina St	Principal Arterial	Syracuse	Syracuse	36	34
0.37	Interstate 690	EB	West St NB ramp to I-690	I-81 SB ramp	Principal Arterial	NYSDOT	Syracuse	46	65
0.24	Interstate 81	NB	I-81 ramp to I-690 E	I-81 ramp to I-690 W	Principal Arterial	NYSDOT	Syracuse	50	21
0.09	Interstate 81	SB	I-81 ramp to Butternut St	North Clinton St ramp	Principal Arterial	NYSDOT	Syracuse	35	48
0.26	Interstate 81	SB	I-690 ramp to I-81	E Genesee St	Principal Arterial	NYSDOT	Syracuse	40	36
0.35	Interstate 81	NB	Pearl St ramp	Butternut St ramp	Principal Arterial	NYSDOT	Syracuse	69	38
0.72	James St		Salina St	Lodi St	Principal Arterial	Syracuse	Syracuse	33	31
1.16	Kirkville Rd		I-481	Fremont Rd	Minor Arterial	OCDOT	DeWitt/Manlius	57	48
0.1	MLK Jr		Salina St	State St	Principal Arterial	Syracuse	Syracuse	20	21
0.64	Morgan Rd		Wetzel Rd	Buckley Rd	Minor Arterial	OCDOT	Clay	43	42
0.18	N Geddes St		W Genesee St	I-690	Minor Arterial	Syracuse	Syracuse	43	39
0.69	Northern Blvd	SB	Taft Rd	I-481	Minor Arterial	OCDOT	Cicero	43	55
0.93	NY 298		Kinne St	Northern Blvd	Minor Arterial	NYSDOT	DeWitt	37	35
0.3	NY 31		NY 48	NY 370	Principal Arterial	NYSDOT	Baldwinsville	41	39
0.52	NY 31		B'Ville Bypass	Willett Pkwy	Principal Arterial	NYSDOT	Lysander	44	39
0.93	NY 31		River Rd	Old Rt 57	Principal Arterial	NYSDOT	Lysander/Clay	46	41
1.62	NY 31		Old Rt 57	NY 481	Principal Arterial	NYSDOT	Clay	55	48
0.68	NY 31		NY 481	Morgan Rd	Principal Arterial	NYSDOT	Clay	42	37
1.82	NY 31		I-81	S Bay Rd	Minor Arterial	NYSDOT	Cicero	52	50

Table 5-3: Speed Index

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Speed Index AM	Speed Index PM
0.94	NY 5		Fay Rd	Erie Blvd	Principal Arterial	Syracuse	Syracuse	49	46
0.62	NY 5/92		I-481	Lyndon Rd	Principal Arterial	NYSDOT	DeWitt	26	25
0.16	NY 92/173		Start of overlap	End of overlap	Principal Arterial	NYSDOT	Manlius	16	16
0.31	Oswego St		Tulip St	Onondaga Pkwy	Principal Arterial	OCDOT	Liverpool	16	15
0.13	Salina St		Adams St	Harrison St	Minor Arterial	Syracuse	Syracuse	37	33
0.73	South Ave		Valley Dr	Cortland Ave	Minor Arterial	Syracuse	Syracuse	49	47
0.64	State St		MLK Jr	Adams St	Principal Arterial	Syracuse	Syracuse	44	41
0.56	State St		Adams St	Erie Blvd East	Principal Arterial	Syracuse	Syracuse	34	29
0.18	State St		Erie Blvd East	Willow St	Principal Arterial	Syracuse	Syracuse	30	24
0.32	Teall Ave		Erie Blvd	I-690	Principal Arterial	Syracuse	Syracuse	47	46
0.7	Thompson Rd	NB	I-690	James St	Principal Arterial	NYSDOT	DeWitt	42	41
0.71	US 11		Taft Rd	I-81	Minor Arterial	NYSDOT	Clay/Salina	41	39
0.21	W Onondaga St		Harrison St	Shonnard St extension	Principal Arterial	Syracuse	Syracuse	26	30
0.52	West St	SB	West Fayette St	Shonnard St	Principal Arterial	NYSDOT	Syracuse	51	48
0.05	Willow St		State St	Pearl St	Principal Arterial	Syracuse	Syracuse	26	29

Table includes only those segments with Speed Index <= 50% in AM or PM

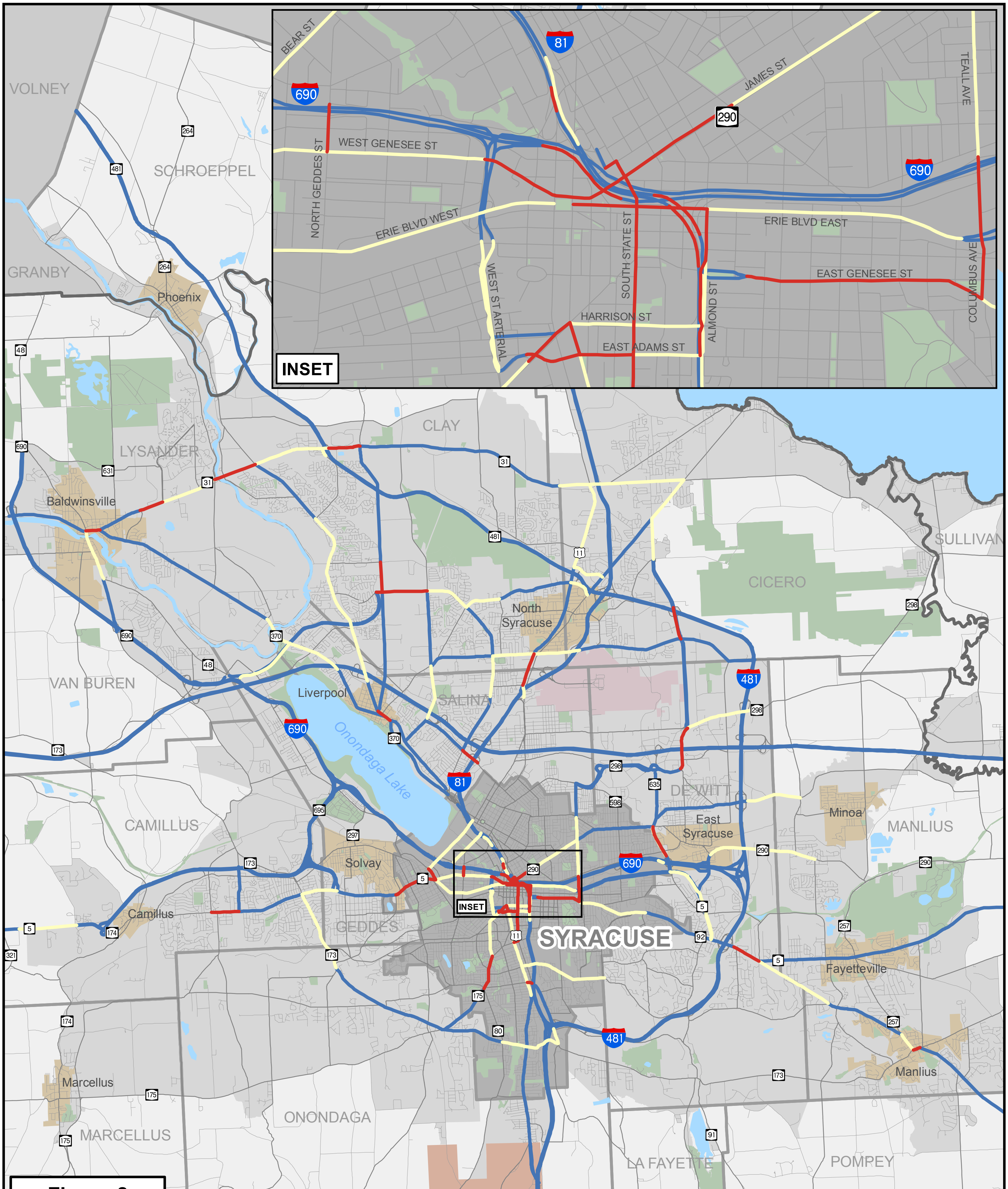


Figure 8

AM Peak Hour Speed Index

Congestion Management Process

0 0.5 1 2 3 4 Miles

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

AM Peak Hour Speed Index

- Not Congested (> 70%)
- Nearing Congestion (50% - 70%)
- Congested (< 50%)

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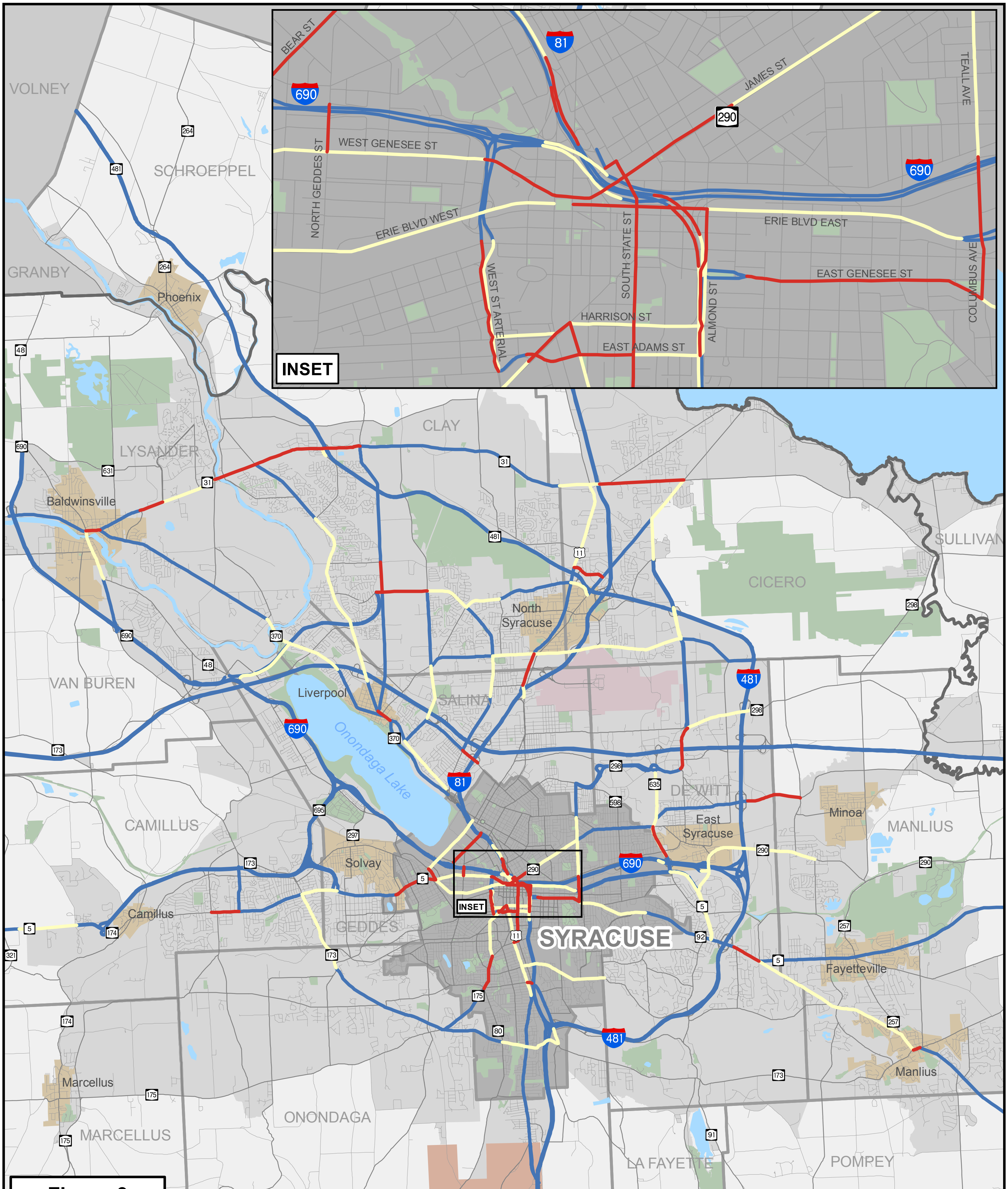

Figure 9

PM Peak Hour Speed Index

Congestion Management Process

PM Peak Hour Speed Index

- Not Congested (> 70%)
- Nearing Congestion (50% - 70%)
- Congested (< 50%)

0 0.5 1 2 3 4 Miles

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

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5.1.C TRAVEL TIME INDEX

Travel Time Index is the ratio of travel time during the peak period to the time necessary to make the same trip at free-flow speeds. As mentioned above, a corridor or road segment with a TTI between 1.25 and 1.49 is considered nearing congestion, while a TTI of 1.5 or greater is considered congested. Utilizing average speeds and travel times from the SMTC's travel demand model, the primary commuter corridors' TTIs mirror the model's morning and evening peak travel times. The morning and evening TTIs are displayed in Figures 10 and 11. In addition, TTIs are listed in Table 5-5 along with segment length, segment, road owner, functional classification and municipality. Overall, 95 miles, represented by 117 different segments, have been identified as "congested." Like the v/c ratio and speed index measures, the interstate system, in general, performs very well under the TTI, with some exceptions. Several segments of the Interstate 81/690 interchange fall below the congested TTI threshold. Off of the interstate system, most of the primary commuter corridors in the City of Syracuse also fall below the congested threshold. Outside of the city, numerous segments are identified as congested under the TTI performance measure. Locations such as NY 31 near Interstate 81 in the Town of Cicero and "Lyndon Corners" in the Town of DeWitt are congested in both the A.M. and P.M. peaks.

The modeled TTI data when compared to an industry leader in traffic services (i.e., INRIX) is quite similar. Meaning, the overall transportation system appears to have minimal interruption in travel times during the peak periods. INRIX annually produces a traffic scorecard drawn from the 100 largest metropolitan areas across the country. The scorecard provides data both in terms of an index and wasted time.[9] The INRIX index "represents a percentage point increase in the average travel time of a commute above free-flow conditions during peak hours."[10] For the Syracuse metropolitan area, INRIX includes data for the entire Metropolitan Statistical Area (MSA) as defined by the U.S. Census Bureau. The MSA consists of the entirety of Onondaga, Oswego, and Madison Counties. This area is larger than the Syracuse MPA; however, the data are useful when comparing the metropolitan area to other areas throughout New York State and the country.

According to INRIX, in 2013, the Syracuse area had an index of 1.1. This would indicate, for example, that a 20-minute trip in free-flow conditions would still take roughly 20-minutes (20.22-minutes) during the peak hours. With this very low index, the Syracuse area ranked 90th out of the 100 largest metropolitan areas. The table on the next page provides the index, hours wasted in congestion and rank over the past three years. The data consistently ranks Syracuse with other metropolitan areas throughout the country will little to no congestion.

[9] http://www.inrix.com/scorecard/methodology.asp
[10] ibid

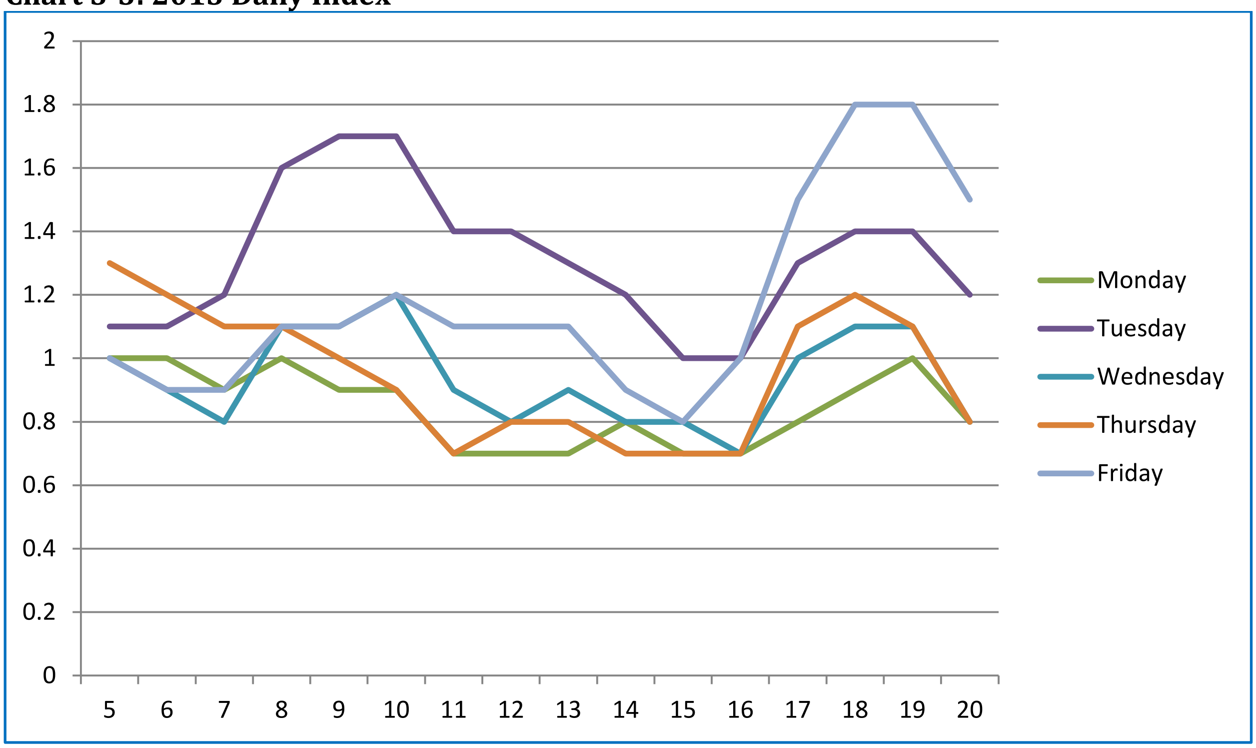
Table 5-4: Syracuse INRIX Index and Wasted Time

Year	Index	Hours Wasted in Congestion	Rank (out of 100)	% Growth (from prior year)
2013	1.1	1.7	90	-27%
2012	1.5	2.4	87	-40%
2011	2.5	3.8	86	-44%

Source: INRIX

When examining the data at the hourly level, by weekday (Monday through Friday), the highest indices generally correlate with the traditional morning (7-9) and evening (4-6) peak periods. Interestingly, the highest index for most weekdays fell during the hour of 6:00-7:00 p.m. The hourly distribution is shown in the chart below.

Chart 5-3: 2013 Daily Index



Source: INRIX

Table 5-5: Travel Time Index

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Travel Time Index AM	Travel Time Index PM
0.41	7th North St		Buckley Rd	I-81	Minor Arterial	OCDOT	Salina	1.97	2.14
0.42	Adams St		Shonnard St extension	State St	Principal Arterial	NYSDOT	Syracuse	2.96	3.05
0.24	Adams St		State St	I-81	Principal Arterial	NYSDOT	Syracuse	2.43	2.52
0.37	Almond St	NB	Adams St	E Genesee St	Principal Arterial	Syracuse	Syracuse	2.36	2.39
0.37	Almond St	SB	Adams St	E Genesee St	Principal Arterial	NYSDOT	Syracuse	3.52	3.38
0.19	Almond St		E Genesee St	Erie Blvd East	Principal Arterial	Syracuse	Syracuse	3.07	3.22
0.76	Bear Rd		Buckley Rd	Allen Rd	Principal Arterial	OCDOT	Clay	1.52	1.68
0.49	Bear Rd		US 11	S Bay Rd	Minor Arterial	NYSDOT	Cicero	1.64	1.64
0.85	Bear St		I-690	Sunset Ave	Principal Arterial	NYSDOT	Syracuse	1.7	1.78
0.88	Bridge St		Erie Blvd	NY 290	Principal Arterial	NYSDOT	DeWitt	1.74	2.02
1.09	Buckley Rd		John Glenn Blvd	Henry Clay Blvd	Principal Arterial	OCDOT	Clay	1.71	1.87
0.96	Buckley Rd		Henry Clay Blvd	Bear Rd	Principal Arterial	OCDOT	Clay	1.99	2.2
0.86	Buckley Rd		Taft Rd	Hopkins Rd	Minor Arterial	OCDOT	Clay/Salina	1.65	1.88
0.24	Columbus Ave		E Genesee St	Erie Blvd	Principal Arterial	Syracuse	Syracuse	3.08	3.24
0.92	Court St	EB	Teall Ave	GM Circle	Principal Arterial	NYSDOT	Salina/DeWitt	1.92	1.76
1.16	Court St	WB	GM Circle	Carrier Circle	Principal Arterial	NYSDOT	DeWitt	1.41	1.56
0.32	E Brighton Ave		NY 173	I-481	Minor Arterial	Syracuse	Syracuse	1.78	1.91
0.9	E Brighton Ave		I-481	State St	Principal Arterial	Syracuse	Syracuse	1.62	1.64
0.1	E Brighton Ave		Salina St	State St	Principal Arterial	Syracuse	Syracuse	3.17	3.77
0.69	E Circle Dr		US 11	S Bay Rd	Minor Arterial	NYSDOT/Cicero	Cicero	1.91	2.1
1.85	E Colvin St		Salina St	Nottingham Rd	Minor Arterial	Syracuse	Syracuse	1.57	1.69
0.18	E Genesee St		Almond St	Forman Ave	Principal Arterial	Syracuse	Syracuse	2.06	2.19
0.91	E Genesee St		Forman Ave	Columbus Ave	Principal Arterial	Syracuse	Syracuse	2.02	2.08
1.47	E Genesee St		Columbus Ave	Meadowbrook Dr	Principal Arterial	Syracuse	Syracuse	1.52	1.57
1.16	Electronics Pkwy		Old Liverpool Rd	Hopkins Rd	Principal Arterial	OCDOT	Salina	1.72	1.86
0.36	Erie Blvd East		Salina St	Almond St	Principal Arterial	Syracuse	Syracuse	2.47	2.6
1.09	Erie Blvd East	EB	Bridge St	E Genesee St	Principal Arterial	NYSDOT	DeWitt	1.73	2.04
1.09	Erie Blvd East	WB	Bridge St	E Genesee St	Principal Arterial	NYSDOT	DeWitt	1.88	1.93
0.27	Erie Blvd West		W Genesee St	Hiawatha Blvd	Minor Arterial	Syracuse	Syracuse	2.07	2.12
0.37	Erie Blvd West		Plum St	Clinton St	Principal Arterial	Syracuse	Syracuse	1.77	1.75
0.59	Genesee St		Knowell Rd	Hinsdale Rd	Minor Arterial	OCDOT	Camillus	2.27	2.4
1.39	Genesee St		Hinsdale Rd	NY 173	Minor Arterial	OCDOT	Camillus	1.47	1.57
0.77	Genesee St		NY 173	NY 5	Minor Arterial	OCDOT	Camillus/Geddes	1.76	1.98
0.38	Genesee St		West St	Salina St	Principal Arterial	Syracuse	Syracuse	2.44	2.48
0.25	Gifford St		West St	Clinton St	Principal Arterial	Syracuse	Syracuse	1.42	2.13

