



**Syracuse
Metropolitan
Transportation
Council**

February 23, 2023



Manlius Village Center Transportation Study

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Syracuse Metropolitan Transportation Council

Final Report

February 23, 2023

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Executive Summary

The SMTC completed the *Manlius Village Center Transportation Study* on behalf of the Syracuse-Onondaga County Planning Agency (SOCPA). The Village of Manlius has two ‘main’ streets (Route 92 and Route 173), which are often congested with motorists. The community wants to safely mesh through commuter traffic with bicycle and pedestrian activity.

Background

Recent development projects promote walking and bicycling, but highway road design and traffic volume impede mobility options. In 2012, GTS Consulting conducted a traffic study to assess a “road diet” for Route 92. The GTS study concluded that a road diet was not feasible because of high traffic volumes and the proximity of signalized intersections. NYSDOT and Village officials ruled out the need to conduct a similar assessment given that traffic volumes have remained consistent.

Capacity Assessment

As this study progressed, NYSDOT and the local community expressed interest in assessing other changes to the road network not previously considered. SMTC added a capacity assessment (Chapter 8) late in the study process to analyze three scenarios not previously assessed:

Scenario 1 - ‘Route 173 WB Right Turn Bay & on-street parking lane’

- Modify West Seneca Street WB approach at Fayette Street
 - Dedicated right-turn lane (west of the RRFB crosswalk)
 - On-street parking lane east of the RRFB crosswalk
- No change to Fayette Street (Route 92)

Findings suggest that it is reasonable to consider an on-street parking lane (east of the RRFB crosswalk) if a dedicated westbound right turn lane is maintained (west of the RRFB crosswalk).

Scenario 2 - ‘Close Liberty Lane’

- Close Liberty Lane (currently one-way southbound)

Findings suggest little to no change in delay and level of service by closing Liberty Lane.

Scenario 3 - Route 92 ‘Lane Reallocation’

- Reduce Route 92 (Fayette Street) to 1 WB lane; maintain 2 EB lanes
- Create center turn lane (i.e., Two Way Left Turn Lane (TWLTL)), with exclusive left-turn lanes at signalized intersections
- No change to Route 173

Findings suggest that reallocating the lane space is anticipated to significantly increase delay at two intersections, far exceeding reasonable delay thresholds. Staff further validated findings through Sim Traffic simulation observations. Additionally, this scenario would not provide a benefit such as adding bike lanes, on-street parking, etc.

NYSDOT Maintenance Project Coordination

NYSDOT requested that SMTC provide the preliminary capacity assessment findings to inform their repaving design plans for Route 92 and Route 173. NYSDOT also requested that SMTC summarize community feedback about issues and opportunities as well as provide a preliminary list of recommendations to consider. After reviewing this information, NYSDOT incorporated many of SMTC’s suggestions, which included:

- Restripe East Seneca Street (Route 173) to include on-street parking and a dedicated WB right turn lane (Scenario 1)
- Close Liberty Lane (Scenario 2)
- Various access management improvements.

Remaining Issues and Concerns

Results from the capacity assessment help validate previous findings and ongoing concerns that routes 92 and 173 lack space to accommodate bicycle facilities. Therefore, staff developed several alternative conceptual plans to address study goals. Chapter 9 provides detailed figures that show conceptual plans to improve bicycle and pedestrian mobility.

Additionally, the community asked SMTC to explore new ideas such developing a concept plan for a shared municipal parking lot east of Route 92, off Keith Morgan Way while maintaining existing buildings and considering site topography. Although the municipal lot concept plan shows good planning principles, it is unlikely to significantly increase the number of off-street parking spaces because of the various constraints.

SMTC also developed other concepts for big picture ideas that may help advance community goals. Some concepts received favorable community feedback and may be worth considering. Some did not and are unlikely to advance given their complexity and limited benefits.

Concepts Worth Considering

- Bicycle network concept that uses existing paths and village-owned streets
- Sidewalk connections (fill in “gaps”)

- Close West Pleasant Street (“hammer head”) at Route 173 & create a shared-use path from closure point to F-M High School
- New intersection (Willowbrook Drive / Pleasant Street) with bike & pedestrian amenities from Village Centre to Route 173
- Bicycle wayfinding signs
- Parking “P” guide signs
- Raised crosswalks (at RRFB locations)

Concepts Unlikely to Advance

- Roundabouts
- A municipal parking lot concept plan

Public Feedback

The planning process included several public engagement efforts. Staff administered a business owner questionnaire, held two public meetings with local business owners, attended the NYSDOT open house for their paving project, and held an open house with a presentation to explain the concept plans at a Village Board meeting. Staff also held three meetings with Study Advisory Committee (SAC) members and engaged with SAC members frequently throughout the planning process.