Table 5-5: Travel Time Index

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Travel Time Index AM	Travel Time Index PM
0.49	Harrison St		Salina St	I-81	Principal Arterial	Syracuse	Syracuse	2.32	2.32
0.69	Henry Clay Blvd		Hopkins Rd	Taft Rd	Principal Arterial	OCDOT	Salina	1.63	1.79
1.4	Hiawatha Blvd		Erie Blvd	I-81	Minor Arterial	Syracuse	Syracuse	1.81	1.94
0.96	Hinsdale Rd		Genesee St	NY 5	Minor Arterial	OCDOT	Camillus	1.54	1.65
0.37	Interstate 690	EB	West St NB ramp to I-690	I-81 SB ramp	Principal Arterial	NYSDOT	Syracuse	2.19	1.54
0.27	Interstate 690	WB	I-81 NB ramp	West St SB ramp	Principal Arterial	NYSDOT	Syracuse	1.14	1.73
0.49	Interstate 81	NB	I-81 ramp to Adams St	E Genesee St	Principal Arterial	NYSDOT	Syracuse	1.84	1.2
0.16	Interstate 81	NB	E Genesee St	I-81 ramp to I-690 E	Principal Arterial	NYSDOT	Syracuse	1.31	1.83
0.24	Interstate 81	NB	I-81 ramp to I-690 E	I-81 ramp to I-690 W	Principal Arterial	NYSDOT	Syracuse	2.01	4.78
0.09	Interstate 81	SB	I-81 ramp to Butternut St	North Clinton St ramp	Principal Arterial	NYSDOT	Syracuse	2.9	2.1
0.26	Interstate 81	SB	I-690 ramp to I-81	E Genesee St	Principal Arterial	NYSDOT	Syracuse	2.49	2.77
0.52	Interstate 81	SB	E Genesee St	Adams St ramp to I-81	Principal Arterial	NYSDOT	Syracuse	1.08	1.65
0.35	Interstate 81	NB	Pearl St ramp	Butternut St ramp	Principal Arterial	NYSDOT	Syracuse	1.44	2.64
0.72	James St		Salina St	Lodi St	Principal Arterial	Syracuse	Syracuse	2.72	2.88
1.09	James St		Lodi St	Teall Ave	Principal Arterial	Syracuse	Syracuse	1.64	1.71
1.68	James St		Teall Ave	Thompson Rd	Principal Arterial	Syracuse	Syracuse	1.61	1.67
1.35	John Glenn Blvd	EB	NY 690	NY 370	Principal Arterial	OCDOT	Geddes/Salina	1.72	2.06
1.16	Kirkville Rd		I-481	Fremont Rd	Minor Arterial	OCDOT	DeWitt/Manlius	1.59	1.79
0.1	MLK Jr		Salina St	State St	Principal Arterial	Syracuse	Syracuse	3.74	3.99
0.64	Morgan Rd		Wetzel Rd	Buckley Rd	Minor Arterial	OCDOT	Clay	1.74	1.76
0.18	N Geddes St		W Genesee St	I-690	Minor Arterial	Syracuse	Syracuse	2.02	2.21
0.69	Northern Blvd	NB	Taft Rd	I-481	Minor Arterial	OCDOT	Cicero	1.62	2.49
0.69	Northern Blvd	SB	Taft Rd	I-481	Minor Arterial	OCDOT	Cicero	2.43	1.87
1.75	NY 173		Genesee St	Fay Rd	Minor Arterial	NYSDOT	Camillus/Onondaga	1.62	1.75
0.34	NY 173		Velasko Rd	NY 175	Minor Arterial	NYSDOT	Onondaga	1.91	1.96
1.35	NY 173		NY 175	Hopper Rd	Minor Arterial	NYSDOT	Onondaga/Syracuse	1.92	1.97
0.53	NY 173		Hopper Rd	South Salina St	Minor Arterial	Syracuse	Syracuse	1.76	1.79
2.32	NY 290		Bridge St	N Burdick St	Minor Arterial	NYSDOT	DeWitt/Manlius	1.84	1.92
0.93	NY 298		Kinne St	Northern Blvd	Minor Arterial	NYSDOT	DeWitt	2.05	2.31
0.3	NY 31		NY 48	NY 370	Principal Arterial	NYSDOT	Baldwinsville	2.51	2.85
0.96	NY 31		NY 370	B'Ville Bypass	Principal Arterial	NYSDOT	Baldwinsville	1.43	1.52
0.52	NY 31		B'Ville Bypass	Willett Pkwy	Principal Arterial	NYSDOT	Lysander	1.73	1.86
1.23	NY 31		Willett Pkwy	River Rd	Principal Arterial	NYSDOT	Lysander	1.53	1.63
0.93	NY 31		River Rd	Old Rt 57	Principal Arterial	NYSDOT	Lysander/Clay	1.86	2.02
1.62	NY 31		Old Rt 57	NY 481	Principal Arterial	NYSDOT	Clay	2	2.32

Table 5-5: Travel Time Index

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Travel Time Index AM	Travel Time Index PM
0.68	NY 31		NY 481	Morgan Rd	Principal Arterial	NYSDOT	Clay	2.38	2.76
0.86	NY 31		Lawton Rd	I-81	Principal Arterial	NYSDOT	Cicero	2.28	2.21
1.82	NY 31		I-81	S Bay Rd	Minor Arterial	NYSDOT	Cicero	1.78	1.8
0.73	NY 370		River Rd	John Glenn Blvd	Minor Arterial	NYSDOT	Lysander/Salina	1.79	1.7
1.19	NY 370		John Glenn Blvd	I-90	Minor Arterial	NYSDOT	Salina	1.44	1.55
0.64	NY 48		NY 31	Van Buren Rd	Minor Arterial	NYSDOT	Lysander/B'Ville	1.72	1.76
1.24	NY 5		Ike Dixon Rd	Ranch Rd	Principal Arterial	NYSDOT	Camillus	1.58	1.55
1.27	NY 5		NY 5/695 ramps	Fay Rd	Principal Arterial	NYSDOT	Geddes	1.52	1.62
0.94	NY 5		Fay Rd	Erie Blvd	Principal Arterial	Syracuse	Syracuse	2.69	2.84
1.2	NY 5		Erie Blvd	West St	Principal Arterial	Syracuse	Syracuse	1.68	1.77
3.48	NY 5		Lyndon Rd	Duguid Rd	Principal Arterial	NYSDOT	Manlius	1.78	1.84
0.62	NY 5/92		I-481	Lyndon Rd	Principal Arterial	NYSDOT	DeWitt	4.3	4.87
3.87	NY 92		Lyndon Rd	NY 92/173 overlap	Principal Arterial	NYSDOT	Manlius	1.85	2.06
0.16	NY 92/173		Start of overlap	End of overlap	Principal Arterial	NYSDOT	Manlius	4.43	5.1
1.61	NY 92		NY 92/173 overlap	Manlius Town line	Principal Arterial	NYSDOT	Manlius	1.59	1.61
0.11	NY 936C	EB	I-690	Thompson Rd SB ramp	Principal Arterial	NYSDOT	Syracuse	1.63	1.59
1.96	Old Liverpool Rd		Onondaga Pkwy	Buckley Rd	Principal Arterial	OCDOT	Salina	1.47	1.62
1.14	Old Rt 57		Soule Rd	Wetzel Rd	Principal Arterial	OCDOT	Clay	1.77	1.85
1.42	Old Rt 57		Wetzel Rd	John Glenn Blvd	Principal Arterial	OCDOT	Clay	1.88	1.98
1.26	Old Rt 57		John Glenn Blvd	I-90	Principal Arterial	OCDOT	Clay	1.97	2.13
0.31	Oswego St		Tulip St	Onondaga Pkwy	Principal Arterial	OCDOT	Liverpool	5.33	5.89
0.65	Salina St		E Calthrop Ave	E Colvin St	Principal Arterial	Syracuse	Syracuse	1.82	1.85
0.55	Salina St		E Colvin St	MLK Jr	Principal Arterial	Syracuse	Syracuse	1.62	1.69
0.67	Salina St		MLK Jr	Adams St	Principal Arterial	Syracuse	Syracuse	1.71	1.78
0.13	Salina St		Adams St	Harrison St	Minor Arterial	Syracuse	Syracuse	1.87	2.03
0.73	South Ave		Valley Dr	Cortland Ave	Minor Arterial	Syracuse	Syracuse	2.42	2.56
0.18	Soule Rd		NY 31	NY 481	Major Collector	NYSDOT	Clay	1.45	1.5
0.64	State St		MLK Jr	Adams St	Principal Arterial	Syracuse	Syracuse	1.99	2.1
0.56	State St		Adams St	Erie Blvd East	Principal Arterial	Syracuse	Syracuse	2.73	3.06
0.18	State St		Erie Blvd East	Willow St	Principal Arterial	Syracuse	Syracuse	3.75	4.19
1.86	Taft Rd		Buckley Rd	I-81	Principal Arterial	OCDOT	Clay	1.82	2.04
0.32	Teall Ave		Erie Blvd	I-690	Principal Arterial	Syracuse	Syracuse	2.85	3
1.25	Teall Ave		I-690	Grant Blvd	Principal Arterial	Syracuse	Syracuse	1.61	1.76
0.72	Teall Ave		Grant Blvd	Court St	Principal Arterial	OCDOT	Salina	1.58	1.76
0.35	Thompson Rd	SB	Erie Blvd	I-690	Principal Arterial	NYSDOT	DeWitt	1.83	1.85

Table 5-5: Travel Time Index

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Travel Time Index AM	Travel Time Index PM
0.7	Thompson Rd	NB	I-690	James St	Principal Arterial	NYSDOT	DeWitt	2.7	2.71
0.71	Thompson Rd	SB	James St	I-690	Principal Arterial	NYSDOT	DeWitt	1.81	2.29
1.17	Thompson Rd		James St	Carrier Circle	Principal Arterial	NYSDOT	DeWitt	1.43	1.62
2.2	US 11		NY 31	Bear Rd	Minor Arterial	NYSDOT	Cicero	1.91	2.05
0.71	US 11		Taft Rd	I-81	Minor Arterial	NYSDOT	Clay/Salina	3.94	4.11
0.27	US 11		I-81	US 11	Minor Arterial	NYSDOT	Salina	2.61	3.1
0.21	W Onondaga St		Harrison St	Shonnard St extension	Principal Arterial	Syracuse	Syracuse	3.17	3
0.28	W Onondaga St		Shonnard St extension	South Ave	Minor Arterial	Syracuse	Syracuse	2.17	2.45
0.5	West St	NB	Shonnard St	West Fayette St	Principal Arterial	NYSDOT	Syracuse	2.07	2.22
0.35	West St	SB	I-690	West Fayette St	Principal Arterial	NYSDOT	Syracuse	1.97	1.92
0.52	West St	SB	West Fayette St	Shonnard St	Principal Arterial	NYSDOT	Syracuse	2.37	2.58
0.05	Willow St		State St	Pearl St	Principal Arterial	Syracuse	Syracuse	2.46	2.25

Table includes only those segments with Travel Time Index >= 1.5 in AM or PM

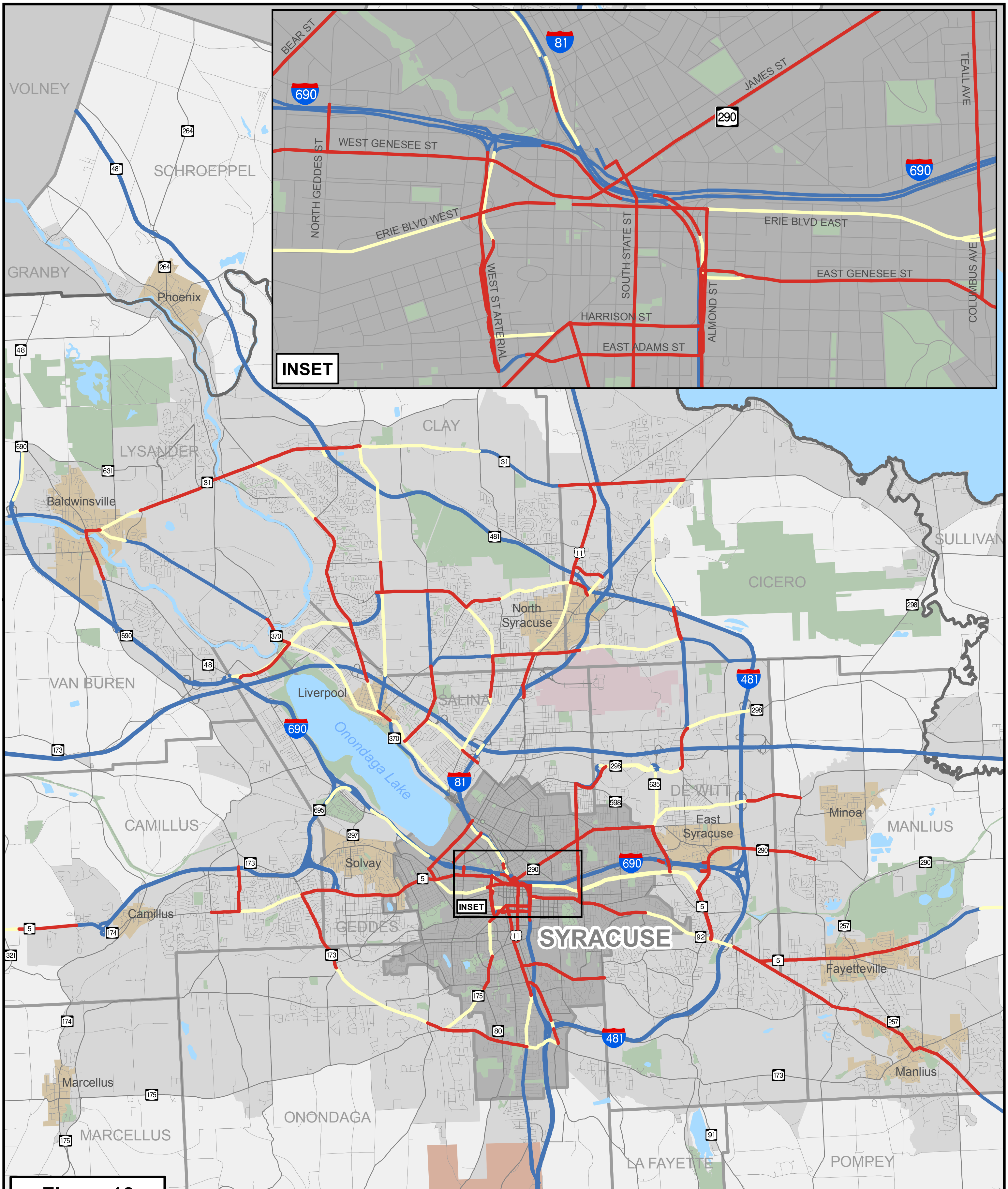


Figure 10

AM Peak Hour Travel Time Index

Congestion Management Process

AM Peak Period Travel Time Index

- Not Congested (1.00 - 1.24)
- Nearing Congestion (1.25 - 1.49)
- Congested (1.50+)

0 0.5 1 2 3 4 Miles

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

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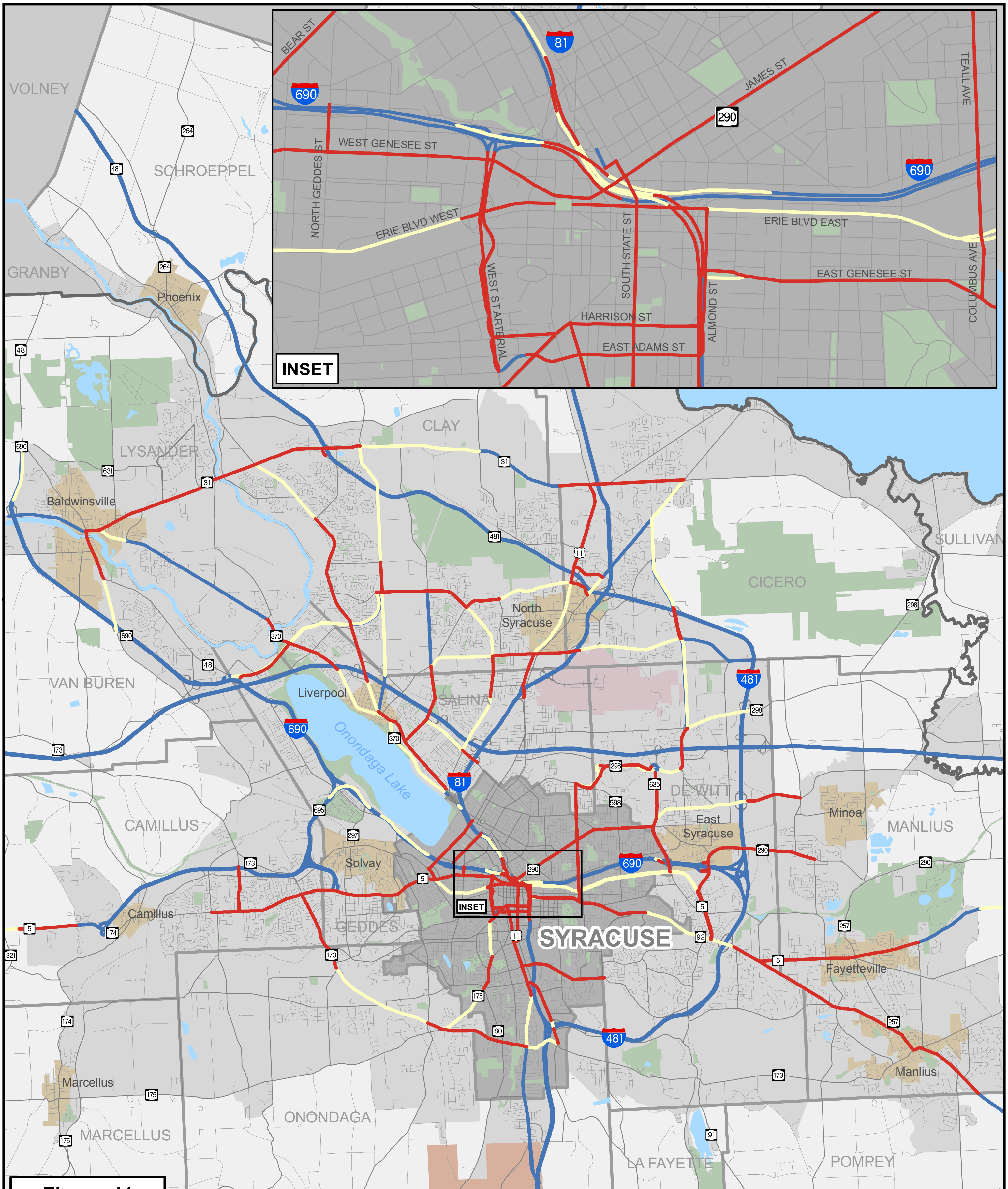

Figure 11

PM Peak Hour Travel Time Index

Congestion Management Process

0 0.5 1 2 3 4 Miles

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

PM Peak Period Travel Time Index

- Not Congested (1.00 - 1.24)
- Nearing Congestion (1.25 - 1.49)
- Congested (1.50+)

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5.1.D INTERSECTIONS

For those intersections included in the CMP monitoring and evaluation, Level of Service was derived for both the A.M. and P.M. peak hours from either HCS (Highway Capacity Software) or Synchro traffic analysis software. The following information from ITE's Transportation Planning Handbook depicts each Level of Service and the corresponding average delay range for traffic signal controlled intersections:

A -	Little or No Delay	(<= 10.0 sec)
B -	Minor, Short Delay	(10.1 to 20.0 sec)
C -	Average Delays	(20.1 to 35.0 sec)
D -	Long, but Acceptable Delays	(35.1 to 55.0 sec)
E -	Long, Approaching Unacceptable Delays	(55.1 to 80.0 sec)
F -	Long, Unacceptable Delays	(> 80.0 sec.)

A LOS 'A' for stop controlled approaches indicates good levels of operations with a motorist experiencing very little, if any delay. A LOS 'F' indicates that, on average, a motorist is experiencing delays in excess of 50 seconds. Based on experience with other municipalities, a LOS 'E' or better in an urban/developed area is considered acceptable.

The following depicts each Level of Service and the corresponding average delay range for stop controlled intersections:

A -	(<= 10.0 sec)
B -	(10.1 to 15.0 sec)
C -	(15.1 to 25.0 sec)
D -	(25.1 to 35.0 sec)
E -	(35.1 to 50.0 sec)
F -	(> 50.0 sec.)

Over the past five years, numerous intersection traffic operations analyses have been completed throughout the planning area by the SMTC. These reports were used to identify intersections along the "primary commuter corridors" with an overall Level of Service of E or F. The 2015 CMP includes 101 intersections in the organization's monitoring and evaluation of congestion management (Table 5-6 and Figure 12). Turning movement counts were gathered at 60 primary-to-primary intersections (59%) between 2011 and 2014. Of the 60 intersections, LOS analysis was completed on 36 intersections. The counts were entered into either HCS or Synchro traffic signal timing software to determine the existing Level of Service that each intersection was operating at for both the A.M. and P.M. peak hours. As noted, the Level of Service for intersections is based on seconds of vehicle delay.

Table 5-6: CMP Intersections

Intersection	Municipality	Count between 2010-2014	LOS available
NY 31/370 & Oswego St	Baldwinsville	Yes	No
NY 31 & NY 370	Baldwinsville	No	
West Genesee St & NY 173	Camillus	No	
West Genesee St & Hinsdale Rd	Camillus	Yes	Yes
Hinsdale Rd & NY 5	Camillus	Yes	No
NY 31 & I-81 NB off & Pardee Rd	Cicero	Yes	Yes
NY 31 & I-81 SB on/off	Cicero	Yes	Yes
NY 31 & US 11	Cicero	Yes	Yes
NY 31 & South Bay Rd	Cicero	Yes	Yes
South Bay Rd & Thompson Rd	Cicero	Yes	Yes
South Bay Rd & E Circle Dr	Cicero	Yes	Yes
E Circle Dr & US 11	Cicero	No	
E Circle Dr & NY 481 ramps	Cicero	No	
Taft Rd & I-81 NB ramps	Cicero	Yes	Yes
Taft Rd & I-81 SB ramps	Cicero	Yes	Yes
Northern Blvd & I-481 ramps	Cicero	No	
Taft Rd & Northern Blvd	Cicero	Yes	Yes
Morgan Rd & Buckley Rd	Clay	Yes	Yes
Old Rt 57 & John Glenn Blvd	Clay	No	
Henry Clay Blvd & Buckley Rd	Clay	Yes	Yes
John Glenn Blvd & Buckley Rd	Clay	Yes	Yes
NY 31 & Old Rt 57	Clay	Yes	Yes
Soule Rd & NY 481	Clay	Yes	No
NY 31 & Morgan Rd	Clay	No	
Bear Rd & Buckley Rd	Clay	No	
Henry Clay Blvd & Taft Rd	Clay	Yes	Yes

Intersection	Municipality	Count between 2010-2014	LOS available
Taft Rd & Buckley Rd	Clay	No	
NY 5 & NY 92	DeWitt	No	
Erie Blvd & Bridge St	DeWitt	No	
Northern Blvd & NY 298 *(a.k.a Collamer Rd.)*	DeWitt	Yes	No
NY 298 & I-481	DeWitt	No	
Thompson Rd & Exeter St	DeWitt	Yes	No
Erie Blvd & E Genesee St	DeWitt	No	
I-690 & Bridge St	East Syracuse	No	
NY 5 & West Genesee St	Geddes	No	
Oswego St & Tulip St	Liverpool	Yes	No
Oswego St & NY 370	Liverpool	Yes	No
NY 370 & NY 690	Lysander	Yes	No
NY 92 & NY 173 (w intersection)	Manlius	No	
NY 92 & NY 173 (e intersection)	Manlius	No	
US 11 & Taft Rd	North Syracuse	Yes	Yes
South Bay Rd & Bear Rd	North Syracuse	No	
US 11 & Bear Rd	North Syracuse	No	
Bear Rd & NY 481 ramps	North Syracuse	No	
NY 173 & NY 175	Onondaga	No	
I-81 & US 11	Onondaga	Yes	No
NY 370 & Old Liverpool Rd	Salina	Yes	No
Buckley Rd & 7th North St	Salina	Yes	Yes
NY 370 & John Glenn Blvd	Salina	Yes	No
Old Rt 57 & I-90	Salina	No	
Old Liverpool Rd & Electronics Pkwy	Salina	Yes	Yes

Intersection	Municipality	Count between 2010-2014	LOS available
Electronics Pkwy & 7th N St	Salina	Yes	Yes
Electronics Pkwy & I-90	Salina	Yes	Yes
I-81 & 7th N St	Salina	Yes	No
I-81 & US 11 (Mattydale Plaza area)	Salina	Yes	No
Buckley Rd & Old Liverpool Rd	Salina	Yes	Yes
Teall Ave & Court St	Salina	No	
Salina St & Seneca Tnpk	Syracuse	Yes	Yes
James St & Thompson Rd	Syracuse	Yes	No
Erie Blvd & Thompson Rd	Syracuse	No	
Adams St & Almond St	Syracuse	Yes	No
Harrison St & Almond St	Syracuse	No	
Hiawatha Blvd & Erie Blvd	Syracuse	No	
Hiawatha Blvd & I-690	Syracuse	No	
Hiawatha Blvd & I-81	Syracuse	No	
Bear St & I-690	Syracuse	Yes	No
Bear St & I-81	Syracuse	Yes	No
NY 5 (W Genesee St) & Erie Blvd	Syracuse	Yes	No
W Genesee St & Geddes St	Syracuse	Yes	No
West St & W Genesee St	Syracuse	Yes	No
West St & Erie Blvd	Syracuse	No	
West St & Gifford St	Syracuse	No	
West St & Shonnard St	Syracuse	No	
W Genesee St & Clinton St	Syracuse	Yes	Yes
Erie Blvd & Clinton St	Syracuse	Yes	Yes
State St & Erie Blvd	Syracuse	Yes	Yes
James St & Oswego Blvd	Syracuse	No	

Intersection	Municipality	Count between 2010-2014	LOS available
Oswego Blvd & Erie Blvd	Syracuse	Yes	Yes
James St & State St	Syracuse	No	
State St & Willow St	Syracuse	No	
Willow St & Pearl St	Syracuse	No	
Pearl St & I-81	Syracuse	Yes	No
Erie Blvd & Almond St	Syracuse	No	
E Genesee St & Almond St	Syracuse	No	
State St & Harrison St	Syracuse	Yes	Yes
State St & Adams St	Syracuse	Yes	Yes
Salina St & W Onondaga/Harrison St	Syracuse	Yes	No
Salina St & Adams St	Syracuse	Yes	Yes
W Onondaga & Gifford St	Syracuse	Yes	Yes
W Onondaga & Shonnard/Adams St	Syracuse	Yes	Yes
State St & Castle St (MLK Jr)	Syracuse	No	
Salina St & Castle St (MLK Jr)	Syracuse	Yes	Yes
W Onondaga St & South Ave	Syracuse	Yes	No
Salina St & E Colvin St	Syracuse	Yes	Yes
Salina St & E Brighton Ave	Syracuse	Yes	Yes
E Brighton Ave & I-481 & I-81	Syracuse	No	
E Brighton Ave & Seneca Tnpk	Syracuse	No	
Teall Ave & James St	Syracuse	No	
Teall Ave & I-690	Syracuse	Yes	No
Teall Ave & Erie Blvd	Syracuse	Yes	No
Columbus Ave & E Genesee St	Syracuse	Yes	Yes

Of the 36 intersections with LOS information available, there were no intersections in the A.M. peak and 2 intersections in the P.M. peak with a LOS E. Two intersections had a LOS F in the evening peak. LOS information is indicated in Table 5-7. Of note is that identifying an intersection as congested (i.e., LOS E or F) can be subjective relative by its geographic location. For example, an intersection in Downtown Syracuse with a LOS E may be thought of as acceptable as a Central Business District would be anticipated to have "activity", while a LOS E outside of the Downtown area will be thought of as failing.

According to the ITE Transportation Planning Handbook, LOS E indicates that long delays, from about 55 to 80 seconds per vehicle, occur at these intersections. While LOS E could be considered an acceptable level of service for some intersections, it can indicate that an intersection is congested.

The following intersections have a LOS E:

- Morgan Rd/Buckley Rd, Town of Clay (during the P.M. peak)
- US 11/Taft Rd, Village of North Syracuse (during the P.M. peak).

A LOS F indicates that an intersection is failing. Based on the LOS analyses, the following intersections are considered to be failing:

- Buckley Rd/7th North St, Town of Salina (during the P.M. peak)
- State St/Erie Blvd, City of Syracuse (during the P.M. peak).

Table 5-7: LOS Information

Intersection	Signal Owner	Municipality	Year of Count	AM Peak LOS by Approach Northbound	Southbound	Eastbound	Westbound	AM Peak Entire Intersection	PM Peak LOS by Approach Northbound	Southbound	Eastbound	Westbound	PM Peak Entire Intersection
West Genesee St & Hinsdale Rd	County	Camillus	2010	n/a	n/a	n/a	n/a	n/a	D	C	C	F	D
NY 31 & US 11	State	Cicero	2011	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	C
NY 31 & I-81 NB off & Pardee Rd	State	Cicero	2011	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	C
NY 31 & I-81 SB on/off	State	Cicero	2011	n/a	n/a	n/a	n/a	C	n/a	n/a	n/a	n/a	B
NY 31 & South Bay Rd	State	Cicero	2013	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	B
South Bay Rd & Thompson Rd	County	Cicero	2013	B	C	C	C	C	C	C	C	C	B
South Bay Rd & E Circle Dr	County	Cicero	2011	A	B	C	n/a	B	B	B	F	n/a	D
Taft Rd & I-81 NB ramps	State	Cicero	2013	B	n/a	A	B	A	D	n/a	B	C	B
Taft Rd & I-81 SB ramps	State	Cicero	2013	n/a	C	B	B	C	n/a	B	B	B	B
Taft Rd & Northern Blvd	County	Cicero	2013	C	D	D	D	D	D	D	C	D	D
Morgan Rd & Buckley Rd	County	Clay	2010	D	D	C	D	D	F	D	D	D	E
Henry Clay Blvd & Wetzel Rd	County	Clay	2010	C	C	C	C	C	D	D	C	D	C
Henry Clay Blvd & Buckley Rd	County	Clay	2010	C	D	C	C	C	C	C	C	C	C
John Glenn Blvd & Buckley Rd	County	Clay	2010	B	n/a	C	B	B	A	n/a	C	B	B
Henry Clay Blvd & Taft Rd	County	Clay	2010	C	D	C	D	D	D	D	D	D	D
US 11 & Taft Rd	State	North Syracuse	2013	D	C	C	C	C	F	D	C	D	E
Buckley Rd & 7th North St	County	Salina	2010	E	E	E	D	D	F	F	F	E	F
Old Liverpool Rd & Electronics Pkwy	County	Salina	2012	D	D	C	D	C	E	D	D	D	D
Electronics Pkwy & 7th N St	County	Salina	2010	C	C	C	B	C	C	C	C	C	C
Electronics Pkwy & I-90	County	Salina	2010	C	B	C	A	C	C	C	C	B	C
Buckley Rd & Old Liverpool Rd	State	Salina	2013	n/a	B	n/a	A	B	n/a	C	n/a	B	B
Salina St & Seneca Tnpk	City	Syracuse	2010	C	C	C	C	C	C	C	C	D	C
Midler Ave & James St	City	Syracuse	2010	C	C	C	C	C	C	D	C	C	C
W Genesee St & Clinton St	City	Syracuse	2011	n/a	D	E	C	D	n/a	C	D	C	C
Erie Blvd & Clinton St	City	Syracuse	2011	n/a	n/a	n/a	n/a	C	n/a	n/a	n/a	n/a	B
State St & Erie Blvd	City	Syracuse	2010	C	C	C	C	C	F	C	C	B	F
Oswego Blvd & Erie Blvd	City	Syracuse	2011	n/a	A	A	n/a	A	n/a	B	B	n/a	B
State St & Harrison St	City	Syracuse	2011	B	A	n/a	A	A	B	C	n/a	A	B
State St & Adams St	State	Syracuse	2011	C	E	A	n/a	B	C	D	A	n/a	B
Salina St & Adams St	State	Syracuse	2011	D	A	D	C	D	D	A	C	C	C
W Onondaga & Gifford St	City	Syracuse	2011	n/a	C	A	A	B	n/a	C	A	A	B
W Onondaga & Shonnard/Adams St	State	Syracuse	2013	C	B	A	A	B	B	C	A	A	B
Salina St & Cast St (MLK Jr)	City	Syracuse	2011	A	A	C	C	B	A	A	C	C	B
Salina St & E Colvin St	City	Syracuse	2011	A	A	n/a	D	B	A	A	n/a	D	B
Salina St & E Brighton Ave	City	Syracuse	2011	C	C	B	E	C	B	C	B	D	C
Columbus Ave & E Genesee St	City	Syracuse	2011	D	D	B	A	B	D	D	A	B	B

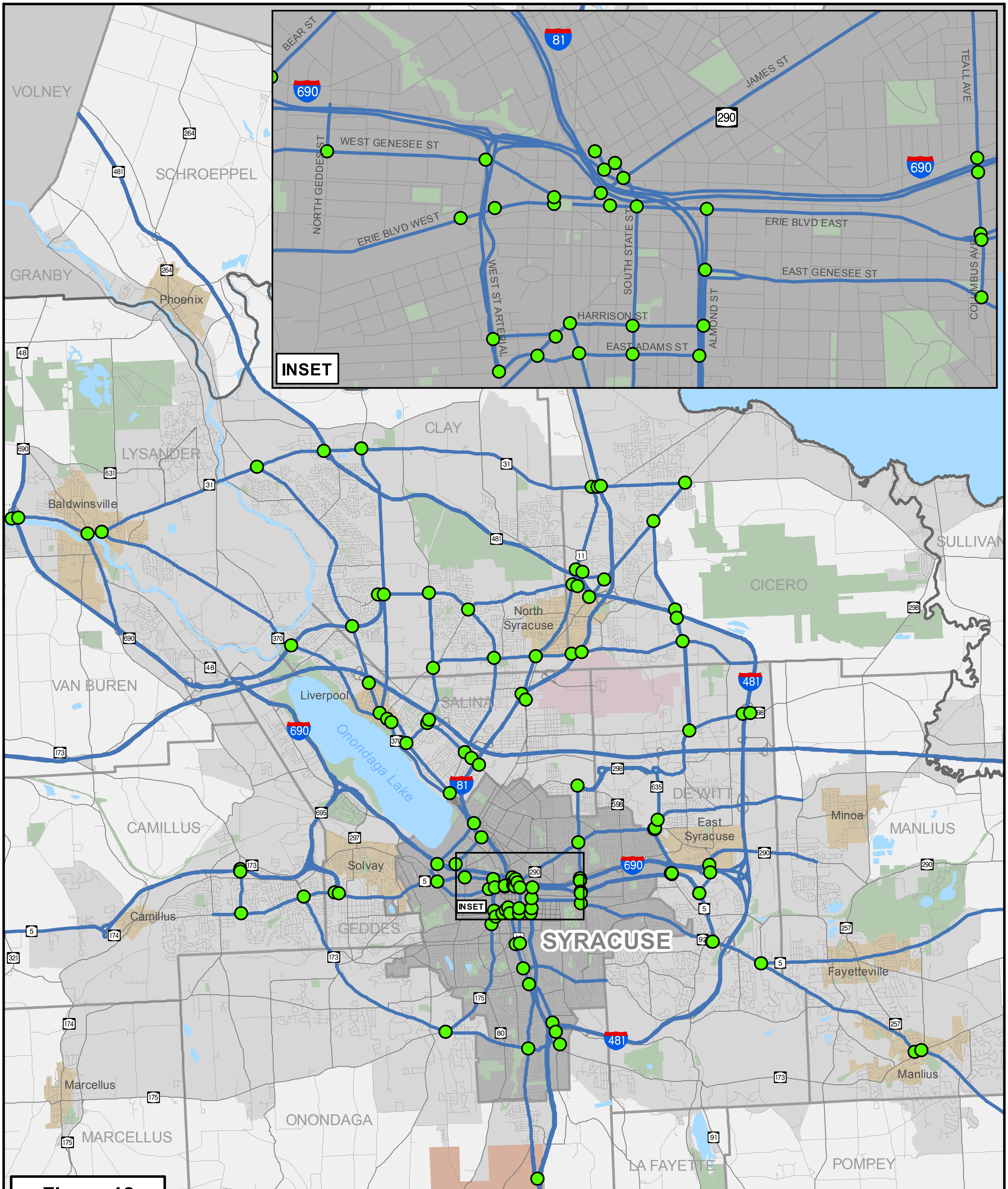

Figure 12

Primary to Primary Intersections

Congestion Management Process

This map is for review purposes only. The SMTC does not guarantee the accuracy or completeness of this map.

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5.2 CRASHES (NON-RECURRING CONGESTION)

The number of crashes was reviewed for a three-year period between August 1, 2011 and July 31, 2014. These dates correlate to the most recent three-year period of available data in the New York State Accident Location Information System (ALIS). Based on the ALIS data, there were 17,432 crashes along the primary commuter corridors included within this CMP analysis; 7,231 non-reportable and 10,201 reportable. Looking at the reportable crashes, those that are identified with an injury or estimated property damage greater than $1,000, the majority of crashes were collisions with another vehicle (i.e., 73.4%). Other crash types include, but are not limited to:

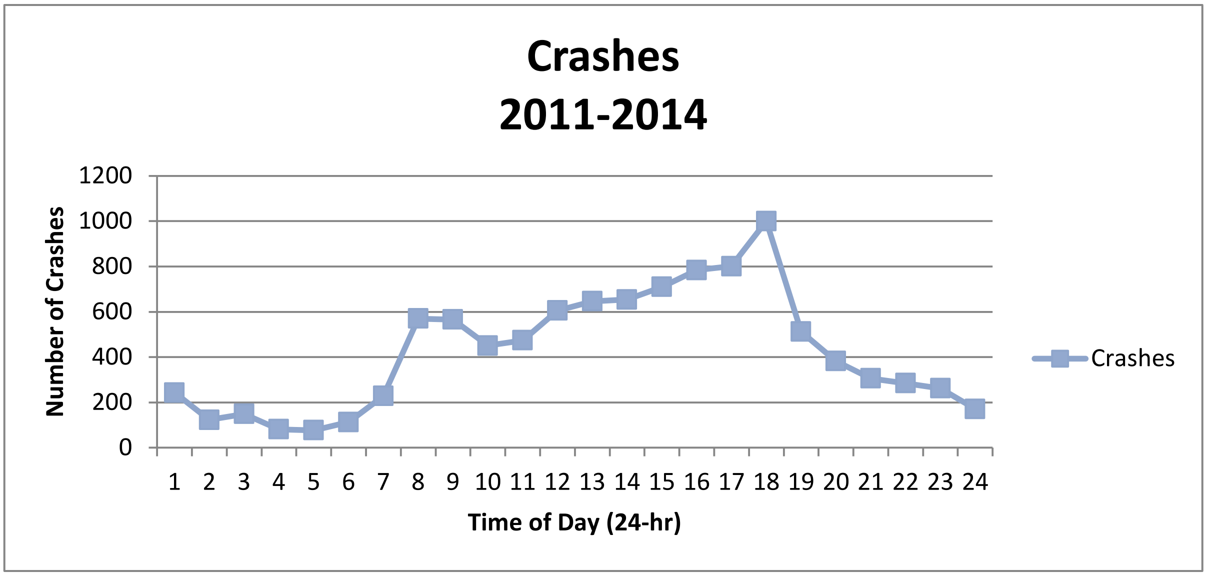
- Collision with an animal (4.6%);
- Collision with bicyclist (less than 1%);
- Collision with guiderail (7.8%); and
- Collision with pedestrian (1.6%).

A list of all primary commuter corridors can be found in Appendix B, which has information about all reportable accidents from the three-year period. The table includes accident totals delineated by intersection/non-intersection, and three subcategories for each: injuries, fatalities, and property damage only.

As the data show, intersection accidents along the various CMP corridors accounted for a slightly higher proportion of all accidents (51.7%), while non-intersection accidents accounted for 48.3%. Accidents at intersections resulted in injuries more often (41.7% of all intersection accidents involved injuries) than at non-intersections (33.8%).

Regarding time of day, over the three-year period analyzed the crash number generally follows the typical commuting periods of the area and time of day when most vehicles are on the road. See figure below.

Chart 5-4: Crashes by Time of Day



During the traditional Monday through Friday morning commute hours (7a.m.-9a.m.), a total of 1,040 crashes occurred (678 property damage only, 360 with injury, 1 fatality, and 1 "not entered"). Approximately 85% of crashes were due to apparent factors related to a vehicle owner. These include factors such as, but not limited to, driver inattention, failure to yield right of way, passing improperly, and unsafe speed. In the evening commute hours (4p.m.-6p.m.), 1,520 crashes occurred (901 property damage only, 617 with injury, 1 "not entered" and 1 "non-auto"). Nearly 91% of crashes in this time period were related to factors associated with a vehicle owner. Lastly, data on crash rates along each primary commuter corridor has been assembled as well (Figure 13). Crash rates vary significantly along the various primary commuter corridors. However, interstate facilities have the lowest overall average crash rates. The highest crash rates are found along Almond Street and several other surface streets in the Downtown and University Hill areas of the City of Syracuse. Crash rates on a specific road segment can be compared to the overall average statewide crash rate for roadways of the same functional classification to determine where further investigation might be warranted.

5.3 Transit Ridership and Route Availability

Within the SMTC MPA, approximately 85% of the population is directly served, or within reasonable proximity to available public transit service. Figure 3 in Section 1 depicts the numerous Centro routes that traverse the SMTC MPA. Centro provides over 10 million rides annually in Onondaga County. Over 18,000 people ride the main Centro bus routes on an average weekday in the Syracuse area. Weekday bus ridership is highest on the routes that serve City of Syracuse neighborhoods and adjacent suburbs; the James Street corridor has the highest daily bus ridership. See Figure 14 that shows average weekday ridership by route. Please note that ridership is listed for every "base" route in the Centro system. Routes oftentimes overlap each other and deviate from the main road (i.e., trunk route). Within a one-quarter mile distance of a transit route, nearly 100% of the City of Syracuse population is covered. Outside of the urban area, the number and frequency of routes diminishes as population density decreases as well. Looking at additional percentages with a one-quarter mile distance, 90% of the minority population and 67% of the senior population in Onondaga County are within the one-quarter mile distance.

5.4 BICYCLE AND PEDESTRIAN FACILITY AVAILABILITY

The primary commuter corridors that do not legally exclude bicycles and pedestrians account for 48 percent of the primary commuter corridor centerline miles. Along these remaining corridors, not accounting for facilities within the City of Syracuse, the most prevalent facility is a wide shoulder with some availability of sidewalks at spot locations. In the past two years, the SMTC completed two documents that focused exclusively on bicycle and pedestrian accessibility within the planning area; "Sustainable Streets – Sidewalks Phase 1" and the "Bicycle Commuter Corridor Study." Each study incorporated an extensive existing conditions analysis. The final reports are available in the Final Reports section of the SMTC web site.

The "Sustainable Streets – Sidewalks Phase 1" report was finalized in 2014. The report was developed to aid in identifying where sidewalks are suitable and should be required as part of a project. In addition to developing an extensive sidewalk reference manual, another key component of the work activity was the development of a pedestrian demand model that identified thirty "priority zones" or, areas identified as having a high potential for pedestrian activity. Most of the priority zones are adjacent to the City of Syracuse and contain one or more of the primary commuter corridors used throughout this congestion report.

The "Bicycle Commuter Corridor Study" was finalized in 2013 with the purpose to "identify opportunities to develop a seamless bicycle commuter corridor network that links residential areas outside the City of Syracuse with major employment centers primarily located within the City of Syracuse."[11] The study prioritized four corridors to establish a bicycle commuter corridor network 1) Milton Avenue and Howlett Hill Road from the west; 2) New York State Route 370, Morgan Road, Onondaga Lake Parkway from the northwest; 3) South Bay Road to Buckley Road from the northeast; and 4) New York State Route 92 from the east. Three of the four suggested corridors are part of the CMP primary commuter corridors.

[11] Syracuse Metropolitan Transportation Council, Bicycle Commuter Corridor Study, pg. 4, 2013.

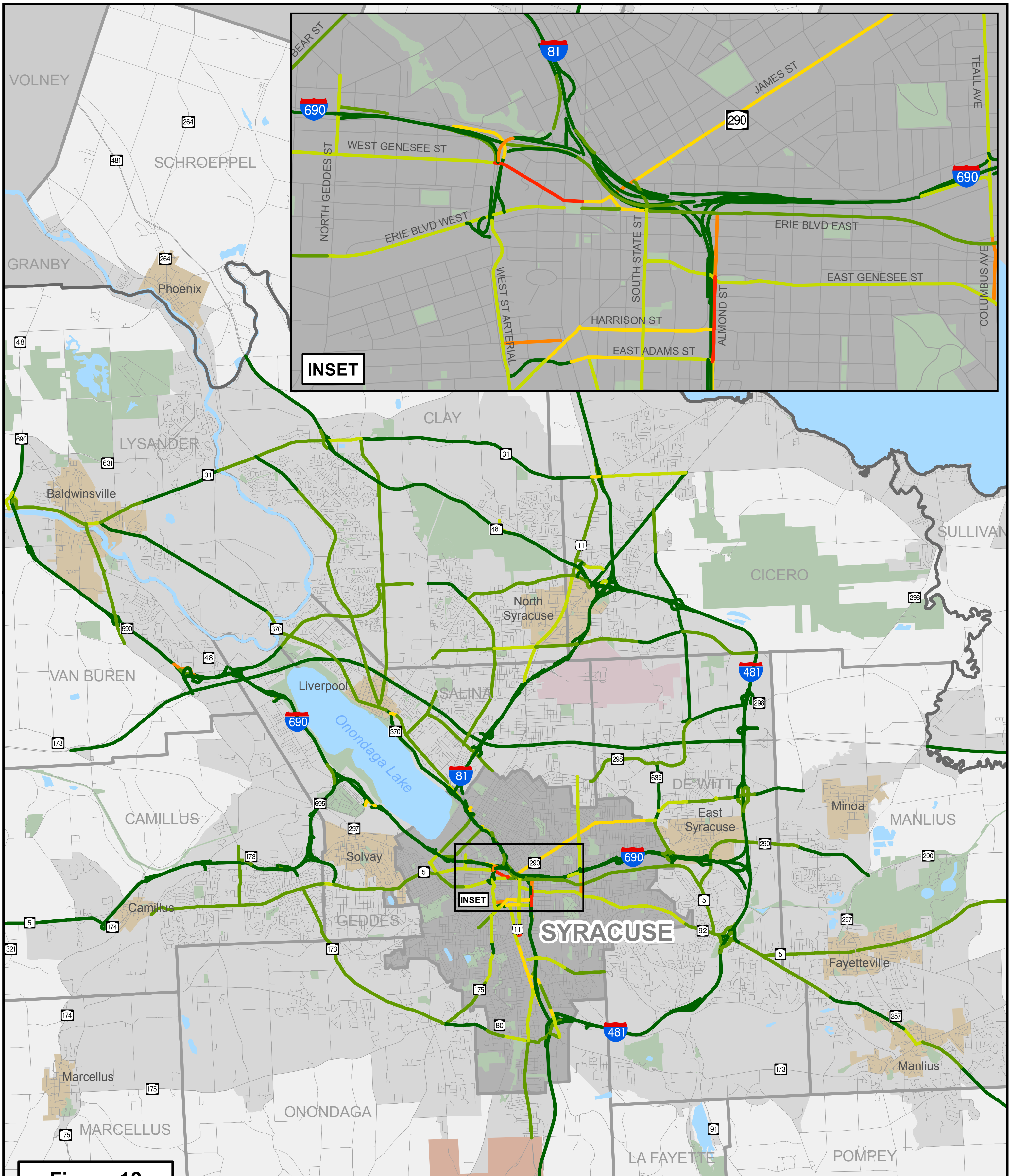


Figure 13

Accident Rates

Congestion Management Process

Accident Rate

- 0.00 - 1.46
- 1.47 - 3.86
- 3.87 - 7.44
- 7.45 - 12.91
- 12.92 - 24.43
- 24.44 - 61.50

Note: Rates shown are for road segments longer than 0.10 mile with existing traffic volume data.

0 0.5 1 2 3 4 Miles

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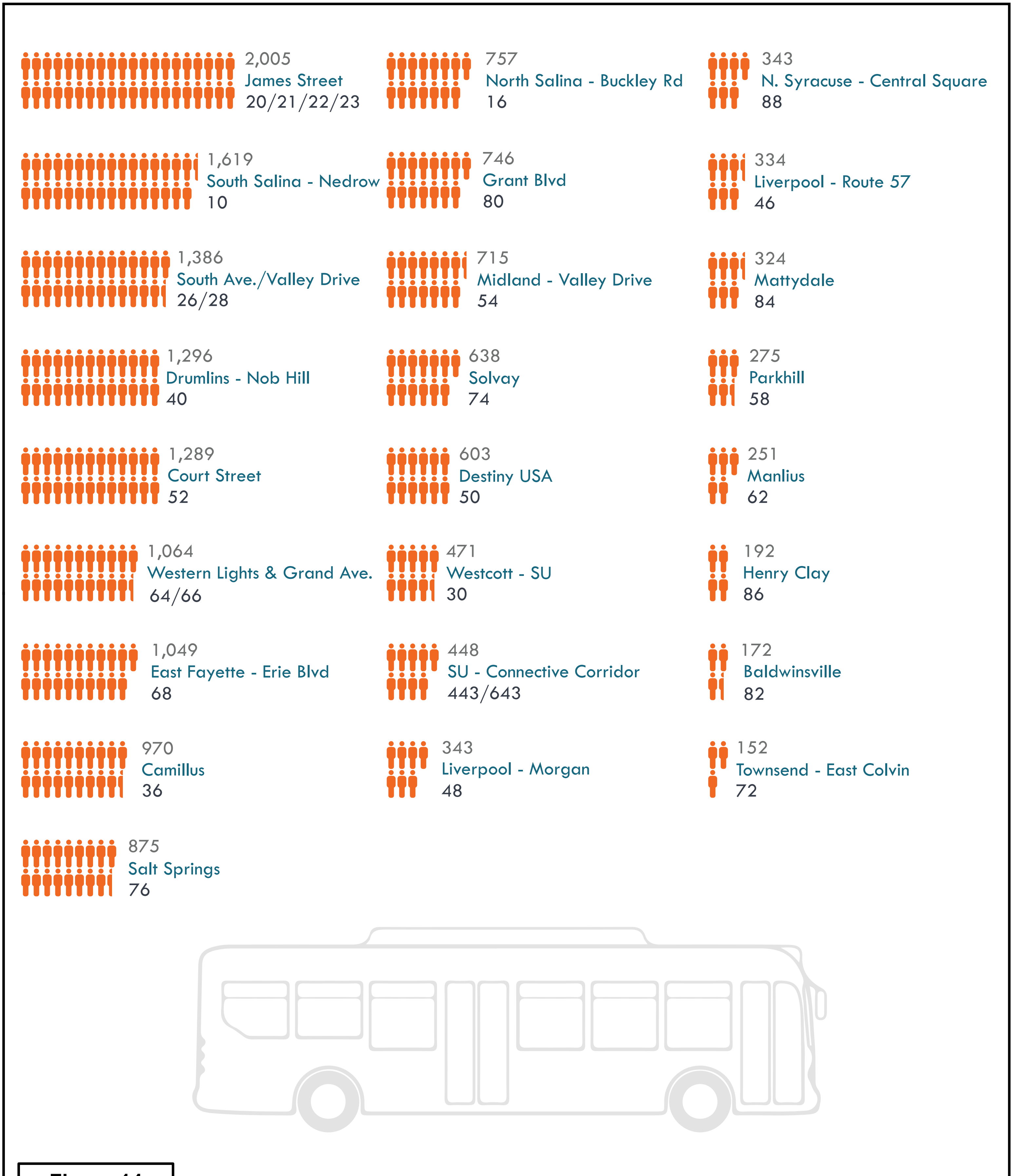

Figure 14

Average Weekday Ridership by Centro Route (2013)

Congestion Management Process

Legend

=50 Riders

Number of riders per weekday

Route Name

Route Number

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5.5 PRIORITY SEGMENTS

To gauge the overall distribution of congested primary commuter corridor segments in the urban area, three of the seven performance measures (i.e., v/c ratio, Speed Index and TTI) were further examined for overlapping segments between the three measures. The 117 congested segments identified earlier under the TTI performance measure was the maximum number of segments examined. Of these 117 segments, 54 segments (46%) representing 30 miles were identified as congested with two or three performance measures. Forty-nine (49) segments, or 28 miles overlap on two performance measures, while five segments, representing approximately 2 miles overlap on all three performance measures. For those segments with two measures identified, 86% are a combination of Speed and Travel Time Indices with the remaining 14% being a combination of v/c and TTI. According to the outputs of the travel demand model, there are no segments with a congested combination of v/c and speed.