In general, comments received during the open house (Village Board meeting) and during the draft report public review period spoke in favor of the conceptual plans. The municipal lot concept, however, drew the most concerns. Village representatives also indicated that they were not interested in advancing that concept at this time.

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1 Introduction

1.1 Overview and Study Area

The *Manlius Village Center Transportation Study* was completed as part of the Syracuse Metropolitan Transportation Council's (SMTC) 2020-2021 Unified Planning Work Program (UPWP) on behalf of the Village of Manlius (Village) and the Syracuse-Onondaga County Planning Agency (SOCPA).

Like many communities that developed along a major travel corridor, the Village of Manlius faces the problem of how to safely mesh through traffic with bicycle and pedestrian activity in its central business district. In addition, Manlius is somewhat unique in that it has two main streets (portions of Route 173 and Route 92) serving as the heart of the Village from both a community and economic standpoint.¹ The village center is congested with motorists, which affects pedestrian mobility. Commuters often “jockey” for position in a “race” to the next red light.

Figure 1 shows the regional context of the study area and Figure 2 shows the study area in the Village of Manlius. Roads of interest include one block of Fayetteville-Manlius Road (Route 257) near Fayette Street (Route 92), Fayette Street (Route 92) from Kelly Drive to Seneca Street (Route 173); Seneca Street from Troop K Road to North Street; and Washington Street (Route 92) from Seneca Street to Military Drive.

Background information

Development projects within the Village during the past decade have enabled and promoted walkability, but the impacts of road design and

traffic volume impede the attractiveness of walking in the Village. The Village is also concerned that potential future businesses may locate elsewhere, or that existing businesses may move out of the Village.

In 2012, GTS Consulting conducted a traffic study to assess a Route 92 “road diet” alternative that would repurpose some lane space to improve bicycling and walking. The 2012 study concluded that a four lane to three lane road diet was not feasible given traffic volumes and the proximity of signalized intersections. During its scoping process, SMTC, NYSDOT, and the Village ruled out the need to conduct similar capacity assessments.

However, as this study progressed, NYSDOT and the local community expressed interest to assess other options to change the road network (i.e., not the previously assessed road diet). Therefore, SMTC added a capacity assessment task late in the study process.

SMTC completed the capacity assessment for several alternatives in the spring of 2022. The findings informed NYSDOT’s design process for an upcoming maintenance project to resurface Route 92 and Route 173. In the summer of 2022, NYSDOT also requested that SMTC summarize community feedback and provide a preliminary list of recommendations to inform the NYSDOT design process.

NYSDOT incorporated many preliminary recommendations provided by SMTC into its draft design, which include among other things, driveway modifications, closure of Liberty Lane, and additional on-street parking.

¹ Onondaga County Village Main Street Revitalization and Beautification Grant Program application, Village of Manlius, NY, January 31, 2020, p. 1.