Four (4) of the five segments that are identified as congested for all three performance measures are on the interstate system with the fifth segment on a non-interstate facility. The segments are:

- Interstate 81 northbound between the Interstate 690 E ramp and the Interstate 690 W ramp;
- Interstate 81 southbound between the Butternut Street ramp and the North Clinton Street ramp;
- Interstate 81 southbound between Interstate 690 E ramp to E Genesee Street;
- Interstate 690 eastbound between the West Street northbound ramp to Interstate 690 and the Interstate 81 southbound ramp; and
- Kirkville Road between Interstate 481 and Fremont Road.

Table 5-8: Combined Congested Segments

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Congested Measure
0.41	7th North St		Buckley Rd	I-81	Minor Arterial	OCDOT	Salina	Speed, TTI
0.42	Adams St		Shonnard St extension	State St	Principal Arterial	NYSDOT	Syracuse	Speed, TTI
0.37	Almond St	SB	Adams St	E Genesee St	Principal Arterial	NYSDOT	Syracuse	Speed, TTI
0.19	Almond St		E Genesee St	Erie Blvd East	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.85	Bear St		I-690	Sunset Ave	Principal Arterial	NYSDOT	Syracuse	Speed, TTI
1.09	Buckley Rd		John Glenn Blvd	Henry Clay Blvd	Principal Arterial	OCDOT	Clay	Speed, TTI
0.24	Columbus Ave		E Genesee St	Erie Blvd	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.1	E Brighton Ave		Salina St	State St	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.69	E Circle Dr		US 11	S Bay Rd	Minor Arterial	NYSDOT/Cicero	Cicero	Speed, TTI
0.91	E Genesee St		Forman Ave	Columbus Ave	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.36	Erie Blvd East		Salina St	Almond St	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.27	Erie Blvd West		W Genesee St	Hiawatha Blvd	Minor Arterial	Syracuse	Syracuse	Speed, TTI
0.59	Genesee St		Knowell Rd	Hinsdale Rd	Minor Arterial	OCDOT	Camillus	Speed, TTI
0.38	Genesee St		West St	Salina St	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.37	Interstate 690	EB	West St NB ramp to I-690	I-81 SB ramp	Principal Arterial	NYSDOT	Syracuse	V/C, Speed, TTI
0.27	Interstate 690	WB	I-81 NB ramp	West St SB ramp	Principal Arterial	NYSDOT	Syracuse	V/C, TTI
0.49	Interstate 81	NB	I-81 ramp to Adams St	E Genesee St	Principal Arterial	NYSDOT	Syracuse	V/C, TTI
0.16	Interstate 81	NB	E Genesee St	I-81 ramp to I-690 E	Principal Arterial	NYSDOT	Syracuse	V/C, TTI
0.24	Interstate 81	NB	I-81 ramp to I-690 E	I-81 ramp to I-690 W	Principal Arterial	NYSDOT	Syracuse	V/C, Speed, TTI
0.09	Interstate 81	SB	I-81 ramp to Butternut St	North Clinton St ramp	Principal Arterial	NYSDOT	Syracuse	V/C, Speed, TTI
0.26	Interstate 81	SB	I-690 ramp to I-81	E Genesee St	Principal Arterial	NYSDOT	Syracuse	V/C, Speed, TTI
0.52	Interstate 81	SB	E Genesee St	Adams St ramp to I-81	Principal Arterial	NYSDOT	Syracuse	V/C, TTI
0.35	Interstate 81	NB	Pearl St ramp	Butternut St ramp	Principal Arterial	NYSDOT	Syracuse	Speed, TTI
0.72	James St		Salina St	Lodi St	Principal Arterial	Syracuse	Syracuse	Speed, TTI
1.16	Kirkville Rd		I-481	Fremont Rd	Minor Arterial	OCDOT	DeWitt/Manlius	V/C, Speed, TTI
0.1	MLK Jr		Salina St	State St	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.64	Morgan Rd		Wetzel Rd	Buckley Rd	Minor Arterial	OCDOT	Clay	Speed, TTI
0.18	N Geddes St		W Genesee St	I-690	Minor Arterial	Syracuse	Syracuse	Speed, TTI
0.69	Northern Blvd	SB	Taft Rd	I-481	Minor Arterial	OCDOT	Cicero	Speed, TTI
2.32	NY 290		Bridge St	N Burdick St	Minor Arterial	NYSDOT	DeWitt/Manlius	V/C, TTI
0.93	NY 298		Kinne St	Northern Blvd	Minor Arterial	NYSDOT	DeWitt	Speed, TTI
0.3	NY 31		NY 48	NY 370	Principal Arterial	NYSDOT	Baldwinsville	Speed, TTI
0.52	NY 31		B'Ville Bypass	Willett Pkwy	Principal Arterial	NYSDOT	Lysander	Speed, TTI

Table 5-8: Combined Congested Segments

Segment Length	Road Name	Direction	From	To	Functional Classification	Ownership	Municipality	Congested Measure
0.93	NY 31		River Rd	Old Rt 57	Principal Arterial	NYSDOT	Lysander/Clay	Speed, TTI
1.62	NY 31		Old Rt 57	NY 481	Principal Arterial	NYSDOT	Clay	Speed, TTI
0.68	NY 31		NY 481	Morgan Rd	Principal Arterial	NYSDOT	Clay	Speed, TTI
1.82	NY 31		I-81	S Bay Rd	Minor Arterial	NYSDOT	Cicero	Speed, TTI
0.73	NY 370		River Rd	John Glenn Blvd	Minor Arterial	NYSDOT	Lysander/Salina	V/C, TTI
0.94	NY 5		Fay Rd	Erie Blvd	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.62	NY 5/92		I-481	Lyndon Rd	Principal Arterial	NYSDOT	DeWitt	Speed, TTI
0.16	NY 92/173		Start of overlap	End of overlap	Principal Arterial	NYSDOT	Manlius	Speed, TTI
0.11	NY 936C	EB	I-690	Thompson Rd SB ramp	Principal Arterial	NYSDOT	Syracuse	V/C, TTI
0.31	Oswego St		Tulip St	Onondaga Pkwy	Principal Arterial	OCDOT	Liverpool	Speed, TTI
0.13	Salina St		Adams St	Harrison St	Minor Arterial	Syracuse	Syracuse	Speed, TTI
0.73	South Ave		Valley Dr	Cortland Ave	Minor Arterial	Syracuse	Syracuse	Speed, TTI
0.64	State St		MLK Jr	Adams St	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.56	State St		Adams St	Erie Blvd East	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.18	State St		Erie Blvd East	Willow St	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.32	Teall Ave		Erie Blvd	I-690	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.7	Thompson Rd	NB	I-690	James St	Principal Arterial	NYSDOT	DeWitt	Speed, TTI
0.71	US 11		Taft Rd	I-81	Minor Arterial	NYSDOT	Clay/Salina	Speed, TTI
0.21	W Onondaga St		Harrison St	Shonnard St extension	Principal Arterial	Syracuse	Syracuse	Speed, TTI
0.52	West St	SB	West Fayette St	Shonnard St	Principal Arterial	NYSDOT	Syracuse	Speed, TTI
0.05	Willow St		State St	Pearl St	Principal Arterial	Syracuse	Syracuse	Speed, TTI

6 Identification of Strategies

6.1 Toolbox/Strategies

This section provides an overview of the potential strategies recommended for improving congestion in the SMTC metropolitan area. The following strategies are suggested to SMTC member agencies where congestion has been identified via this analysis. The strategies are formulated in a CMP "toolbox" of five key areas. Within each area, specific measures are included.

Key Areas:[12]
Transportation Systems Management and Operations – Operational management strategies contribute to a more effective and efficient use of existing systems. Some of these operations type strategies can be supported by the use of enhanced technologies or Intelligent Transportation Systems (ITS).

Transportation Demand Management – the objective of demand management strategies is to influence travel behavior.

Transit – Strategies aimed at making transit more attractive and accessible can help to reduce the number of vehicles on the road.

Bicycle and Pedestrian – Strategies that promote nonmotorized travel through installation of bicycle and pedestrian facilities and amenities.

Land Use – Policies to reduce sprawl, support mixed-use development and infill development.

The list of specific activities provides a broad overview of the potential congestion management strategies that could be implemented. Given the differences in application and even geographic location, not all activities are applicable at each location. Review of appropriateness should be undertaken and considered by the facility owner. From a top down approach, as congestion in the SMTC MPA generally occurs during the peak commute periods along select segments of road, strategies focused first on the reduction of single occupancy vehicles (SOV) are recommended for implementation, followed by management and operations of the existing system and lastly capacity measures.

[12] Key area descriptions derived from NYMTC 2013 CMP report.

Strategy Hierarchy:

Strategy 1 – Reduce automobile trips to other modes
Strategy 2 – Shift trips from SOV to HOV modes
Strategy 3 – Improve Roadway Operations
Strategy 4 – Add Capacity.

The Syracuse area is included in a Regional ITS Strategic Plan developed by the NYSDOT in cooperation with SMTC member agencies. The ITS Strategic Plan contains a multitude of recommended actionable items for Centro, City of Syracuse, Onondaga County, and State implementation. The ITS Strategic Plan project listing, along with several other Plan components was recently updated. The updated project listings provide numerous project specific activities that could have a tangible benefit in minimizing localized congestion concerns.

Specific strategies:

Transportation Systems Management and Operations (TSMO)

- Freeway Incident Management Systems;
- Access Management;
  - Driveway closures
  - Median treatments
- Signalization and Control;
  - Signal coordination
  - Signal re-timing or optimization
  - New signal installation
- System Capacity and Intersection Improvements;
  - New travel lanes on interstates and other major roads
  - Intersection widening
  - Addition of turn lanes
- Bottleneck Removal;
  - Addition of lanes
  - Reduction of merging and weaving lanes.

Transportation Demand Management (TDM)[13]

TDM activities that could be implemented by varying employers, municipalities, member agencies and the public include, but are not limited to, such things as:

- Ride share (carpool/van pool);
- Flexible work schedules; and
- Guaranteed ride home.

Transit

- Transit signal priority;
- Enhanced transit amenities;
- Dedicated Right of Way for transit;
- Increase usage of transit routes;

[13] Victoria Transport Policy Institute Online TDM Encyclopedia; http://www.vtpi.org/tdm/

- ❖ Increase transit frequencies; and
- ❖ Increase usage and availability of park and ride facilities.

Bicycle and Pedestrian

- ❖ Increase availability of bicycle facilities (i.e., lanes, cycle-tracks, lockers, racks); and
- ❖ Increase the number sidewalks and other pedestrian improvements.

Land Use

As development patterns continue to expand outside of the urban core into the suburban and rural localities of the SMTC planning area, a greater emphasis should be created to promote more sustainable and efficient transportation and land use patterns. The Syracuse-Onondaga County Planning Agency development guide identifies and seeks to initiate these smart growth activities. The plan contains policy directives and strategies for County operations, planning principles and standards to be used in initiating and reviewing development and infrastructure projects, and educational materials to engage the municipalities and citizens of Onondaga County in implementing the vision.[14] Suggested strategies under the Land Use key area are:

- ❖ Mixed-use development;
- ❖ Infill development; and
- ❖ Development in urban area.

[14] Syracuse-Onondaga County Planning Agency; http://www.ongov.net/planning/plan_rfp.html

7 Implementing Strategies & Evaluating Strategy Effectiveness

7.1 Implementation

As the SMTC is not an implementing organization, it is the responsibility of the member agencies and municipalities to directly implement the suggested strategies mentioned in the previous section should they be deemed appropriate as such by the facility owner. However, as the transportation planning agency responsible for the development and administration of the area's capital improvement program (i.e., TIP), the SMTC, collectively, will review and select those projects eligible for receipt of federal transportation funding assistance. All strategies outlined in the report are eligible for funding. Table 7-1 lists by strategy various benefits, applicable implementing agency, schedule and potential federal transportation fund source. Individual Federal sources are not listed. Federal fund sources applicable for programming and expenditure are current sources contained within MAP-21 and other federal discretionary programs such as TIGER (Transportation Investments Generating Economic Recovery). Strategies can also be funded via local municipal or authority budgets. The suggested strategies should also be incorporated directly, or by reference, in the agency's LRTP.

Table 7-1: Strategy Implementation

Transportation System Management & Operations				
Strategy	Benefits	Implementing Agency	Schedule	Potential Funding Source(s)
Freeway Incident Management Systems	Decrease travel time Decrease delay	NYSDOT	Ongoing	Federal, State
Access Management (driveway closures)	Decrease incidents Improve travel times Decrease delay	OCDOT, NYSDOT, Syracuse	Ongoing	Federal, State, Local
Traffic signal coordination or optimization	Improve travel time Decrease delay	OCDOT, NYSDOT, Syracuse	Ongoing	Federal, State, Local
New travel lanes	Increase capacity	OCDOT, NYSDOT	As needed	Federal, State, Local

Intersection widening (turn lanes)	Improve travel time Decrease delay	OCDOT, NYSDOT, Syracuse	As needed	Federal, State, Local
Reduce merging & weaving lanes	Increase traffic flow	NYSDOT	As needed	Federal, State
Transportation Demand Management				
Strategy	Benefits	Implementing Agency	Schedule	Potential Funding Source(s)
Ride share (carpool, van pool)	Decrease SOV trips	Employers	Ongoing	Federal
Flexible work schedule	Improve travel time	Employers	Ongoing	State, Local
Guaranteed ride home	Decrease SOV trips	Centro, Employers	Ongoing	State, Local
Transit				
Strategy	Benefits	Implementing Agency	Schedule	Potential Funding Source(s)
Transit signal priority	Decrease travel time Increase ridership	Centro, OCDOT, NYSDOT, Syracuse	Ongoing	Federal, Local
Enhanced transit amenities (bus stop amenities, real-time info signs)	Increase ridership	Centro	Ongoing	Federal, Local
Dedicated right of way for transit	Decrease travel time Increase ridership	NYSDOT, Syracuse	Ongoing	Federal, Local
Increase transit frequencies	Decrease travel time Increase ridership	Centro	Ongoing	Federal, State, Local
Increase usage and availability of park and ride facilities	Increase vehicle occupancy rate	Centro, Property owners	Ongoing	Federal, State, Local

Bicycle and Pedestrian				
Strategy	Benefits	Implementing Agency	Schedule	Potential Funding Source(s)
Increase bicycle facilities	Increase nonmotorized mode share	OCDOT, Syracuse	Ongoing	Federal, State, Local
Increase number of sidewalks and other pedestrian accommodations	Increase nonmotorized mode share	OCDOT, Syracuse	Ongoing	Federal, State, Local
Land Use				
Strategy	Benefits	Implementing Agency	Schedule	Potential Funding Source(s)
Mixed-use development	Decrease SOV trips Decrease short trips	Municipalities, Developers	Ongoing	State Local
Infill development	Decrease SOV trips Increase transit, bicycle and pedestrian trips	Municipalities, Developers	Ongoing	Federal, State, Local
Development in urban area	Increase transit, bicycle and pedestrian trips	Municipalities, Developers	Ongoing	Federal, State, Local

7.2 EVALUATING STRATEGY EFFECTIVENESS

The Syracuse Metropolitan Transportation Council will monitor and track strategy implementation through such activities as its capital improvement program (i.e., TIP) and individual member agency or municipal capital programs, as applicable. The established capital program project evaluation criteria will be revised to include the relationship between the CMP, LRTP and the TIP. The effectiveness of implemented strategies will be documented in a CMP report completed every three or four years commensurate with the five year update cycle of the LRTP. This will ensure that suggested strategies for implementation, objectives and applicable multimodal performance measures are considered for inclusion in the LRTP. As previously mentioned, depending on the type of strategy, actual strategy implementation is very likely to take several years and may therefore result in limited availability of new information. Based on implementation and strategy evaluation, performance measures and various strategies discussed in this 2015 CMP will be reviewed and updated as appropriate.

As an example of a successful low-cost management and operations strategy, in 2014, the SMTC completed the third and final phase of a signal optimization analysis of all traffic signals under Onondaga County ownership. The planning analysis completed for each intersection shows that improvements to overall traffic operations could be achieved should the optimized timing and phasing modifications be implemented. To date, the County has implemented many of the optimized timings suggested in the various optimization reports. In addition, the City of Syracuse has completed and is actively engaged in several signal interconnect and/or optimization projects. Like the County's project, optimized timing plans are being developed to improve travel time and reduce delays. By updating signal timings and related equipment, as needed, benefits can be achieved at a relatively low cost. These benefits include reducing delay, idling time at intersections and improving air quality. It is anticipated that future performance monitoring reports will show travel improvements to the movement of people and goods through the implementation of various congestion management measures. These transportation management & operations activities are the types of measures facility owners should seek to emulate first prior to considering capacity expanding projects.

8 Conclusions

8.1 LRTP/TIP Connections

As previously mentioned, per federal guidelines the CMP plays an important role in metropolitan transportation planning. For urbanized areas with a population over 200,000, such as the Syracuse metropolitan area, a CMP is a task that should aid in the identification of congested sites within a community, provide strategies to improve traffic operations and efficiencies, and play an integral role in capital programming selection. These requirements are codified in 23 CFR Section 450.320.

Source: FHWA

The implementation strategies listed in this document should be considered for implementation prior to any consideration of roadway expansion along the "primary commuter corridors." Additional installation of lanes to increase carrying capacity, which includes installation of center turn lanes, under the auspices of traffic flow improvement/congestion management could potentially be achieved through non-traditional implementation activities. As federal regulations state "…Federal funds may not be programmed for any project that will result in a significant increase in the carrying capacity for SOVs… unless the project is addressed through a congestion management process meeting the requirements of this section."[15] Furthermore, the non-capacity expanding strategies should be given initial precedence for the allocation of federal transportation funds through the SMTC capital program process if these types of activities show a reduction in travel demand.

[15] 23 CFR Section 450.320(d)

8.2 CONCLUSIONS

The 2015 CMP report utilized the SMTC's enhanced regional travel demand model to identify several performance measure related outputs. The travel demand model is routinely calibrated every three to four years with updated traffic information (counts, travel times and speeds) and socio-economic data, if available, throughout the metropolitan planning area. As such, future CMP reporting through either the performance report or the next full iteration of a CMP document may rely on the travel demand model or off-model approaches to identify and evaluate congested corridors, segments and intersections. Observed data, such as that available through vehicle-probe based datasets will be taken under consideration for purchase and use in future CMP reporting. The vehicle-probe based data will be helpful in analyzing congestion duration, extent, and variability.

Efforts to date by the SMTC and member agencies have proven effective at taking under consideration management and operations of the existing transportation system through an objectives-driven and performance based transportation planning process. The planning activities completed by the SMTC that focused on updating and optimizing signal timings, reviewing and recommending bicycle/pedestrian improvements, and others are examples of assistance the metropolitan transportation planning agency can provide through the annual UPWP. When future updates occur to the capital improvement program, the evaluation process will be adjusted accordingly to account for the goals, objectives and performance measures put forth in this document.

The findings of this analysis are similar to previous congestion management documents that clearly identified only a limited number of locations within the SMTC MPA that could be considered congested. These locations are identified primarily during the morning and evening commute times along interstate segments in the City of Syracuse, and several roadways to the east and north of the City where the majority of households exist. This density of development, coupled with the City of Syracuse as the primary employment location overall in the planning area, lends itself to commuting flows into and out of the City with most workers opting to drive alone to work, according to Census data. The limited amount of congested miles and intersections on, and along the primary commuter corridors also correlate closely with survey statistics gathered for Onondaga County. A joint SMTC and SOCPA survey was implemented in 2010 to gather information on existing and future transportation and land use patterns in Onondaga County. Respondents were asked to choose between four options as the best long-term solution for reducing traffic congestion in the area; 1) build new roads; 2) create communities where people do not have to drive as much; 3) encourage carpooling; and 4) improve public transportation. The most popular response was improve public transportation (37%) followed by create communities where people do not have to drive as much (32%), build new roads (16%) and encourage carpooling (14%).[16] Although improvements to public transportation was the most prevalent response to reduce traffic congestion, when

[16] Community Planning & Transportation Resident Survey: Report of Results, October 2010

asked about the ease of travel and, if there are any delays in ones' daily travels, the responses pointedly show a lack of perceived congestion in the area. Two-thirds (62%) of respondents rated the ease of getting to places they usually have to visit as excellent or good. About two-thirds of respondents also experienced no delay in their daily travels.[17]

On the horizon are two regionally significant projects that could have a dramatic impact on the primary commuter corridors and intersections identified as congested, as well as the area's overall transportation system. The New York State Department of Transportation continues their examination of the future of Interstate 81 through the City of Syracuse[18]. To date, no one alternative has been moved forward for design and construction. Whichever alternative is selected will impact the number of congested roadway centerline miles. The second project is a planning study led by the SMTC, in collaboration with Centro that will examine the feasibility of implementing either Bus Rapid Transit or Light Rail Transit on two corridors in the City of Syracuse. Beyond the economic impacts of these rapid transit options, the efficiency and attractiveness of the transportation modes will be reviewed. It is possible that enhancements to the transit system will assist in decreasing the number of workers that commute to work in a car.

Looking forward, traffic volumes, bicycle and pedestrian facilities, roadway and signal characteristics, safety data, transit ridership and on-time performance will be updated routinely in order to assist with future CMP reporting and SMTC planning efforts. As more municipalities select to engage and implement sustainable development practices, the identified corridors from this CMP analysis will be routinely monitored.

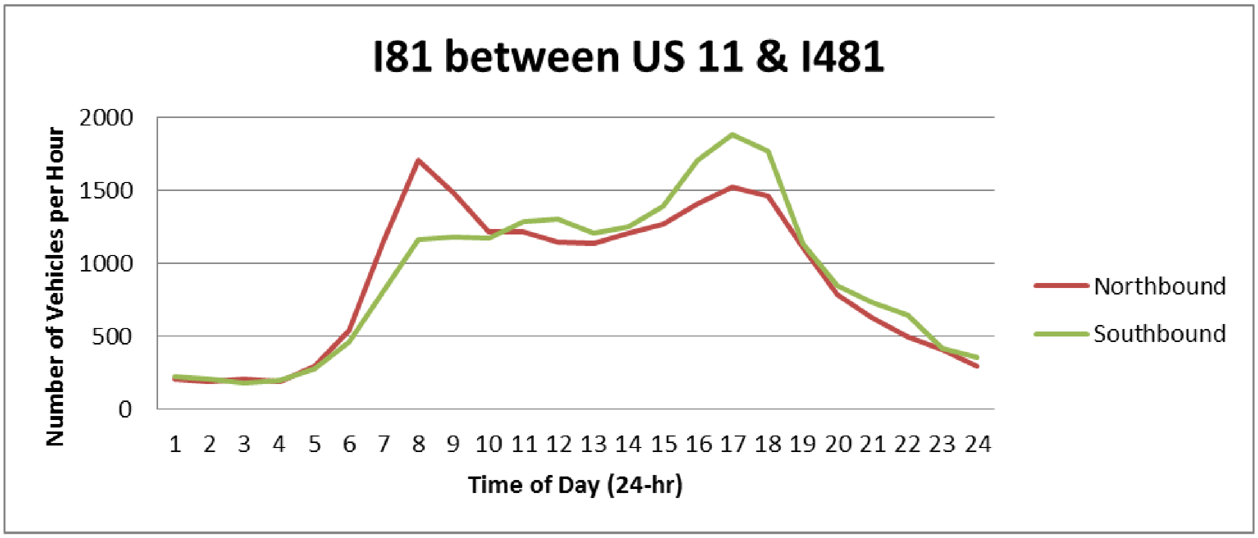
[17] ibid

[18] I-81 Viaduct Project information available at https://www.dot.ny.gov/i81opportunities

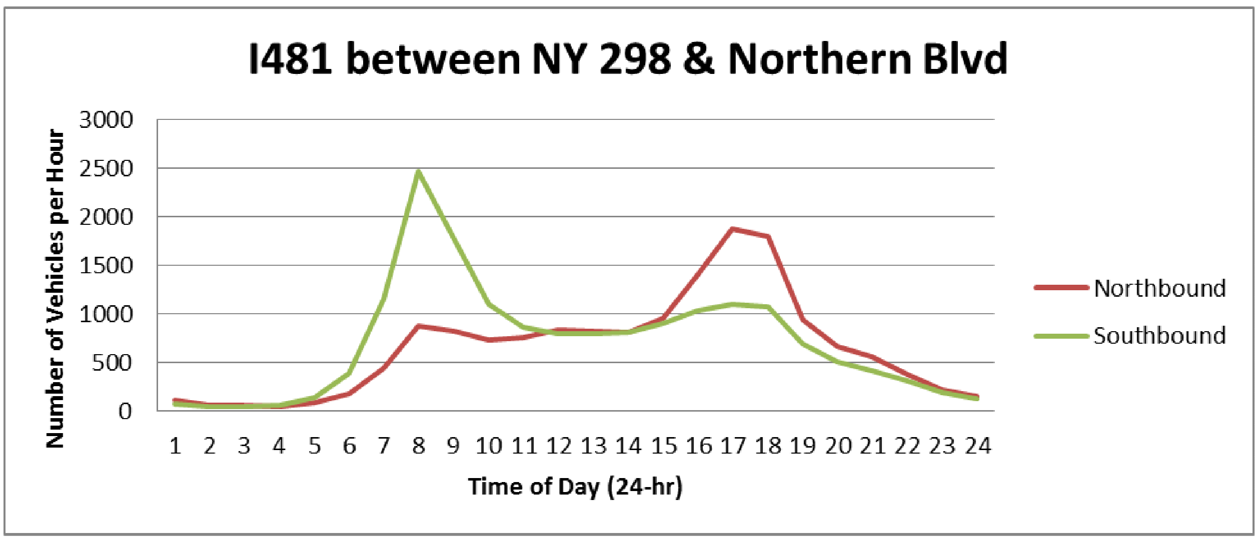
APPENDIX A
Speed Distribution

Appendix A – Vehicles Per Hour and Speed Distribution (where available)

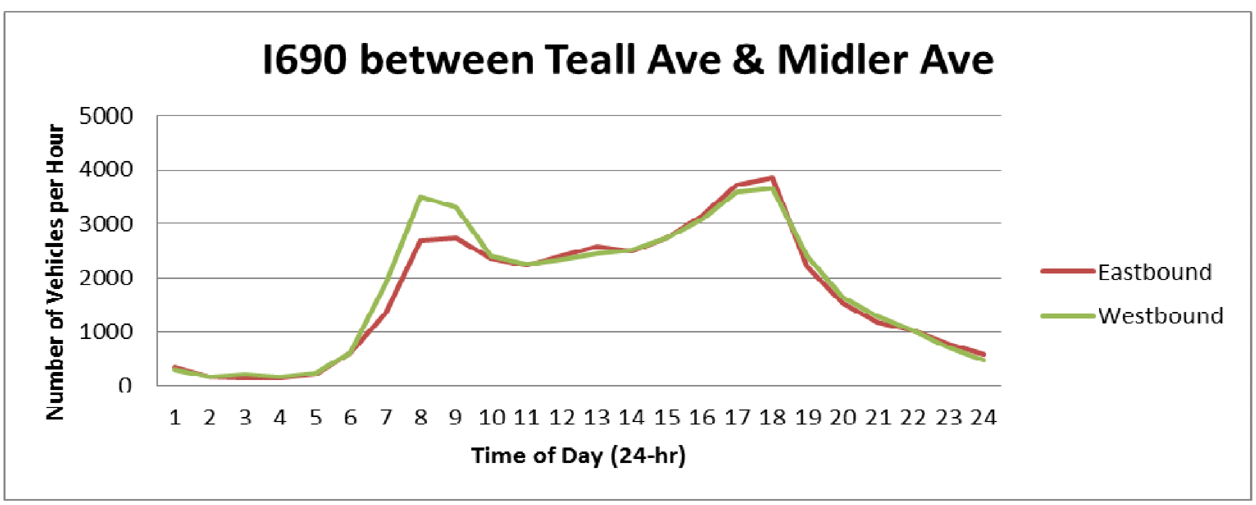
Interstate 81



Interstate 481

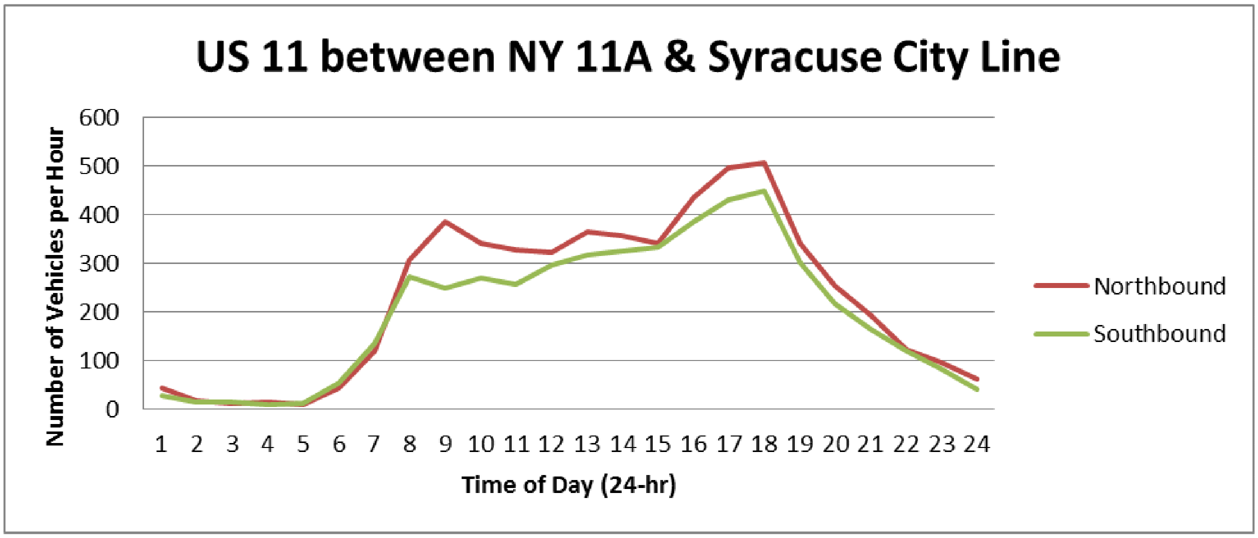


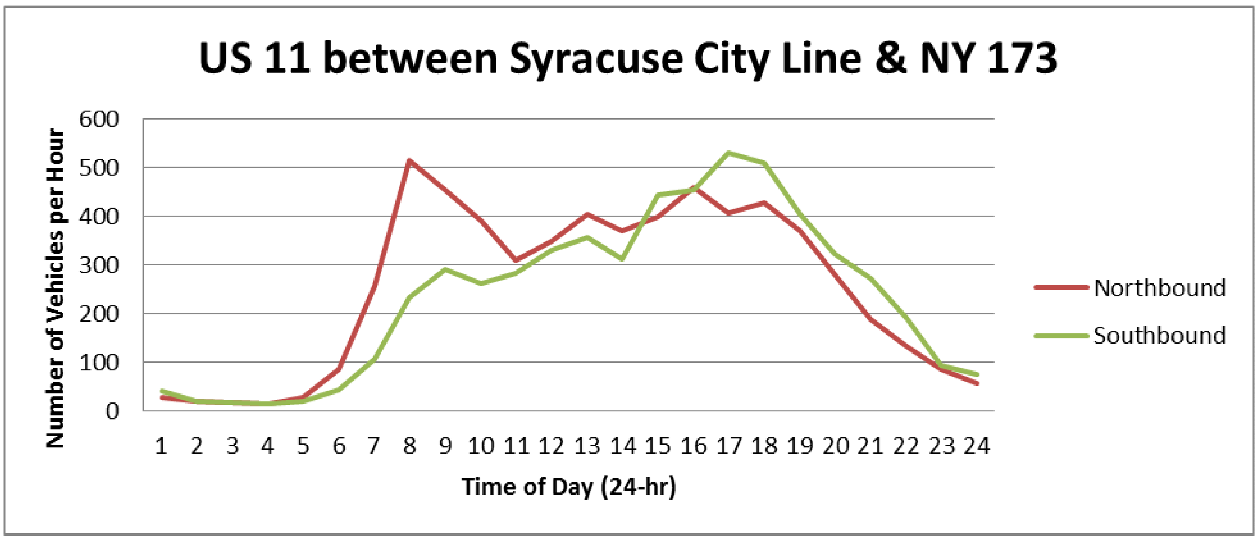
Interstate 690



Appendix A – Vehicles Per Hour and Speed Distribution (where available)

US 11





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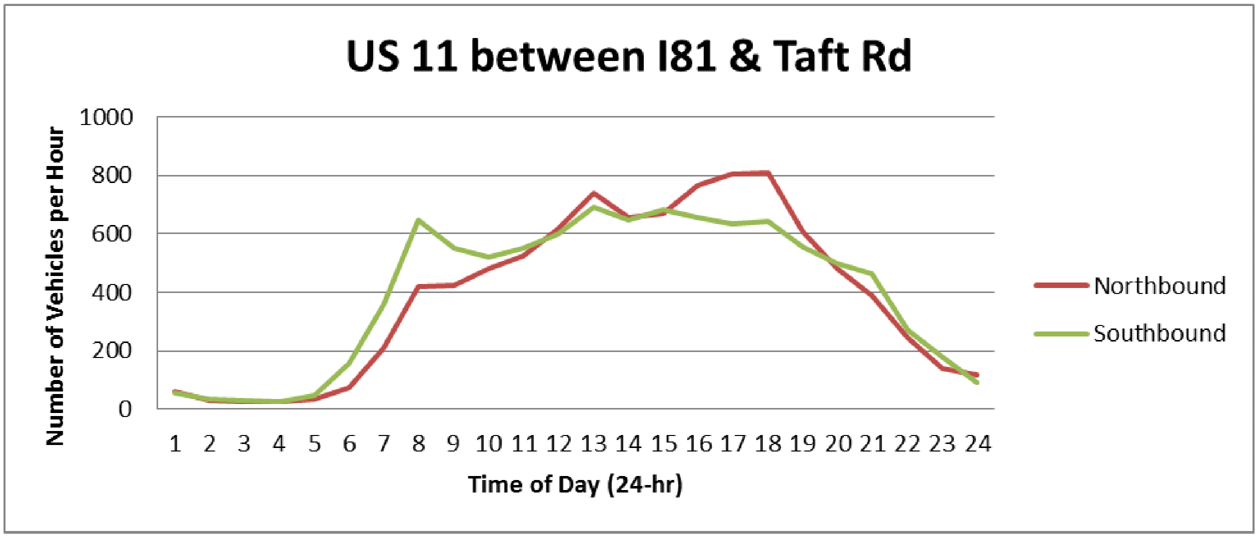
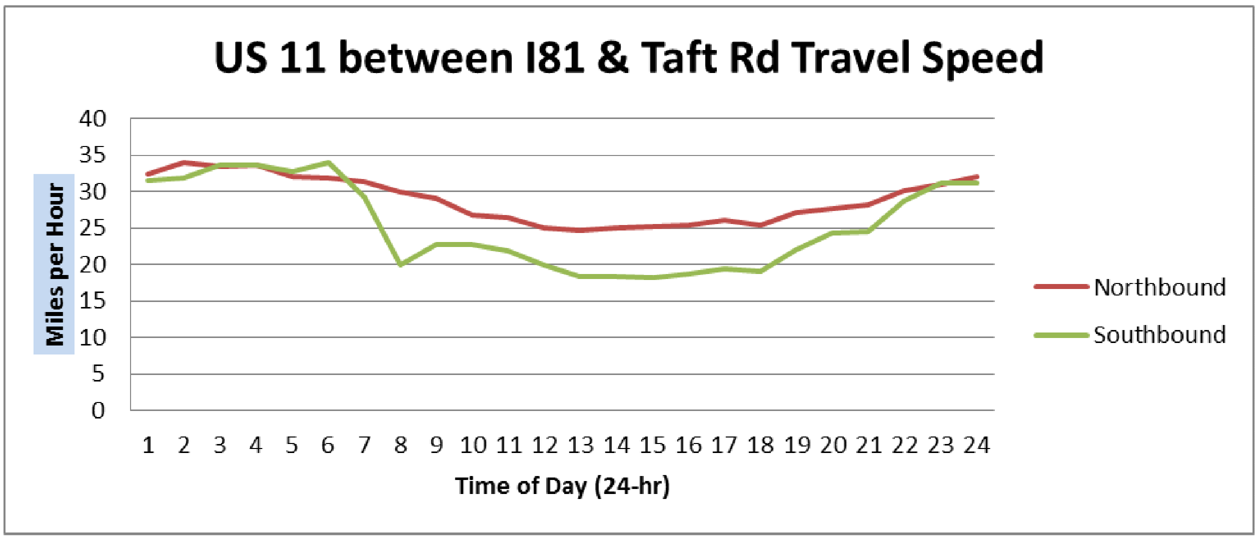
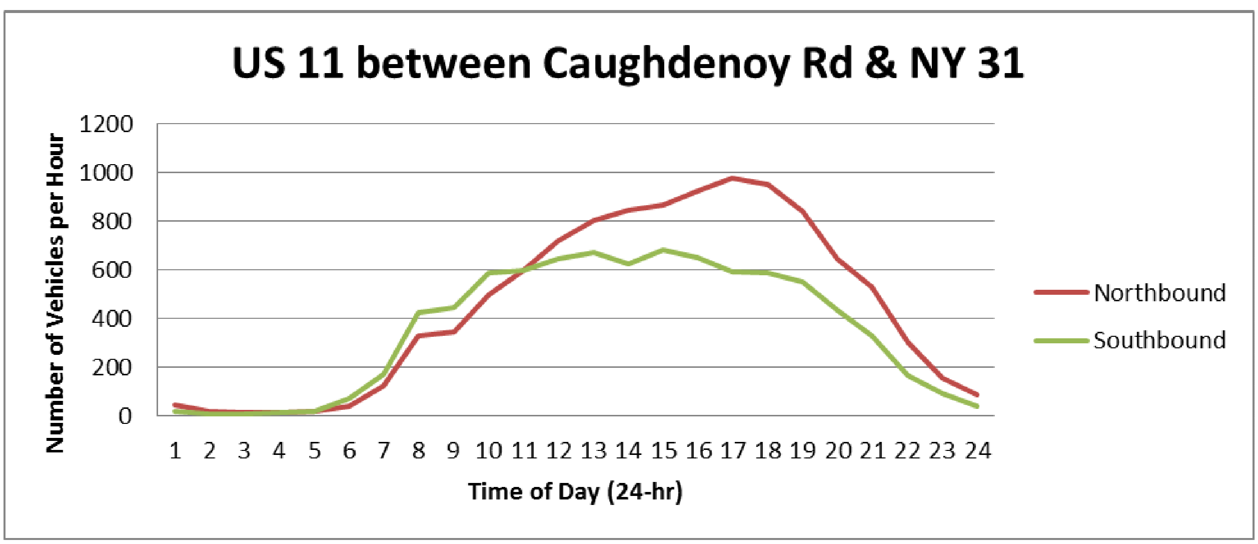
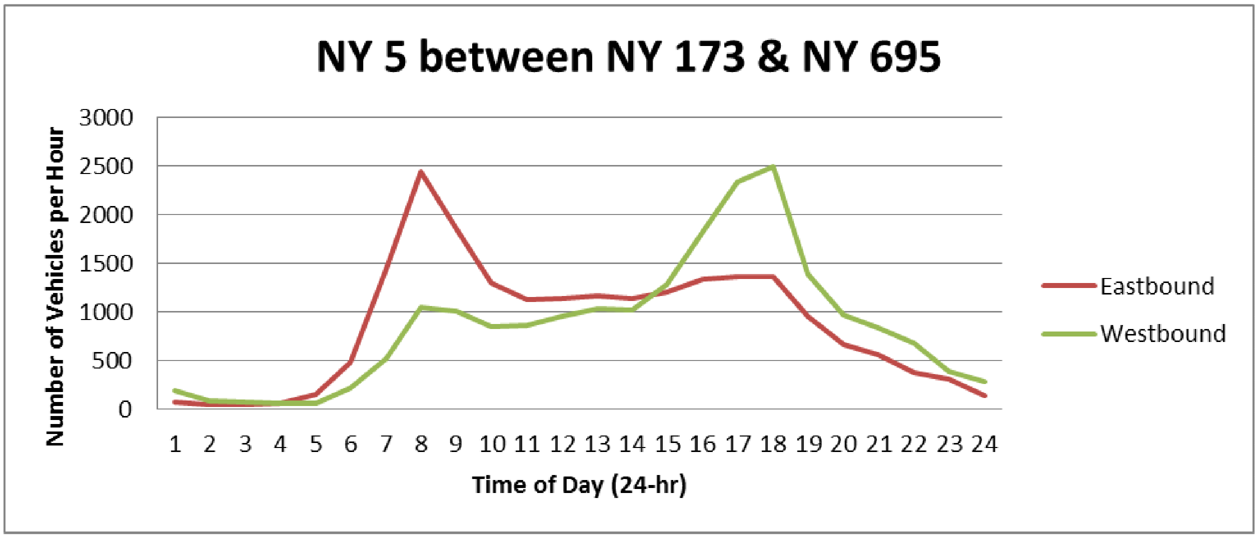


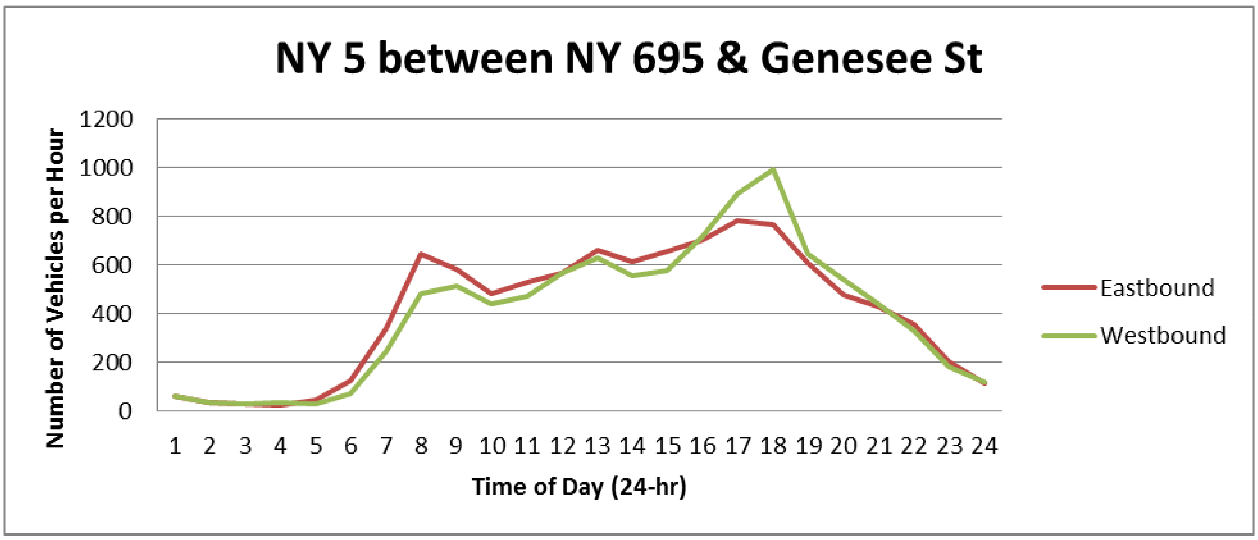


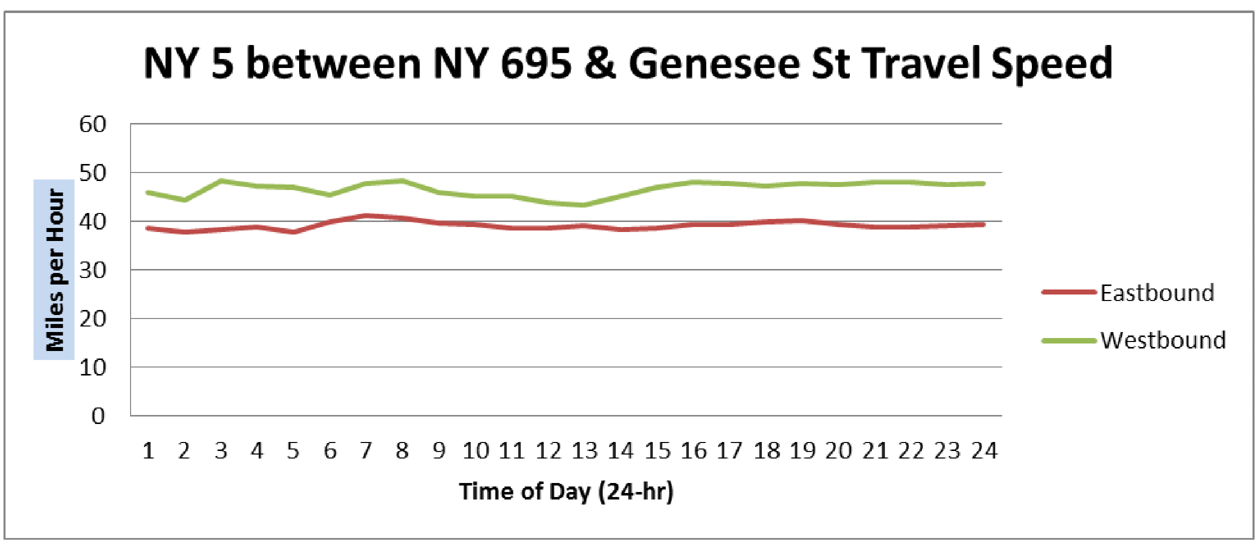


Appendix A – Vehicles Per Hour and Speed Distribution (where available)

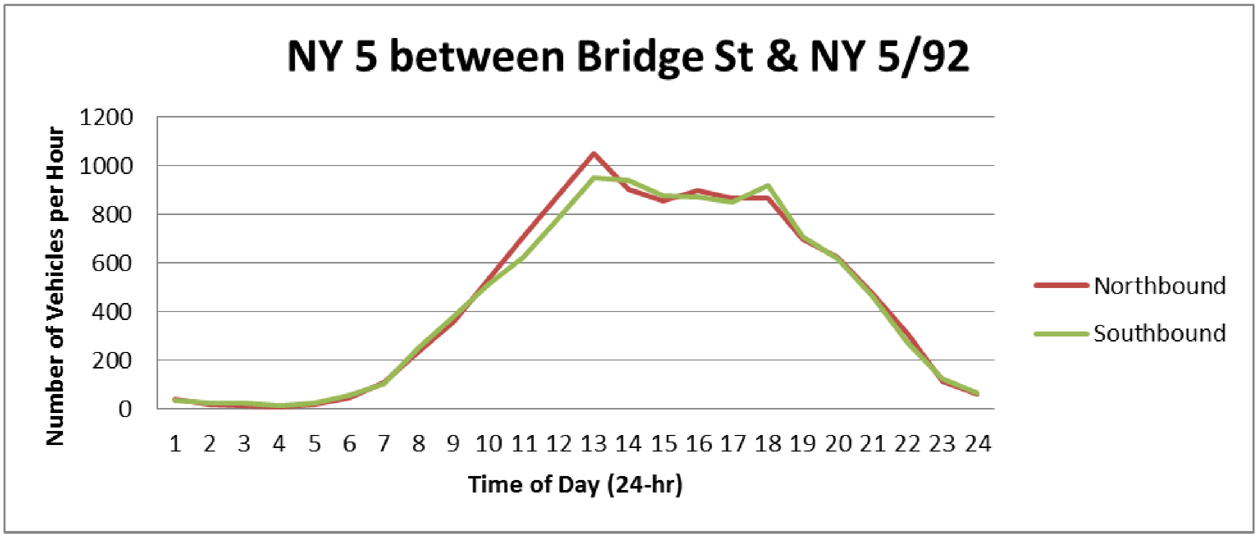
NY 5

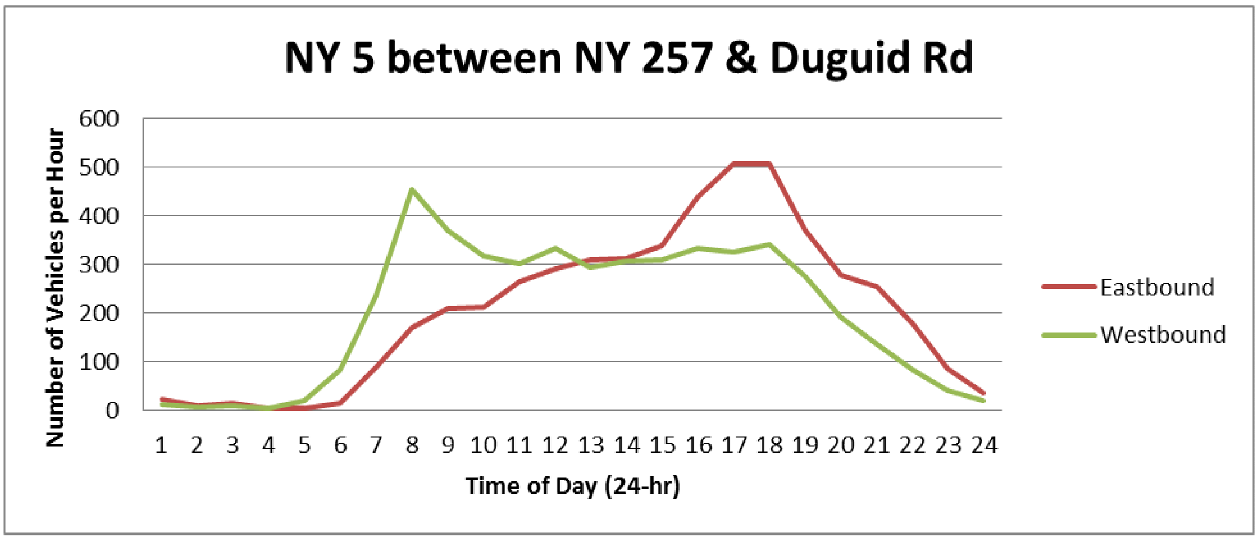


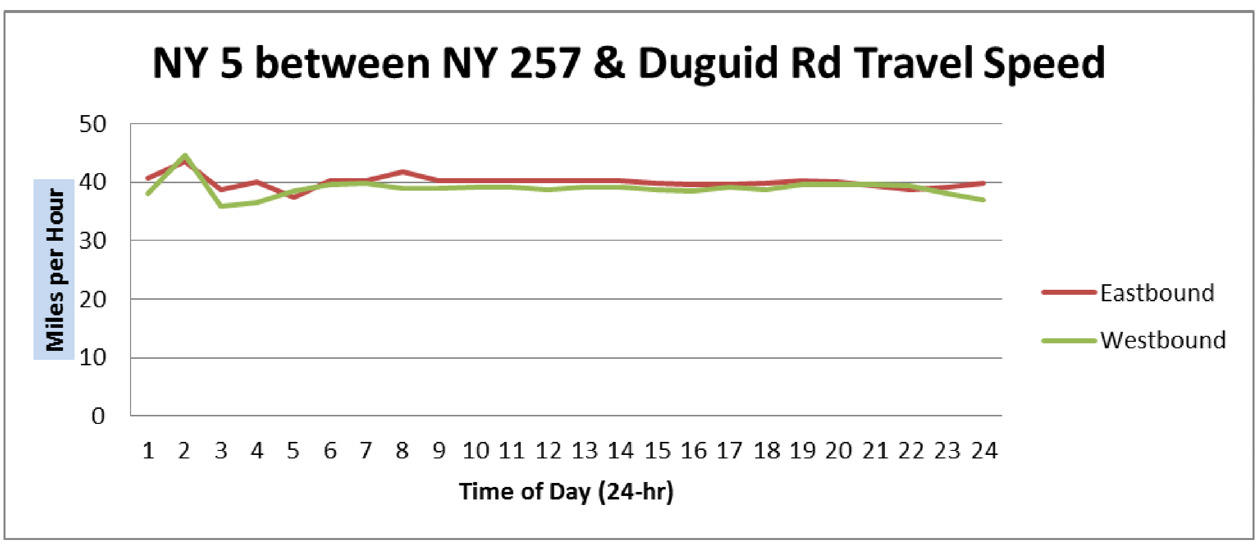




Appendix A – Vehicles Per Hour and Speed Distribution (where available)