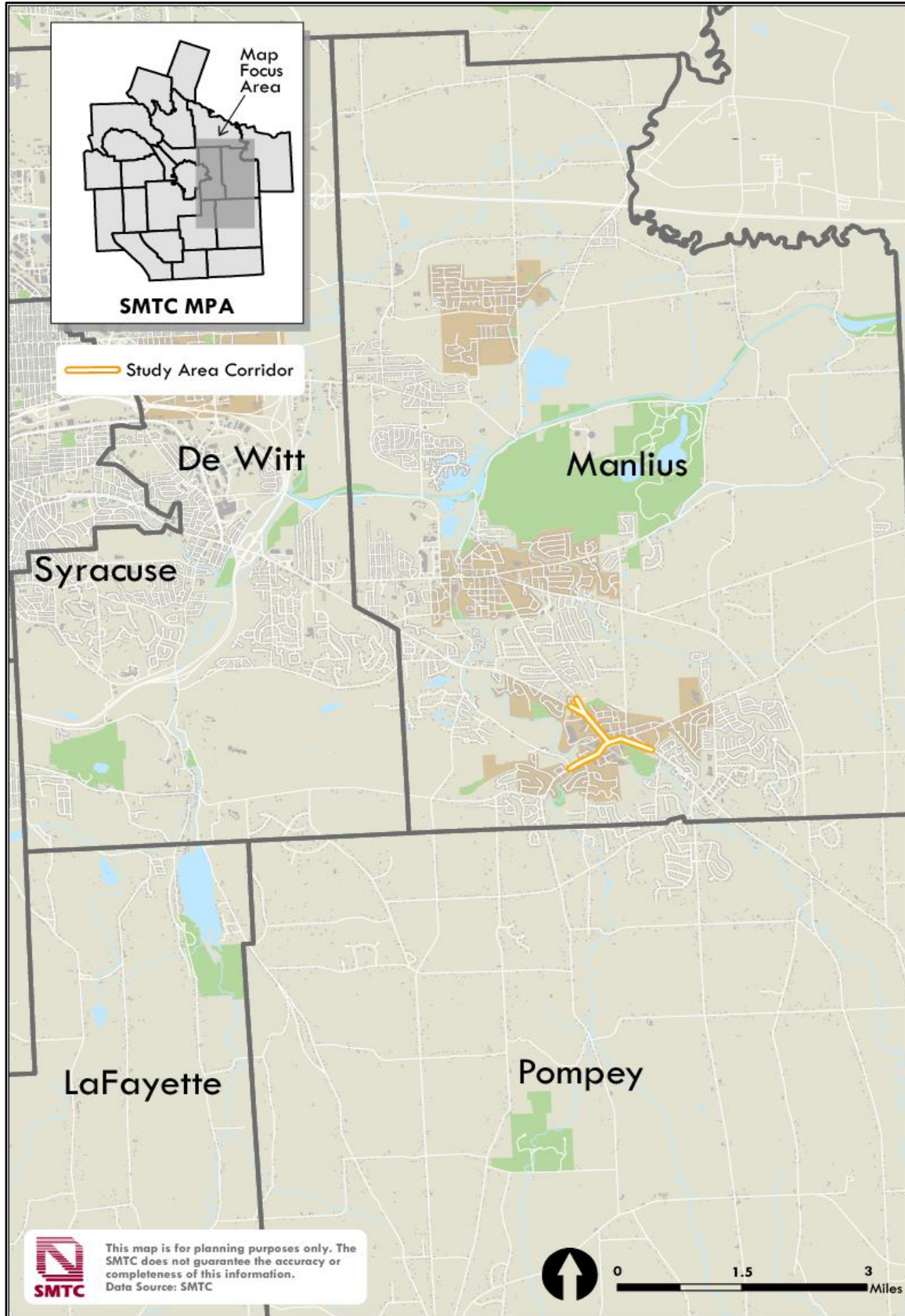


Figure 1: Regional Context

On July 27, 2022 NYSDOT hosted a public open house (also attended by SMTC staff) to share the draft design with the public and collect community feedback. NYSDOT provided SMTC with all public comments as well as its final design drawings at the end of August 2022.

SMTC reviewed the final design plans provided by NYSDOT and confirmed that many of its recommendations were incorporated. SMTC focused its remaining effort on identifying bicycle and pedestrian routes through neighborhood streets, identifying off-street parking options, and a roundabout screening.

1.2 Study Process

The SMTC developed a scope of services for this study in consultation with the Village, SOCPA, and NYSDOT. The study’s scope is available in Appendix A. As previously indicated, the scope did not include traffic counts or Synchro model assessments, however SMTC included these

additional tasks late in the planning process to inform NYSDOT’s design plans for Route 92 and Route 173.

1.3 Study Advisory Committee (SAC)

To guide the study process, SMTC assembled a Study Advisory Committee (SAC), which met several times. The SAC consisted of representatives from the Village, the Town of Manlius, SOCPA, and the New York State Department of Transportation (NYSDOT). As an advisory committee, the SAC does not vote on or approve elements of this study.

SMTC also developed a public involvement plan (PIP) in consultation with the SAC to guide the process for engaging the public in the planning process (see Appendix B).



Figure 2: Study Area, Village of Manlius, New York

2 Plans, Studies, Developments

2.1 Village Planning Efforts

Vision Manlius: Comprehensive Plan 2007

In 2007, the Village of Manlius produced a comprehensive plan (Vision Manlius) to guide future development within the Village. The overarching goals of the plan include promoting infill development, protecting the architectural character of the community, and creating a more pedestrian friendly environment. Vision Manlius also recommends partnering with SMTC to help plan roadway improvements.

The Village does not have control over the county and state highways that make up the village center. Vision Manlius indicates that expansion of these highways should not occur if it poses a materially adverse impact on the community’s character. Additionally, the high traffic volumes on these major thoroughfares make it difficult for vehicles to make left turns.

Vision Manlius identifies key opportunities for the village to undertake to achieve its goals; they fit into three categories:

1. Improve non-motorized access
2. Slow traffic
3. Improve parking access.

Non-motorized transportation, (e.g., walking and bicycling), can be improved through the extension of trails and paths through the village, improved pedestrian signaling, especially around the high school, and aesthetic improvements. The comprehensive plan identifies numerous opportunities for further consideration, including:

- provide multi-modal facilities
- improve bicycle and pedestrian connections

- include bike signs and bike wayfinding
- Install mechanisms for traffic calming
- continue sidewalks along:
 - Rt 173 to high school
 - Rt 173 to Glencliffe Road
 - Rt 173 from Mill Street to Mill Run Park
 - Brickyard Falls to Heritage Circle
- limit the number of curb cuts
- lighting for sidewalks
- connect trails to village destinations
- revise zoning and parking standards
- meter on- and off-street parking
- improve options for off-street parking
- consider roundabouts.