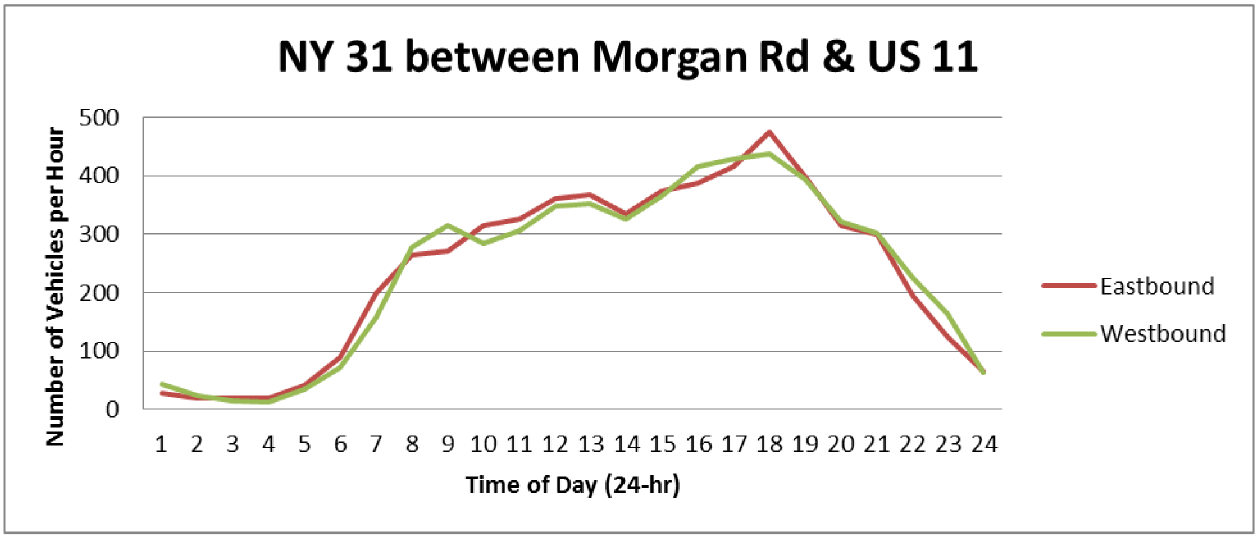






Appendix A – Vehicles Per Hour and Speed Distribution (where available)

<u>NY 31</u>



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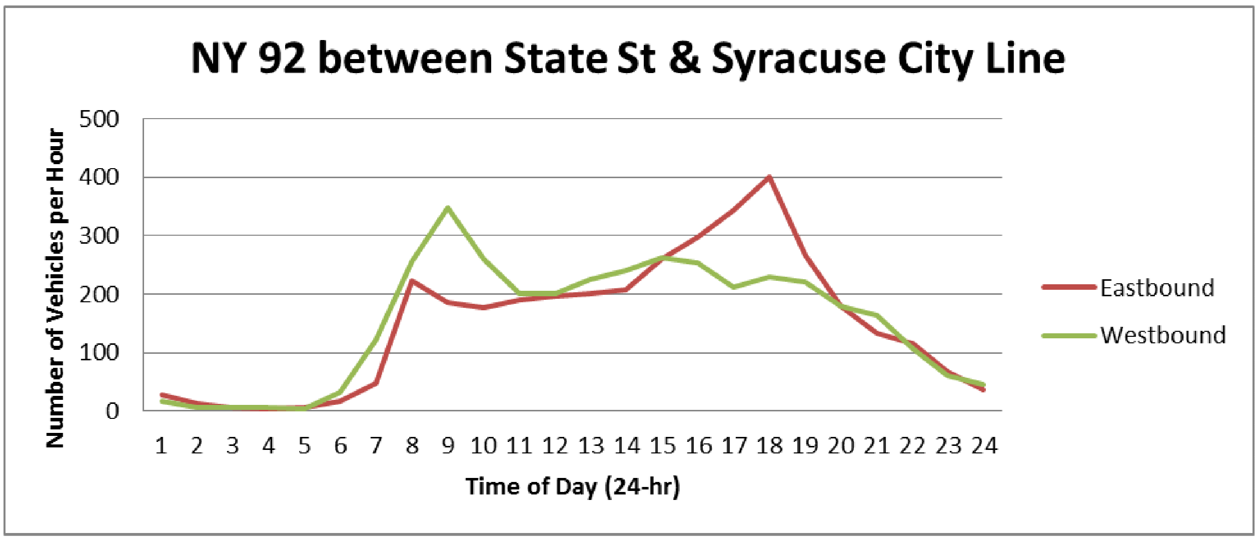

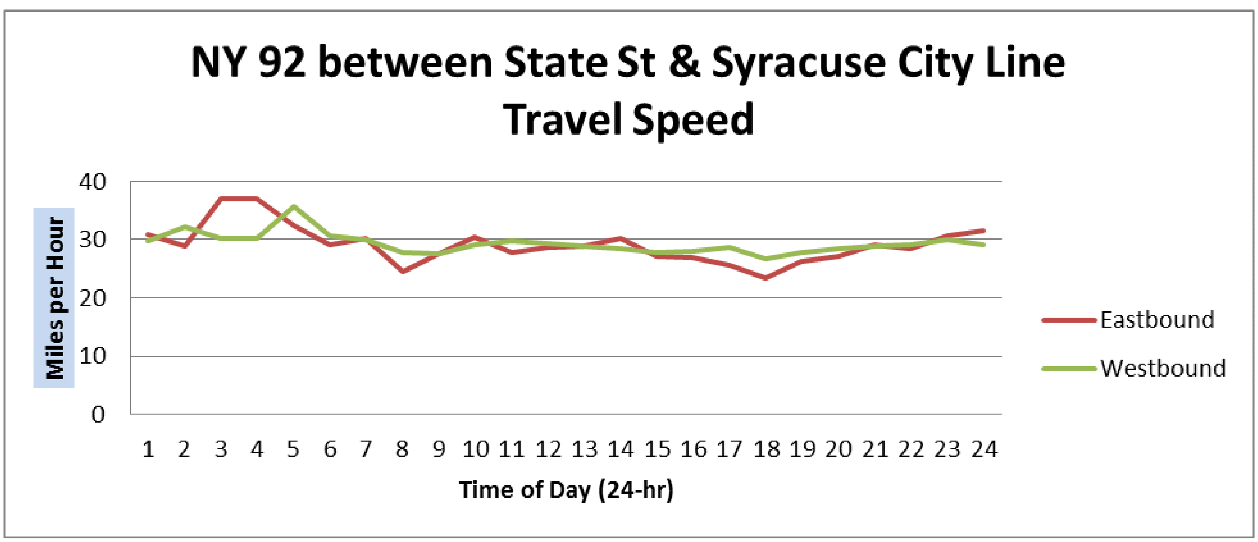

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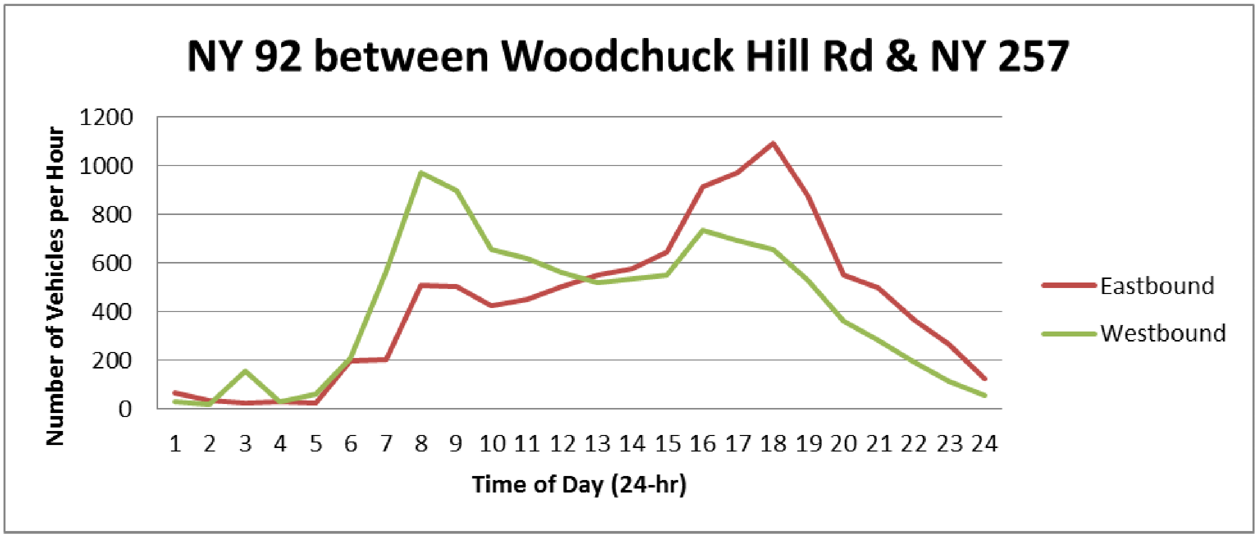
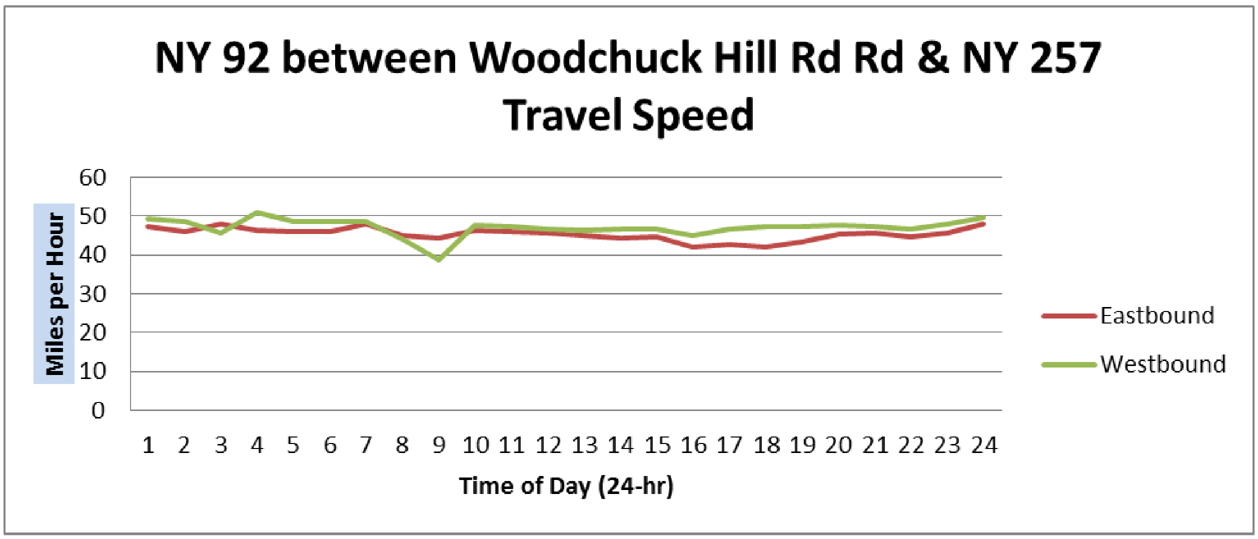
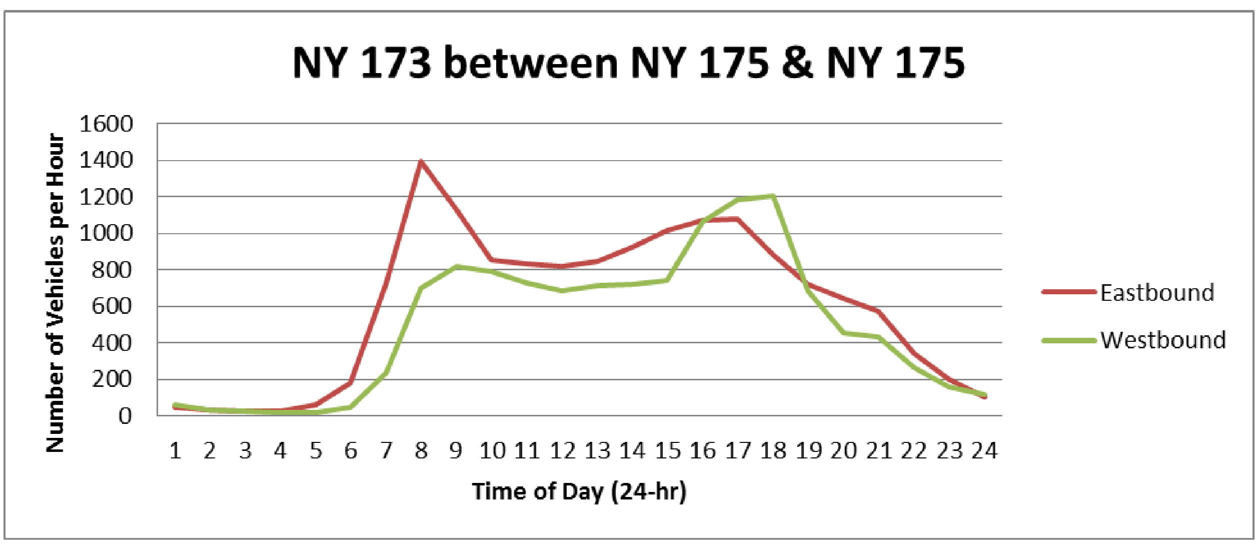


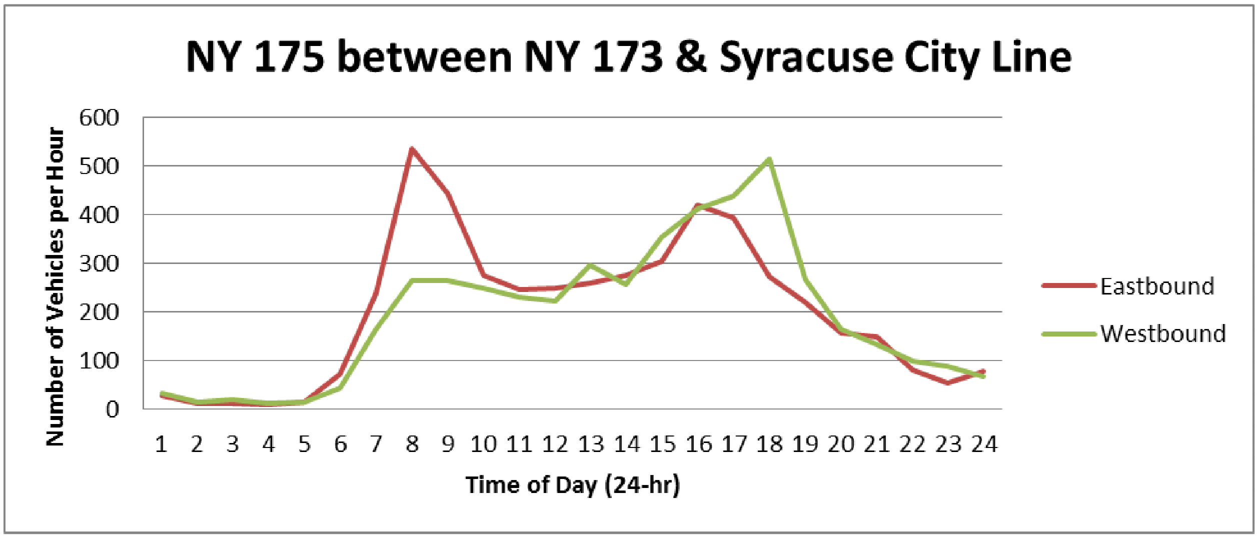


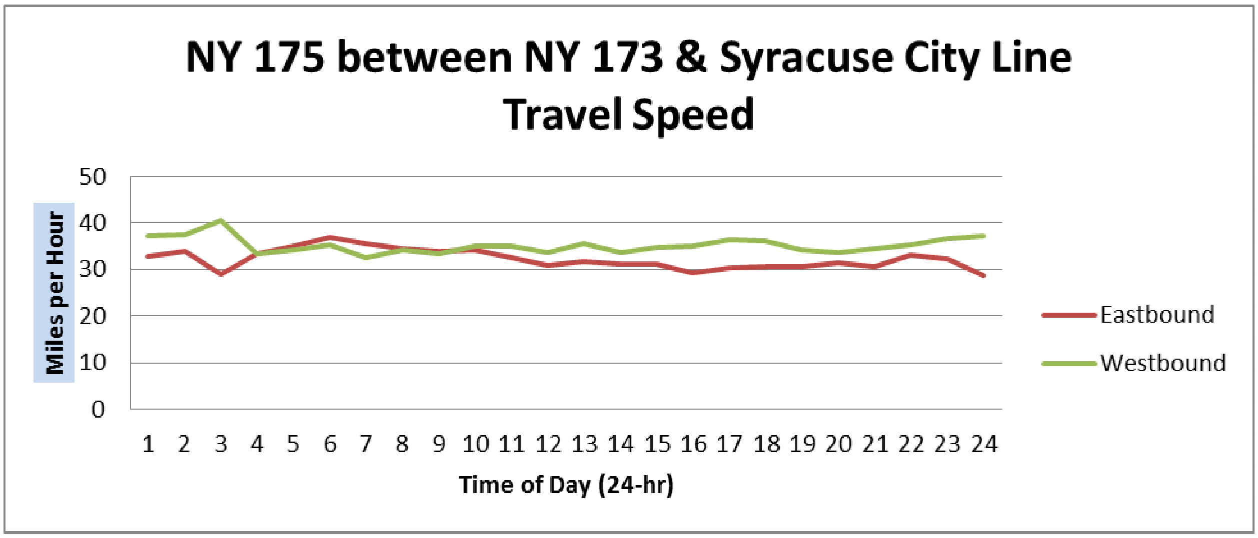
NY 173



Appendix A – Vehicles Per Hour and Speed Distribution (where available)

NY 175





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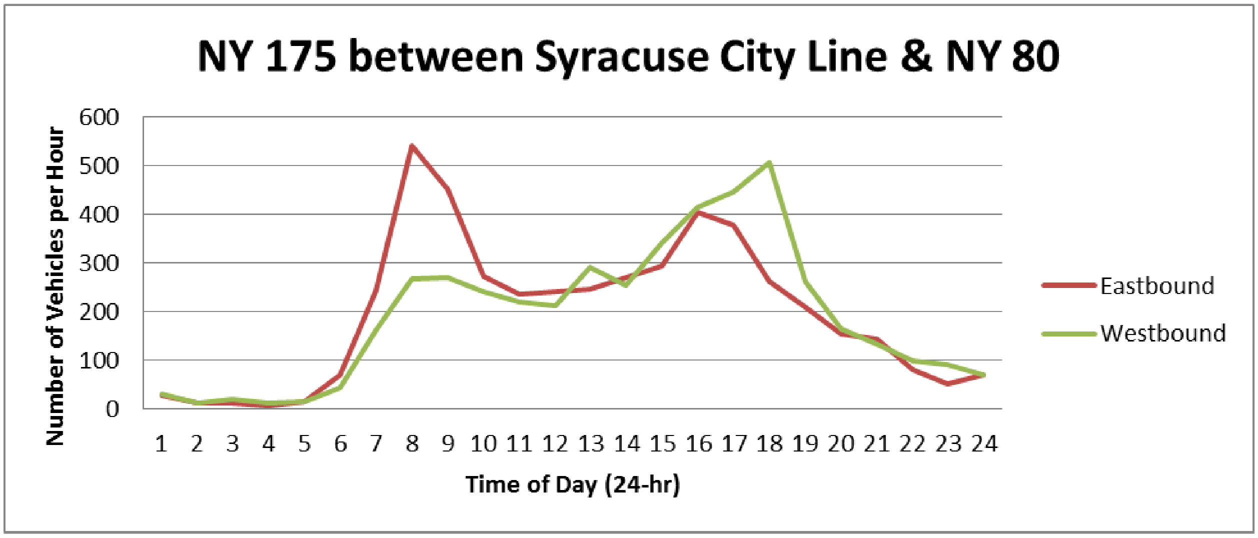

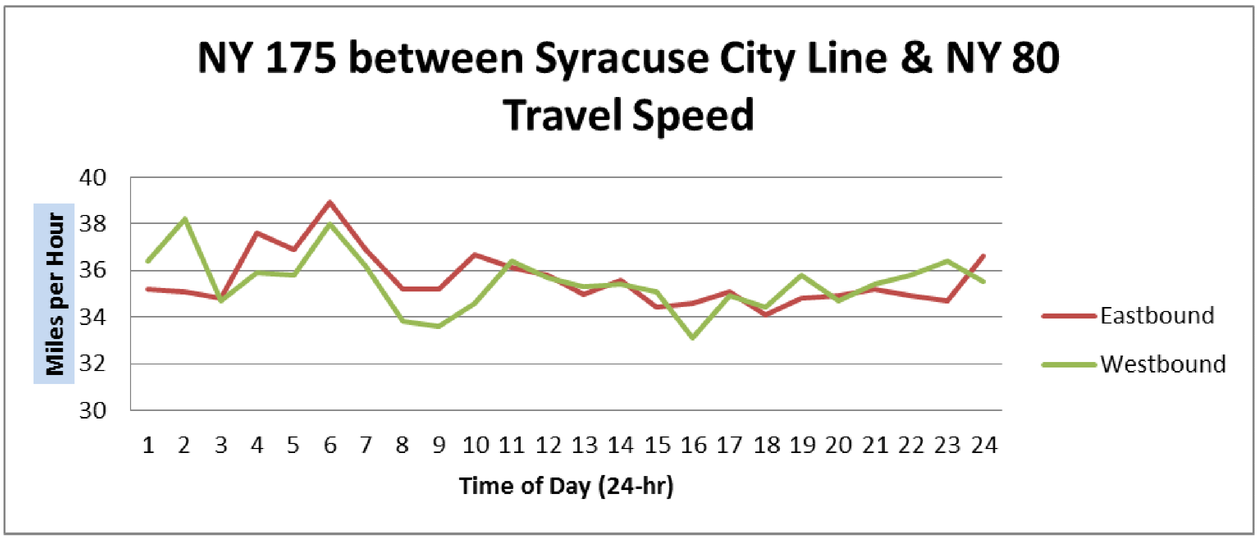

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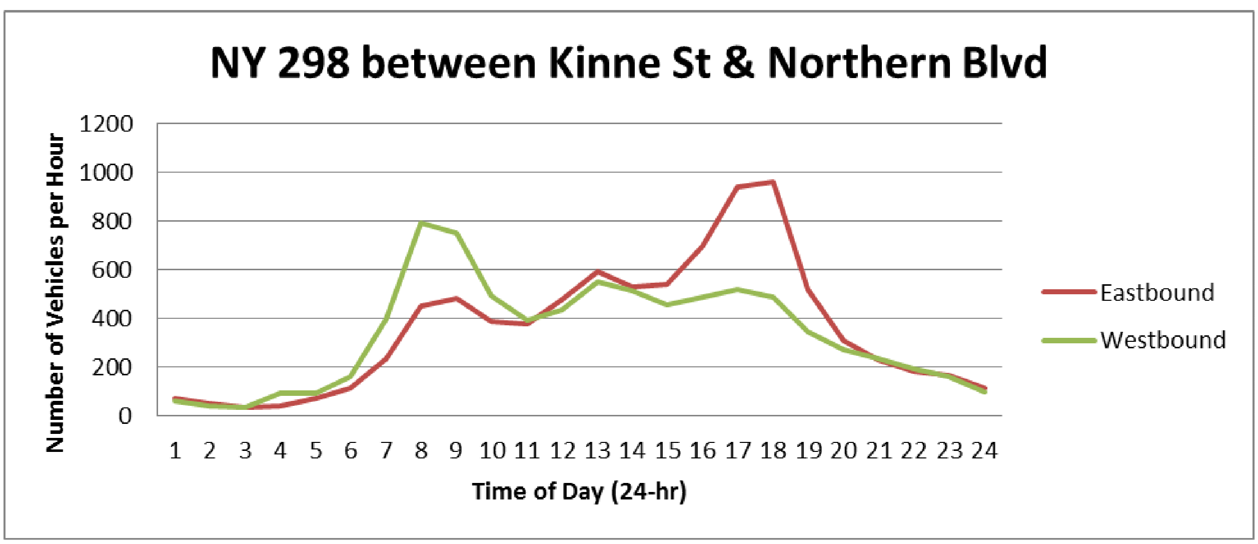
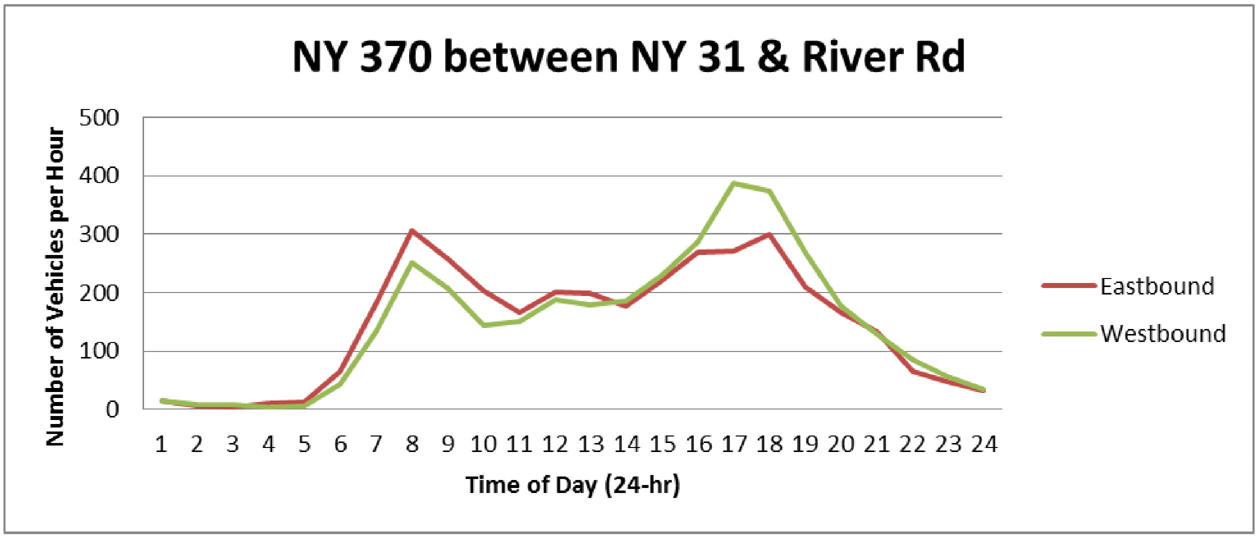
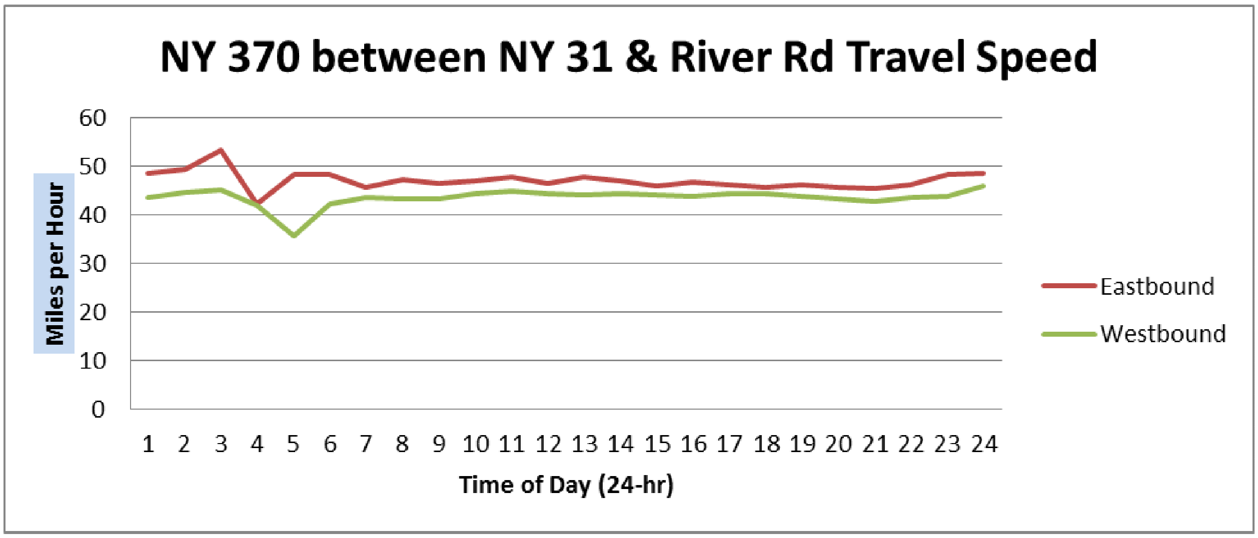


Appendix A – Vehicles Per Hour and Speed Distribution (where available)

NY 370





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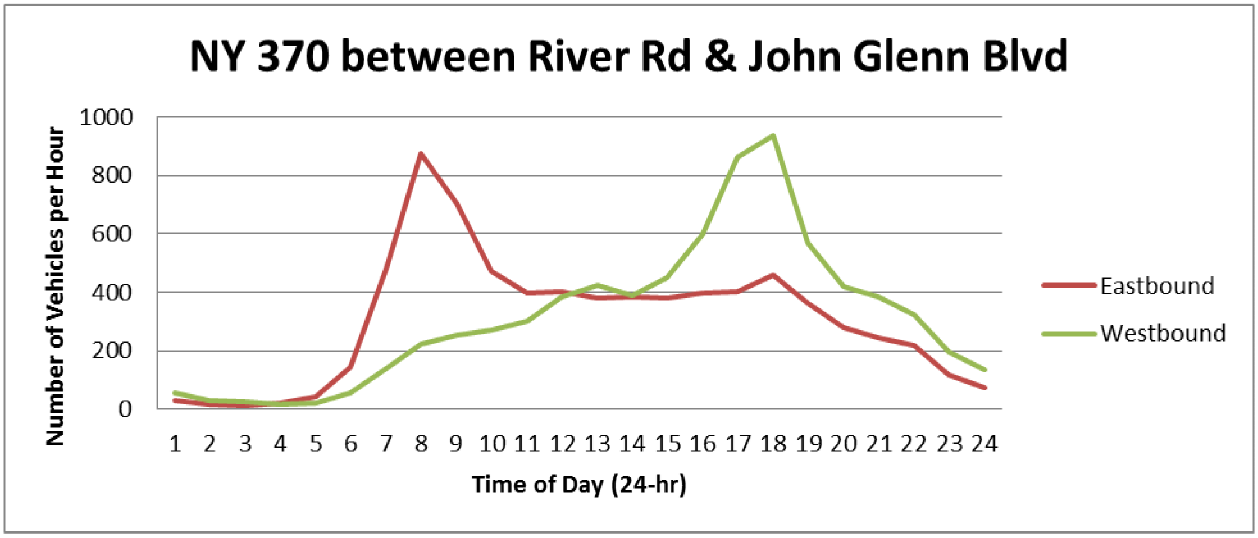

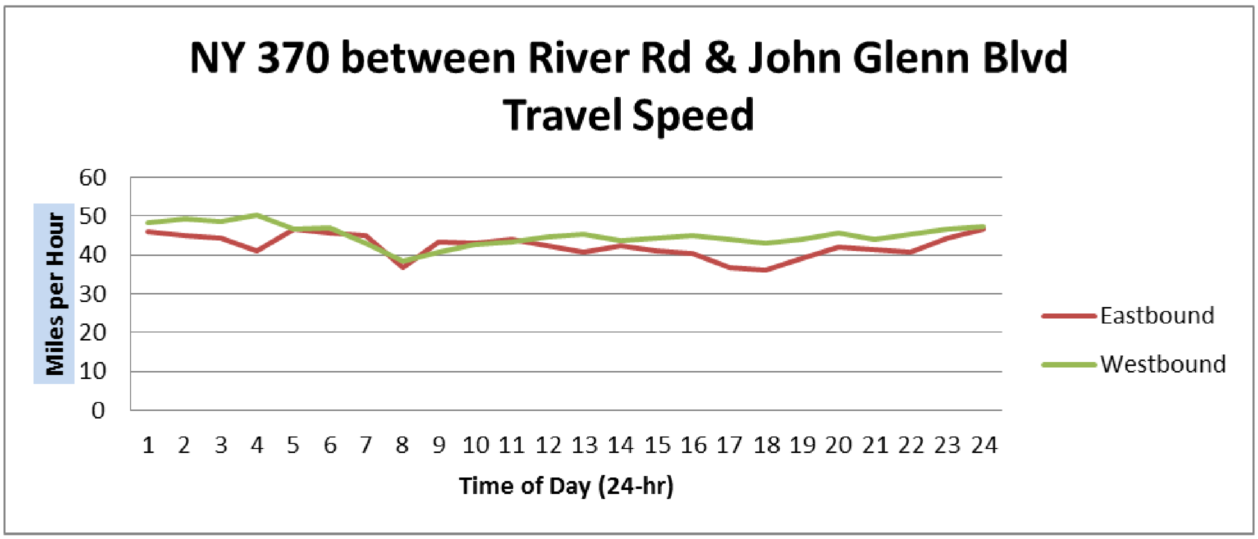

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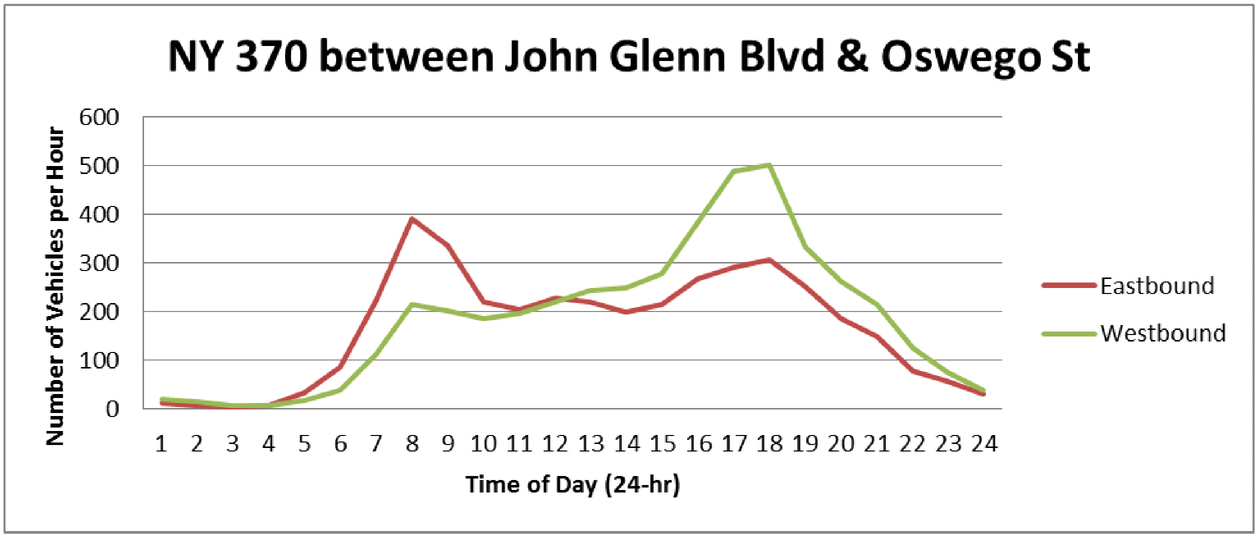
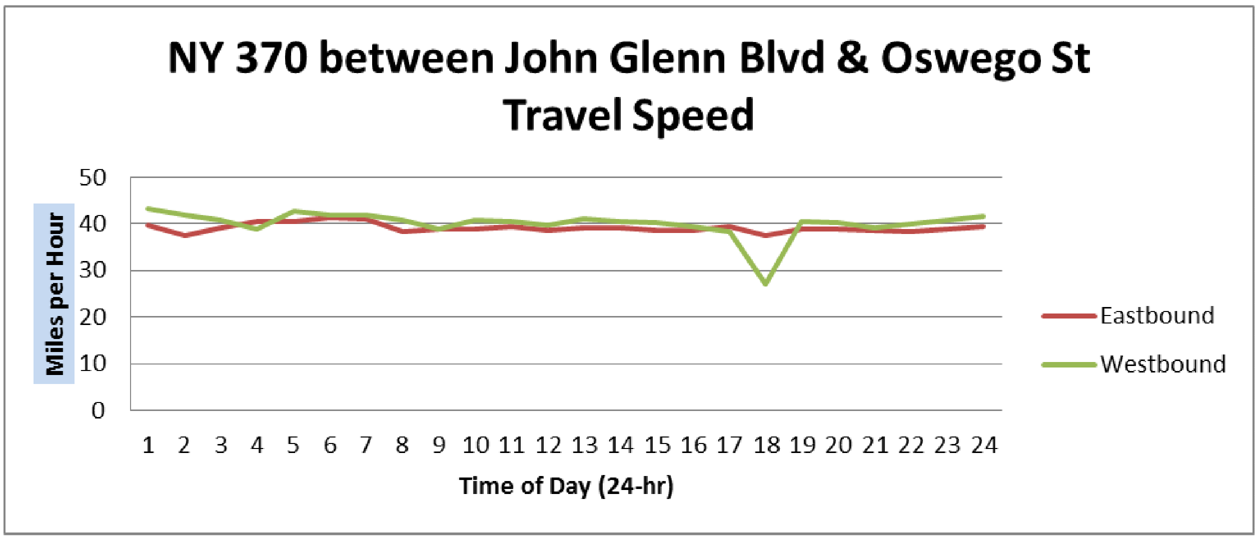
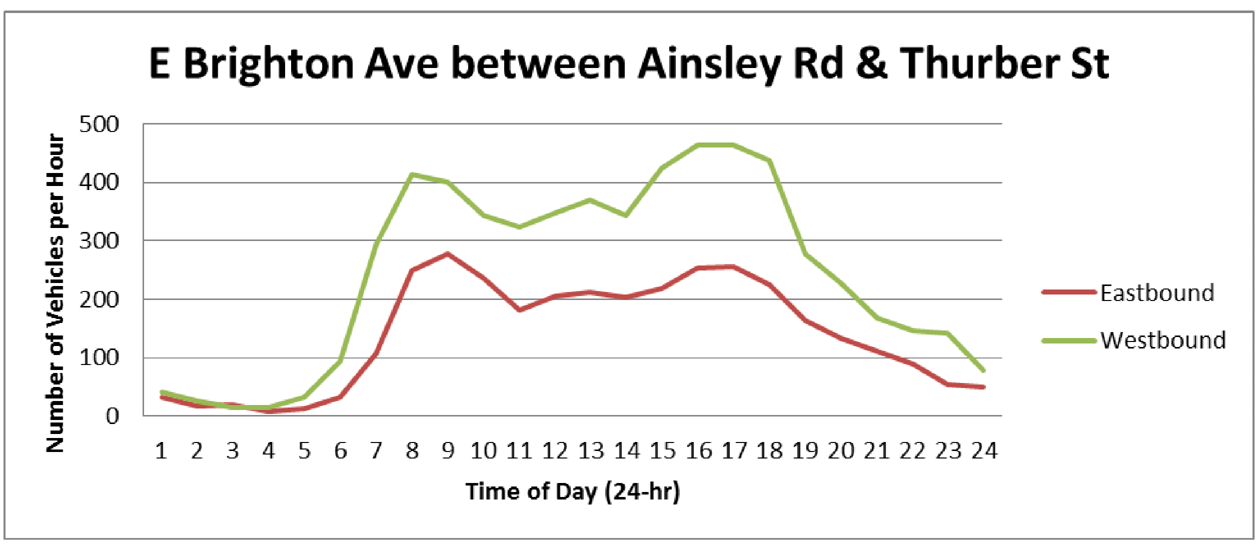


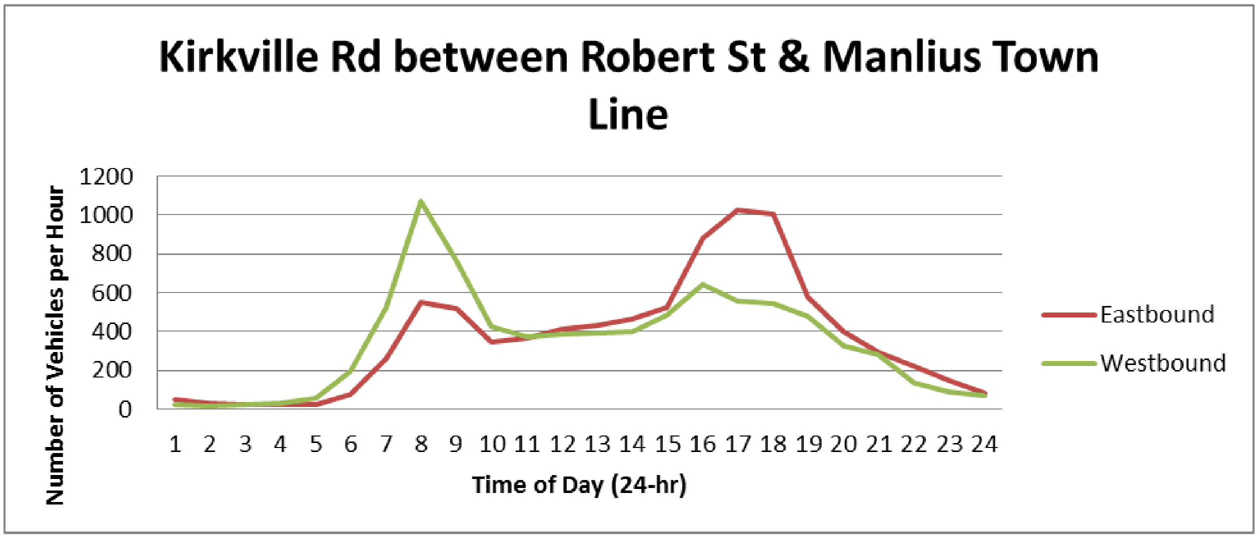


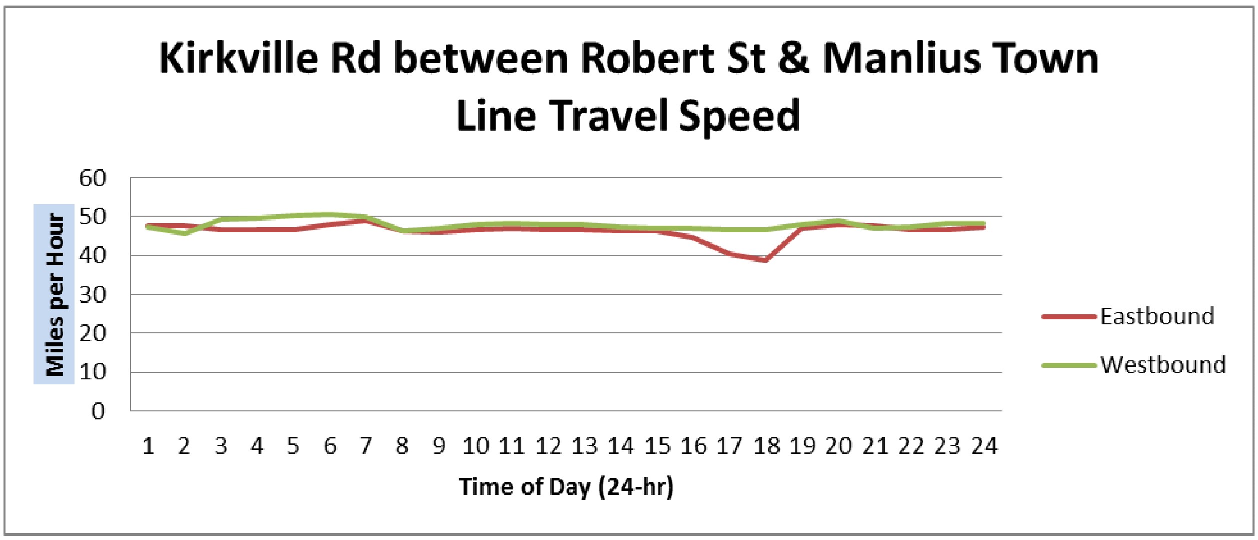
E Brighton Ave



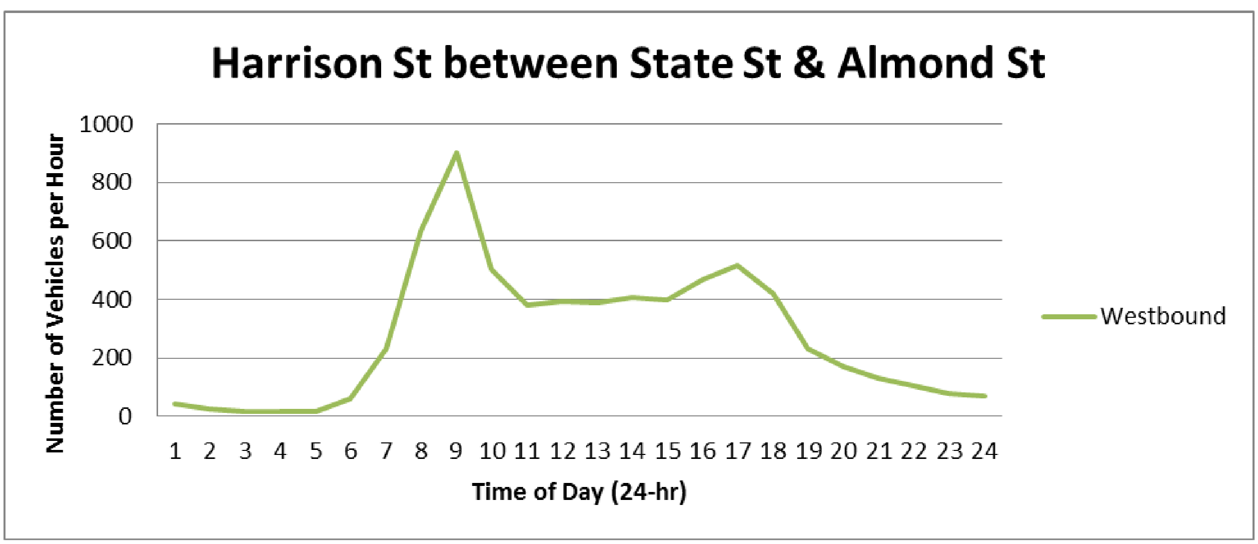
Appendix A – Vehicles Per Hour and Speed Distribution (where available)