Onondaga County Village Main Street Revitalization and Beautification Grant Program – Village of Manlius, NY (2020)

The Village established a Main Street Revitalization Committee (2019) to develop revitalization project ideas to submit in a grant application. In March 2020, Onondaga County awarded the Village \$298,000 for the projects.

The funds awarded to the program include four primary improvements:

1. A Clock Plaza
2. East Seneca Street Plaza
3. A plaza in front of Bruegger’s
4. Eight building façade improvements.

Figure 3 shows a rendering the Village included in its grant application. The rendering shows the location of the proposed improvements. The concept also shows a landscaped center median along Route 92 and Route 173, which was not funded as part of the grant award.



Figure 3: Village Main Street Grant Application Envisioned Concept Plan

The Clock Plaza project installed a new clock, and included tree plantings, additional lighting, and a new seating area. The vision for East Seneca Street Plaza includes enhancing the 19-foot-wide with unique materials, providing furniture and planters as well as vertical barriers to designate different outdoor spaces.

The Village also will create a pocket park in front of Bruegger’s Bagels with street furniture and the erection of a barrier between the parking lot and streetscape. Eight private businesses also agreed to a 50/50 match grant to upgrade building facades.

2.2 Regional Planning Efforts

2022 Onondaga County Empire State Trail Local Economic Opportunities Plan (LEOP)

SOCPA requested that the CNY Regional Planning & Development Board (CNYRPDB) and SMTC develop a county-wide inventory of

community assets within bicycling distance from the Empire State Trail (EST). The LEOP plan identifies “high-level” ideas to connect communities with public amenities and services with the State’s trail system. The LEOP indicates that more detailed study of ideas is required. According to the LEOP:

‘The Village of Manlius offers recreational resources that could be of interest to cyclists traveling the EST. The 40-acre Mill Run Park offers two sets of public restrooms. The Village-owned park could be an ideal, shovel-ready location for a bike camp for long-distance cyclists...

The most direct route to the Village of Manlius from the EST is through the Village of Fayetteville, with an alternate route through Green Lakes State Park. To reach Manlius, however, both routes use New York State Route 257, which currently has no bicycle facilities. Adding additional infrastructure will enhance

the safety of bicyclists and enhance the connectivity between these two villages.”

Therefore, the LEOP priorities Route 257 as the preferred route to the EST.

2013 Bicycle Commuter Corridor Study (SMTC)

In 2013, the NYSDOT requested that SMTC develop a Bicycle Commuter Corridor Study to link population centers with areas of employment. The study identifies “high-level” bicycle route and facility options. The study identifies Fayetteville and Manlius as communities that should enhance bicycle facilities along identified corridors to link with Downtown Syracuse and University Hill.

The study shows existing bike lanes along East Genesee Street continuing along Route 92 towards Manlius. This includes a possible a cycle track from Jamesville Road to Lyndon Road and a new bike lane accompanied by “Bike Lane” signage along Route 92 to Manlius.

The study also suggests including a bike lane along Route 257 from Fayetteville (i.e., the same route subsequently suggested in the LEOP study). The envisioned bike lane extends to Fayette Street in Manlius. However, the study does not offer suggestions for specific bicycle facilities or routes further through the Village of Manlius.

2.3 Previous Traffic Assessments

In 2012, GTS consulting conducted two traffic assessments, one for a proposed mixed-use project (Manlius Square), and one that assessed road alternatives (inclusive of traffic anticipated to be generated by two mixed-use projects – Manlius Square and Madison Row). The alternatives assessment analyzed the same six signalized intersections (as in this study):

1. 92/257/Stickley Drive
2. 92/Elmbrook Drive/Arkie Albanese Avenue
3. 92/Pleasant
4. 92/173/Liberty Lane
5. 173/Washington Street (92)
6. 173/Flume Road/Tops Plaza

GTS Consulting Inc.

Traffic Impact Study – Manlius Square

In 2012, GTS Consulting completed a traffic impact Study (TIS) for the proposed Manlius Square project, a five-lot site on the northeast side of the 92/257/Stickley Drive intersection:

- Lot 1A - 2-unit townhouse
- Lot 1B - 2-unit townhouse
- Lot 1C - 17,050 SF retail
- Lot 2 - 11,500 SF pharmacy w/drive thru
- Lot 3 - 7,900 SF retail and 7 apartments

The assessment used traffic (turning movement) counts collected during the morning (7-9am) and evening (4-6pm) peak travel periods on Thursday, May 31, 2012, as well as during the Saturday (11am-1pm) peak travel period on June 2, 2012.

The TIS considered three development access scenarios to accommodate the additional traffic generated by the proposed development.

Scenario 1

Lane Reallocation Alternative

This alternative included three access driveways and altering travel lanes at the 92/257/Stickley Drive intersection to allow for Route 92 eastbound left-turn movements. The analysis found that all individual traffic movements operated at a LOS D or better. Some queuing may occur on Route 92 westbound between Route 257 and Elmbrook Drive during the morning peak hour.

Scenario 2
Lane Widening Alternative

This alternative included three access driveways with right-of-way acquisition to construct a new eastbound left-turn lane on Route 92 at the 257/Stickley Drive intersection as well as a left-turn lane on the Route 257 approach to Route 92. All individual movements had an LOS D or better during all three peak periods.

Scenario 3
Lane Widening w/proposed
right-in only driveway

The analysis built off scenario #2 by shifting the right-turn volumes from the proposed right-in only driveway to the main driveway opposite Stickley Drive. The results showed no notable change in operations from scenario #2 results.

TIS Conclusion

The additional traffic generated by the proposed Manlius Square development will have no significant adverse impacts on traffic operations within the study area. Based on the analysis completed, the scenarios are viable options to accommodate the necessary left turn movement on Route 92 at the main site driveway.

GTS Consulting Inc.
Corridor Alternatives Assessment

The 2012 Road Alternative Assessment utilized data from the Manlius Square traffic assessment (also completed by GTS Consulting), which included potential traffic generated from two mixed-use developments along Route 92: Madison Row on the west and Manlius Square

² As of 2012, the Madison Row project was approved, but not yet built. As of 2022, the Madison Row development was built. The first phase of the

on the east.² GTS assessed three different roadway alternatives, as described below.

Alternative 1:
Road Diet

Alternative 1 assumes that Route 92 is reduced to one lane in each direction with a center turn lane (between Stickley Drive and 173). The analysis found that Route 92 would experience significant delays, especially during the evening peak hour. High traffic volumes and short distances between signalized intersections would result in unacceptable delays under a road-diet scenario. As a result of this previous analysis, SMTTC chose not to further explore a road diet alternative as part of the current study.

Alternative 2:
Reroute 257 to Route 92 via Kelly Drive

Alternative 2 redirects Route 257 traffic to Route 92 via Kelly Drive at a new signalized intersection. The analysis found that the 92/Kelly Drive intersection would operate at a LOS of C or better. However, significant queueing and delays would occur at the eastbound through movement on Route 92 at Stickley Drive, causing this movement to “fail considerably during the evening peak hour” as traffic was projected to queue past Kelly Drive. GTS concluded that traffic volumes are too high along the corridor to mitigate the queuing issue.

Alternative #3:
Combine Alt 1 & 2

Alternative 3 explores modifying Route 257 to move northbound traffic away from the village

Manlius Square is approved and is anticipated to advance to construction.

at its current location and divert southbound traffic to a new signalized intersection with Route 92 to the west of Stickley Drive. This alternative also includes the following additional modifications:

- maintain four lanes road on Route 92. Two westbound lanes would terminate as one lane to Route 257 and one lane to Route 92
- maintain two eastbound through lanes on Route 92 at Stickley Drive
- modify the traffic signal at Stickley Drive to provide protected/permitted left turn movements in both directions on Route 92
- install a coordinated traffic signal at the new Route 92 intersection with Route 257 southbound (assumed to be at Kelly Drive)
- construct a 150-foot eastbound left turn lane at the new signal and provide one lane in each direction for remaining movements
- optimize the signal coordination plan during the three peak hours.

Under Alternative 3, operations at the 92/Stickley Drive intersection improved to LOS B or better, and through movements along 92 at intersections within the village operated at LOS A during all three peak periods. The new intersection at 92/Kelly Drive would operate at LOS C or better. There were no queuing concerns at any of the study area intersections.

Conclusion
Corridor Alternatives Assessment

GTS concluded that: *“... a reduction in the number of travel lanes on Route 92 is not feasible given current traffic volume levels.”* The assessment, however, does offer an alternative to address deficiencies at the 92/257/Stickley Drive intersection and improve commuter movements. This alternative involves the partial relocation of 257 to make

capacity available at the Stickley Drive intersection.

2.4 Current Development Proposals

Proposed Manlius Square Project

As previously indicated, GTS conducted a traffic study in 2012 for the proposed Manlius Square development project. Since 2012, the proposed project has gone through several design iterations (in 2005, 2008, 2012, 2015, 2017, and 2018) and has yet to be developed.