Kirkville Rd



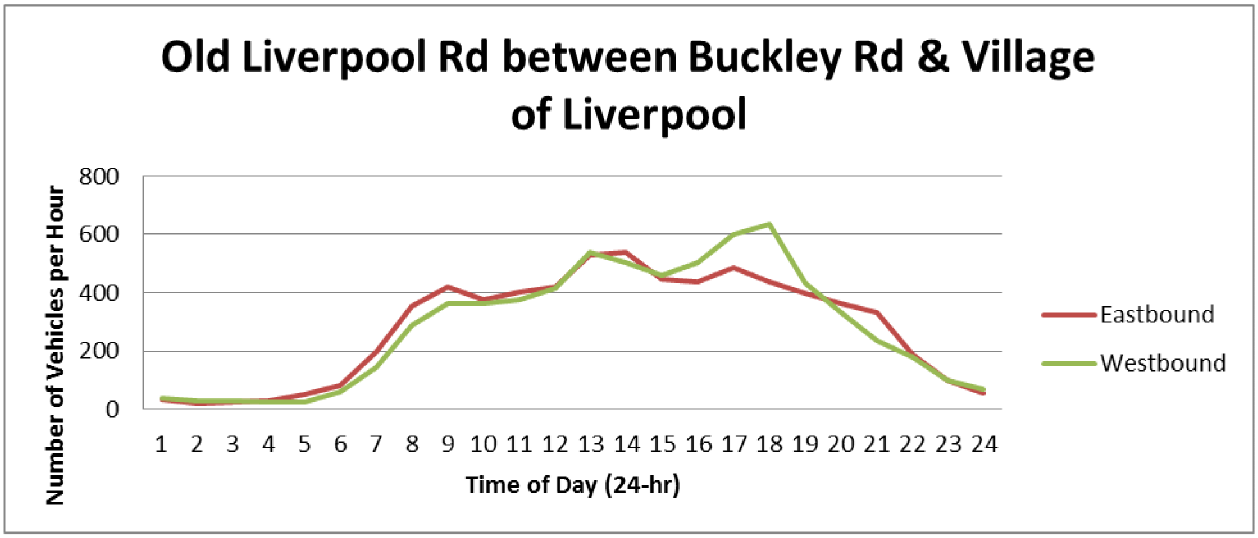


Harrison St

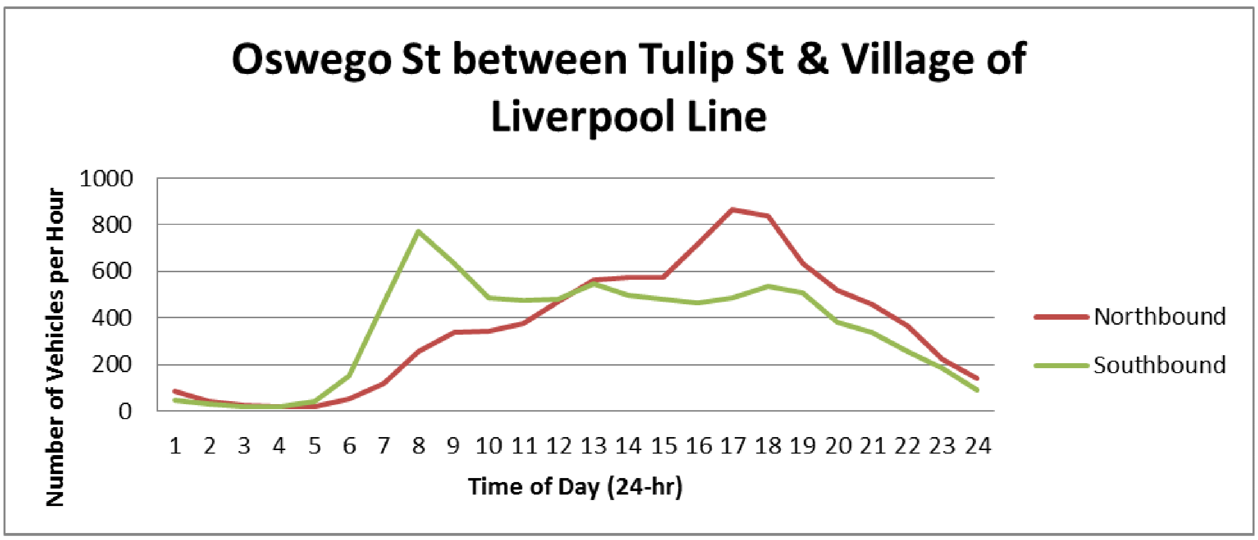


Appendix A – Vehicles Per Hour and Speed Distribution (where available)

Old Liverpool Rd

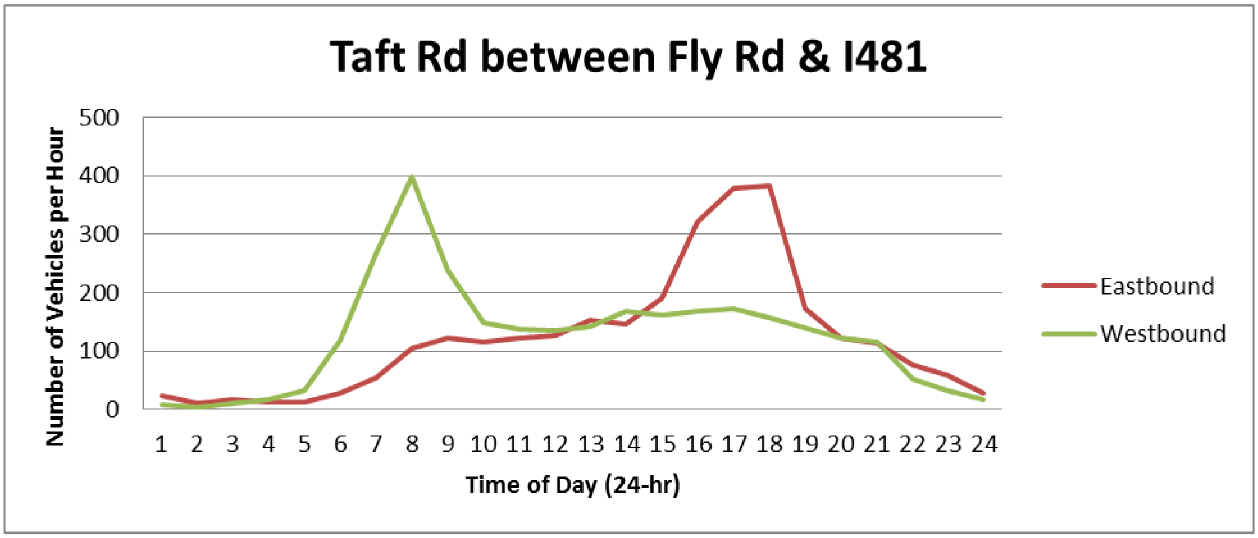


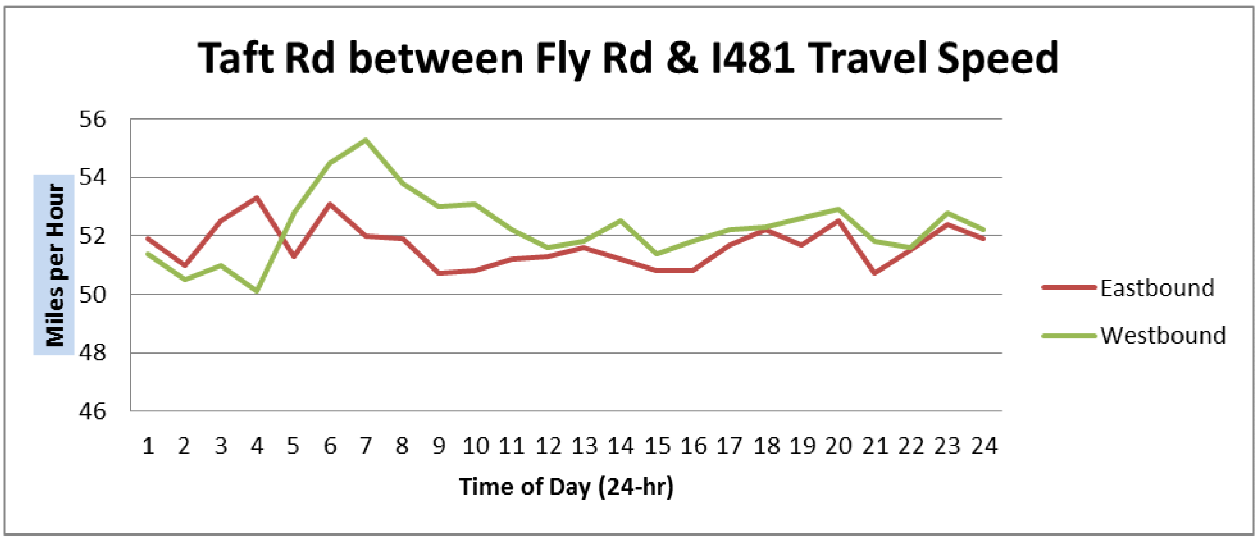
Oswego St



Appendix A – Vehicles Per Hour and Speed Distribution (where available)

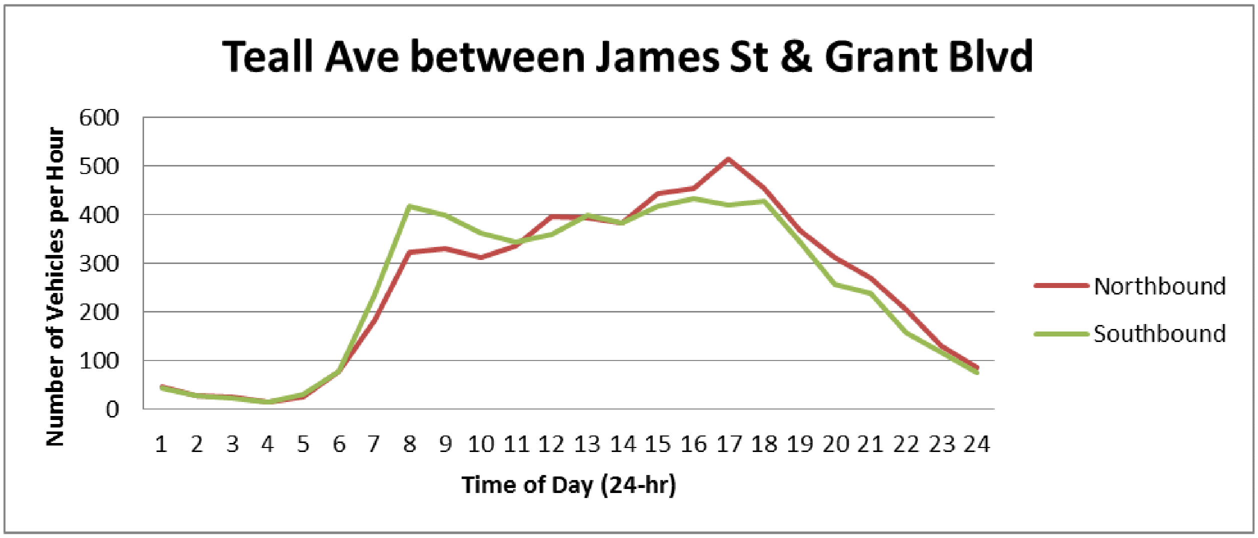
<u>Taft Rd</u>

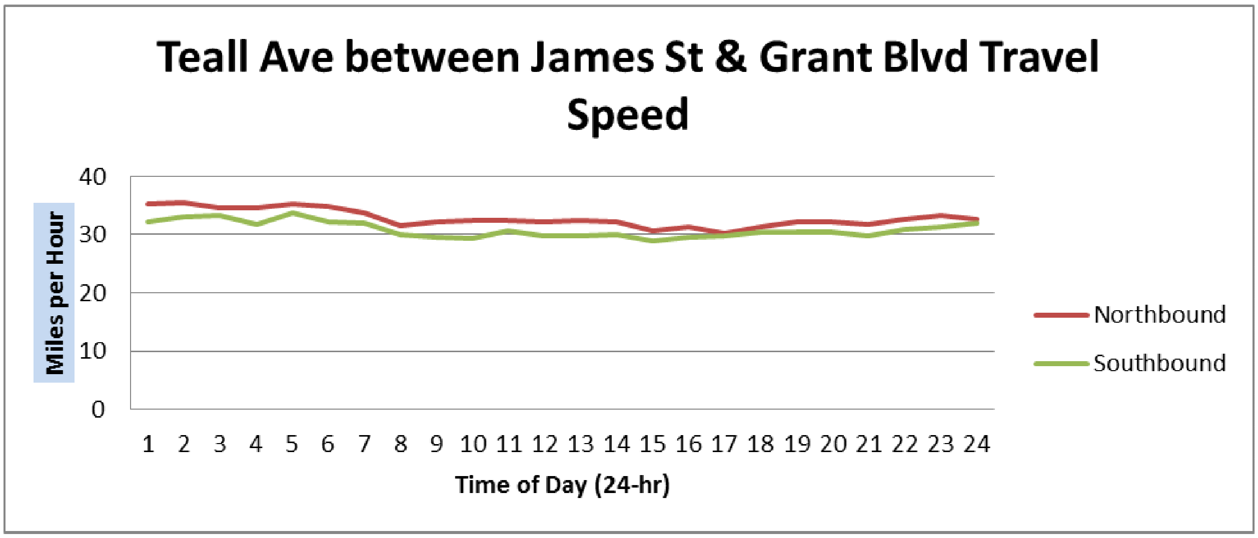




Appendix A – Vehicles Per Hour and Speed Distribution (where available)

Teall Ave





APPENDIX B
Primary Commuter Corridor Crash Summary

Primary Commuter Corridors Accident Summaries

Corridor	Total	Intersection			Non-Intersection		
		Injury	Property damage only	Fatal	Injury	Property damage only	Fatal
7th North St, from Electronics Pkwy to I 81	62	11	19	0	11	21	0
Adams St, from Onondaga St to Almond St	126	57	60	0	3	6	0
Almond St, from Erie Blvd to E Adams St	185	76	73	0	11	25	0
Bear Rd, from Buckley Rd to S Bay Rd	83	24	24	0	15	20	0
Bear St, from I 690 to I 81	48	2	2	0	14	30	0
Brighton Ave, from S Salina St to E Seneca Tpke	127	41	49	0	16	21	0
Buckley Rd, from John Glenn Blvd to 7th North St	199	47	68	0	31	53	0
Columbus Ave, from Erie Blvd to E Genesee St	26	17	5	0	3	1	0
Colvin St, from S Salina St to City boundary (east)	99	32	36	1	12	18	0
E Castle St, from S Salina St to S State St	22	17	4	0	1	0	0
E Circle Dr, from US 11 to S Bay Rd	66	8	36	0	2	20	0
E Genesee St, from City boundary (east) to Lyndon St	184	38	66	0	29	51	0
E Willow St, from Pearl St to N State St	12	6	6	0	0	0	0
East Genesee St, from Almond St to City boundary (east)	214	73	96	1	13	31	0
Electronics Pkwy, from Old Liverpool Rd to Hopkins Rd	59	10	23	1	5	20	0
Erie Blvd E, from S Salina St to City boundary (east)	293	105	123	0	31	32	2
Erie Blvd W, from W Hiawatha Blvd to Clinton St	61	18	23	0	11	9	0
Exeter St, from Thompson Rd to Kinne St	15	6	9	0	0	0	0
Geddes St from I 690 to W Genesee St	52	21	17	0	5	9	0
Gifford St, from West St to W Onondaga St	18	2	1	0	10	5	0
Harrison St, from E Onondaga St to Almond St	94	46	42	0	1	5	0
Henry Clay Blvd, from Buckley Rd to Hopkins Rd	75	23	29	0	8	15	0
Hinsdale Rd, from NY5 to Old Route 5	57	7	13	0	15	22	0
I 481, from NY 481 to I 81	378	19	31	0	107	219	2
I 690, from City boundary (east) to I 481	123	6	5	0	24	88	0
I 690, from NY 690 to City boundary (west)	123	6	5	0	24	88	0
I 690, within City boundaries (west to east)	632	45	57	0	216	313	1
I 81, from City boundary (south) to southern Urban Area boundary	21	1	0	0	4	16	0
I 81, from Co Route 32 (Town of Hastings), to City boundary (north)	433	9	31	0	103	288	2
I 81, within City boundaries (north to south)	683	38	68	0	237	340	0
James St, from Oswego Blvd to Thompson Rd	365	124	141	2	46	51	1
John Glenn Blvd, from IN690 to Buckley Rd	105	22	33	0	14	36	0
Kirkville Rd, from Kinne St to Fremont Rd	58	10	27	0	5	16	0
Morgan Rd, from NY 31 to Oswego St	141	44	46	1	17	33	0
Northern Blvd, from Island Rd to Collamer Rd	40	11	12	0	3	14	0
NY 173, from Old Route 5 to City boundary (west)	174	38	47	0	32	57	0
NY 290, from Bridge St to North Burdick St	98	23	43	0	15	17	0
NY 298, from Teall Ave to I 481	177	49	74	0	22	32	0
NY 31, from NY 690 to S. Bay Rd	614	84	142	1	115	271	1
NY 370, from NY 31 to I 81	153	26	50	0	23	53	1
NY 48, from NY 31 to Van Buren Rd	49	14	18	0	6	11	0
NY 481, from Oswego County line to I 81	197	15	24	0	49	109	0
NY 5, from Angus Ranch Rd to Old Route 5	159	20	16	0	40	83	0

Corridor	Total	Intersection			Non-Intersection		
		Injury	Property damage only	Fatal	Injury	Property damage only	Fatal
NY 5, from City boundary (east) to NY 92	138	24	63	0	17	34	0
NY 5, from Lyndon Rd to George Taylor Rd	187	37	58	0	24	68	0
NY 5, from Sunnybrook Dr to City boundary (west)	120	36	48	0	11	25	0
NY 635 (Thompson Rd), from NY 298 to I 690	101	23	36	0	8	34	0
NY 690, from Hencle Blvd to I 690	140	6	18	0	21	95	0
NY 695, from NY 5 to I 690	50	1	3	0	18	28	0
NY 92, from Lyndon Rd to Town of Pompey boundary	265	37	76	0	41	111	0
NY 930P (Bridge St) from NY290 to Erie Blvd E	79	30	31	0	6	12	0
NY 936, from Buckley Rd to I 81	22	4	9	0	4	5	0
NYS Thruway, from N Manlius Rd to Fyler Rd	41	0	0	0	11	30	0
NYS Thruway, from Warners Rd to I 481	234	3	15	0	46	168	2
Old Liverpool Rd, from Oswego St to City Boundary	79	12	30	0	13	24	0
Old Route 5, from Knowell Rd to Sunnybrook Dr	187	33	61	0	33	60	0
Old Route 57, from NY 31 to Tulip St	290	56	94	2	55	81	2
Oswego Blvd, from E Genesee St to Erie Blvd E	6	1	5	0	0	0	0
Oswego St, from Tulip St to Cypress St (Liverpool village)	38	8	24	0	2	4	0
Pearl St, from Hickory St to E Willow St	2	1	1	0	0	0	0
S Bay Rd, from Bear Rd to NY 31	57	9	34	0	4	10	0
S Salina St, from Harrison St to City boundary (south)	345	117	118	1	49	60	0
Seneca Turnpike, from City boundary (west) to Brighton Ave	111	18	35	1	26	31	0
Shonnard St, from West St Arterial to Onondaga St	5	0	5	0	0	0	0
South Ave, from W Onondaga St to W Seneca Tpke	96	32	33	0	22	9	0
State St, from E Willow St to E Castle St	116	48	49	0	6	13	0
Taft Rd, from Henry Clay Blvd to I 481	255	52	97	0	27	78	1
Teall Ave, from Court St to Erie Blvd	234	73	90	0	22	49	0
Thompson Rd, from S Bay Rd to Island Rd	22	5	16	0	1	0	0
US 11, from City boundary (south) to Syracuse Tully valley Rd	31	3	16	0	8	4	0
US 11, from NY 31 to I 81	420	86	170	1	56	107	0
Van Buren Rd, from NY 48 to NY 690	19	4	6	0	3	6	0
W Hiawatha Blvd, from Erie Blvd W to N Salina St	139	40	44	0	23	32	0
W Onondaga St, from South Ave to S Salina St	53	21	22	0	7	3	0
West Genesee St, from City boundary (west) to Oswego Blvd	263	98	94	0	23	48	0
West St Arterial, from Shonnard St to I 690	102	36	37	0	10	19	0
Grand Totals	**11,147**	**2,245**	**3,132**	**12**	**1,946**	**3,797**	**15**

Note: Accidents that occurred at the intersection of two CMP corridors were counted twice in the intersection category, resulting in a grand total greater than the 10,201 reportable accidents.

APPENDIX C
Correspondence

Syracuse Metropolitan Transportation Council
100 Clinton Square
126 North Salina Street, Suite 100
Syracuse, New York 13202
Phone: (315) 422-5716
Fax: (315) 422-7753
www.smtcmpo.org

October 27, 2014

Ms. Maria Chau
New York Division - FHWA
Office of Program Management
Leo O'Brien Federal Building, Suite 719
11A Clinton Avenue
Albany, NY 12207

Dear Ms. Chau:

The *Syracuse Metropolitan Transportation Council (SMTC) 2013 FHWA/FTA Certification Review* report, dated June 2014, contains a corrective action relative to the SMTC's Congestion Management Process (CMP): "SMTC must provide a plan to update its CMP to ensure full compliance with 23 CFR 450.320(c) six months from the issuance of this report and have the CMP updated by October 2015."

As mentioned in the SMTC's June 16, 2014 draft certification report review letter, the SMTC planned to commence work on an update to the agency's CMP this fall. On October 14, the first meeting for the development of the 2014/2015 CMP was held with representatives of the Central New York Regional Transportation Authority, City of Syracuse, New York State Department of Transportation, Onondaga County Department of Transportation and the Syracuse-Onondaga County Planning Agency. At this meeting, multi-modal objectives, performance measures, area of application and a network of interest as relevant and applicable to the CMP was discussed and identified. A working schedule for 2014/2015 CMP is attached.

If I can be of further assistance, please contact me at (315) 422-5716 or jdagostino@smtcmpo.org.

Sincerely,

James D'Agostino
Director

Attachment

cc: James Goveia, Federal Transit Administration, Region II
Cathy Kuzsman, NYSDOT Statewide Planning Bureau, 6th Floor
Mario Colone, SMTC

CONGESTION MANAGEMENT PROCESS – TRANSPORTATION MANAGEMENT AREA
Project Schedule*

TASKS	DETAILS	STATUS
Study Advisory Committee (SAC) members	Identify appropriate SAC members (planning and operations staff) and add to as necessary going forward	September 2014 - complete
SAC Mtg. #1	Discuss project and identify "SMART" objectives, area of application, system/network of interest & multimodal performance measures that are relevant to this area (how high of a priority is congestion?)	October - complete
Data Collection/Monitor System Performance	Obtain pertinent data in support of various objectives and performance measures; discussion w/ SAC	September 2014-December 2014
Travel Demand Model	Utilize variety of outputs from new SMTC Travel Demand Model for base and future conditions (i.e., travel time, volume/capacity, LOS, etc.).	November 2014-January 2015
Analyze Congestion Problems & Needs	Identify specific locations with congestion problems	November 2014-January 2015
Identify and Assess Strategies (SAC Mtg. #2)	Discuss w/SAC potential of developing a "toolbox" of strategies for consideration and assess as appropriate identified strategies	January 2015
Program and Implement Strategies (SAC Mtg. #2)	Discuss w/SAC creating implementation schedule, responsibilities, and potential funding sources	January 2015
Evaluate Strategy Effectiveness (SAC Mtg. #2)	Discuss w/SAC relevance of system-level performance evaluation (through CMP or LRTP system report)	January 2015
Prepare Draft Final Report	Draft Final Report	October 2014-April 2015
SAC Mtg. #3	Review Draft Final Report w/SAC	May
Public Comments	Release draft for public comment; incorporate public comments & feedback	May-June
SMTC Committee Acknowledge CMP Final Report	Policy & Planning Committee acknowledgement of CMP Final Report	Prior to October 2015, in advance of the new LRTP
Identified strategies for LRTP	Include discussion of CMP and related strategies in 2050 LRTP	

* Schedule subject to change (Draft as of October 2014)

Update Schedule	Refine CMP objectives and performance measures	Prior to adoption of 2019 or 2020 LRTP
Data Collection, Management Plan & Analysis activities		On-going
Performance Evaluation	Through LRTP system performance report or similar "dashboard" of CMP performance	Annual
Strategy Implementation through TIP	Commensurate with capital program update; modify evaluation process, as applicable, to include linkage between CMP, LRTP and TIP	Fall 2015

*** Schedule subject to change (Draft as of October 2014)**

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U.S. Department of Transportation
Federal Highway Administration

New York Division

Leo W. O'Brien Federal Building
11A Clinton Avenue, Suite 719
Albany, NY 12207
518-431-4127
Fax: 518-431-4121
New York.FHWA@dot.gov

November 14, 2014

In Reply Refer To:
HPE-NY

Mr. James D'Agostino
Syracuse Metropolitan Transportation Council
126 North Salina Street, 100 Clinton Square
Suite 100
Syracuse, NY 13202

RE: SMTC 2013 Certification Review Report Corrective Action Follow Up: CMP Update

Dear Mr. D'Agostino:

I am in receipt of your letter dated October 27 in reference to your response on the federal Corrective Action identified in the SMTC *2013 FHWA/FTA Certification Review* report. I have reviewed your letter with the partnerships from the representatives in your region, the work schedule, and plan on updating the *Congestion Management Plan* and consider our request on SMTC providing us with a plan on updating the CMP within six months, met. I look forward to the completion of the CMP update. At that time our office will review the CMP for compliance under 23 CFR 450.320(c).

If I can be of assistance during the development of the CMP, or if you have any questions please feel free to contact me at 518-431-8878.

Sincerely,

/s/ MARIA CHAU

Maria Chau
Senior Community Planner

cc: James Goveia, Federal Transit Administration, Region II
Cathy Kuzsman, NYSDOT Statewide Planning Bureau, 6th Floor
Mario Colone, SMTC