On August 9, 2021, the County Planning Board received site plans for an updated proposal to develop 332 and 402-406 Fayette Street (Route 92). SOCPA provided SMTC with a copy of the plan that identify the following uses to be developed:

- Lot 1 (1.43 acres) – Phase 1
 - Coffee shop (1,963 SF) with drive thru (stack 11 vehicles)
 - 25 parking spaces
- Lot 2 (0.82 acres) – Phase 1
 - Urgent care (3,555 SF)
 - 86 parking spaces
- Lot 3 (1.42 acres) – Phase 2
 - 3-story mixed-use (12,643 SF)
 - first floor office/retail
 - 2nd/3rd floor multi-family (20 units)
- Lot 4 (0.710 acres) – Phase 3
 - 2-story multi-family structure
 - 9 parking spaces
 - driveway onto Eureka Drive.

The proposal shows a full access driveway with dual exit lanes at the signalized intersection to serve Lots 1, 2, and 3. The proposal also shows a right-out driveway onto Route 257 on Lot 1 to allow for exit from the drive-thru. Both driveways would be completed as part of Phase 1. Vehicle connections are not shown between Lots 1, 2, and 3 and Lot 4.

The proposal shows a sidewalk along Route 92 and multiple sidewalks are shown throughout the site. An easement is shown for a future path connection between Eureka Drive and Lot 3, which fronts Route 92. Lot 4 will have a sidewalk connection to Eureka Drive.

The Onondaga County Planning Board offered the following comments to the Village of Manlius for consideration:

- consider removal of the drive thru
- install a sidewalk along Eureka Drive
- add cross-access agreements or an easement to the Village to foster interconnection of rear parking areas as the area develops.

Proposed Solar Farm Site Plan (CVE Manlius)

In 2021, the County Planning Board received site plans for a 15-Megawatt (MW) ground-mounted solar energy system at 8119 East Seneca Turnpike (Route 173). The parcel is in the Town of Manlius (between the Village and the Fayetteville-Manlius High School). The 240.8-acre parcel is zoned Agricultural (RA) and will be divided into four lots:

- Lot 1 (1.2 acres)
 - Existing 107-foot telecommunications monopole (Access via Lot 2)
- Lot 2 (68.3 acres)
 - Driveway on Route 173
 - To provide access to proposed solar energy system and existing telecommunications facility
- Lot 3 (132.5 acres)
 - Frontage along Route 173 & Duguid Rd
- Lot 4: 38.8 acres
 - Proposed driveway along Duguid Road

The 35,256-panel solar array field is to cover a total of 89.2 acres on Lots 2, 3, and 4. The

parcel’s primary use is currently agricultural fields, of which 66.5 acres will be removed. Anticipated traffic volume from the solar farm is 2 vehicles per month (electrician/landscaper).

2.5 Summary of Plans, Studies, and Proposals

Existing plans and recent investments emphasize the community’s desire for a walkable business district. These documents identify several ideas and recommendations that require further consideration and study.

Previous planning efforts also support improving bicycle facilities to and throughout the village. However, these documents fall short of identifying specific facility types and locations due to high traffic volumes and a confusing local road network.

Previous traffic studies (conducted by GTS Consulting Inc. in 2012) concluded that it is not feasible to reduce traffic lanes on Route 92 due to the high traffic volumes and the lack of a viable by-pass. Findings from these studies showed that there was no need to assess a ‘road diet’ as part of this study (i.e., it was not necessary for SMTC to conduct a capacity assessment).

Therefore, SMTC did not include a capacity assessment in the scope for this study. However, as this study progressed, NYSDOT and the community expressed interest in considering other lane and intersection configurations. In the spring of 2022, SMTC added a capacity assessment task to analyze several [new] scenarios. Results from SMTC’s assessment informed and influenced NYSDOT’s design for a milling and paving project along Route 92 and Route 173. NYSDOT completed final design in August 2022 and expects to advance to construction in 2023.

3 Demographics, Land Use & Zoning

3.1 Demographics

Staff reviewed the U.S. Census Bureau 2014-2018 American Community Survey (ACS) 5-year Estimate and the 2010 Decennial Census data for four Census tracts shown in Figure 4. Tracts 151, 152.01, 152.02, and 152.03 represent a “catchment area” based on a reasonable walking distance from the study corridors.³

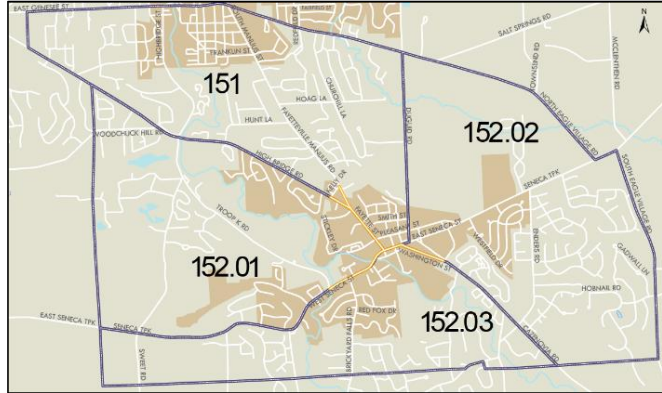


Figure 4: U.S. Census Tract Reference Map

Population and Population Density

Figure 5 shows the population density in persons per square mile. The area’s density is consistent with traditional suburban development patterns. Pockets of denser

development exist in the center of the village, found to the northeast of the Fayette Street/ East Seneca Street intersection. Once outside the village boundary the area becomes much more rural and sparsely populated.

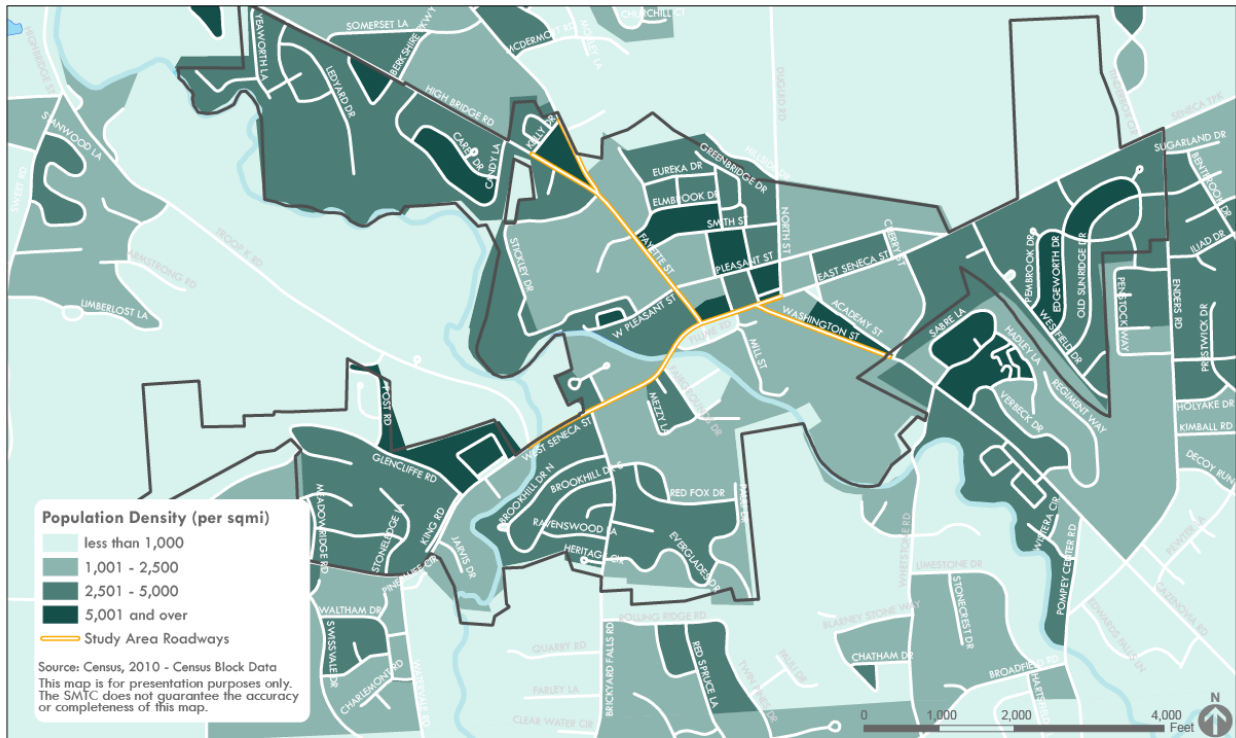


Figure 5: Population Density in the Village of Manlius

³ ACS datasets may have higher-than-expected margins of error at the tract level, especially in low-population tracts. 2020 Census data was released

towards the end of the study timeline and is not included in this analysis.

Age

Median age is consistent with other local suburban communities, with ages ranging from 43 years old to 47 years old. Figure 6 shows the breakdown of the population by age groups, with the study area compared to the MPA. The study area has a higher percentage of residents over the age of 45 than the MPA overall, and fewer younger adults (18-44 years).

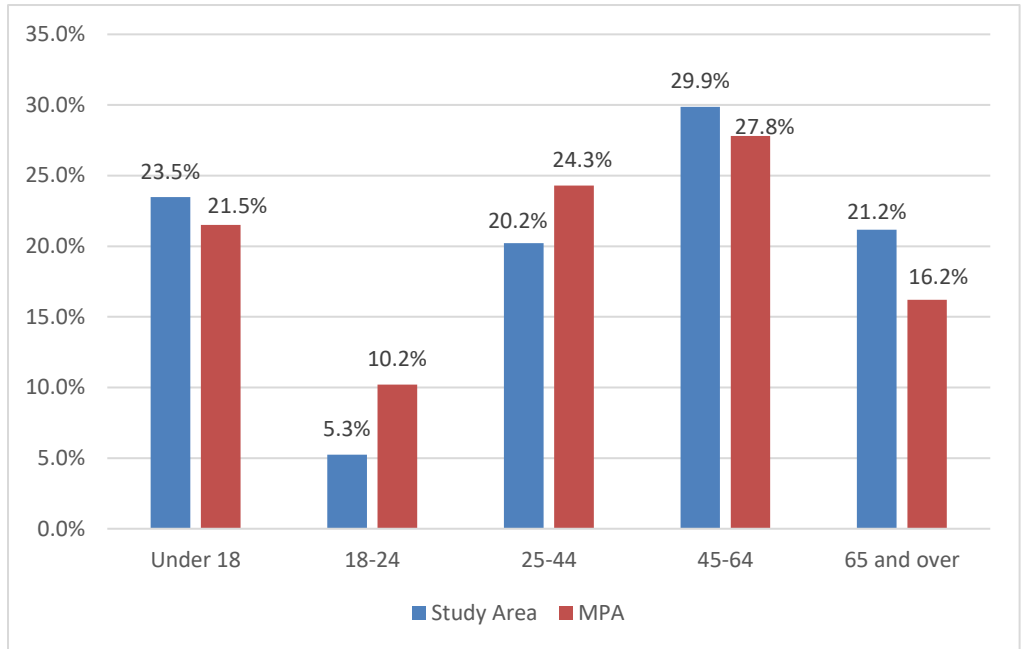


Figure 6: Percent of Population by Age Group

Income Levels and Poverty

All census tracts within the Village of Manlius have median household incomes that exceed that of Onondaga County, which stands at approximately \$59,000. As shown in Figure 7, median household income in the ranges from \$73,800 to \$117,200, which is nearly double the county’s median income.

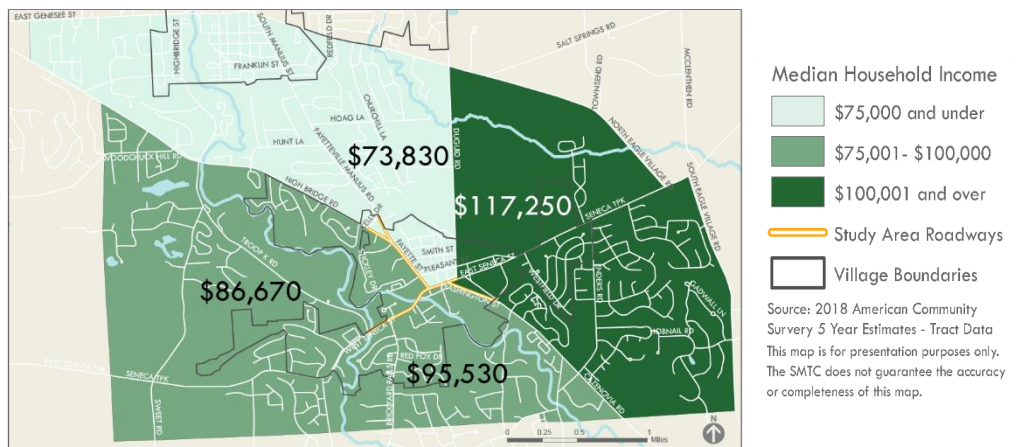


Figure 7: Median Household Income

Poverty Rate

As shown in Figure 8, the poverty rate ranges from around 2 percent to 6 percent. This is well below the overall MPA rate of 14.5 percent, and below the overall rate of 8 percent for the MPA outside of the City of Syracuse.

Unemployment Rate

The Village had a lower unemployment rate (less than 3 percent) compared to the MPA, at 6 percent, and suburban communities (excluding the City of Syracuse), at 4.5 percent (Figure 9). This rate does not reflect conditions during the Covid-19 pandemic, but instead should be considered closer to the baseline the community expects to return to as conditions improve.

No Car/ "Car-Light" Households

Suburban mobility often requires access to a private vehicle when trips require you to leave the Village center. Figure 10 displays the percent of households that do not own a car or are considered "car-light," meaning the household has fewer vehicles than workers. The SMTC's MPA overall had

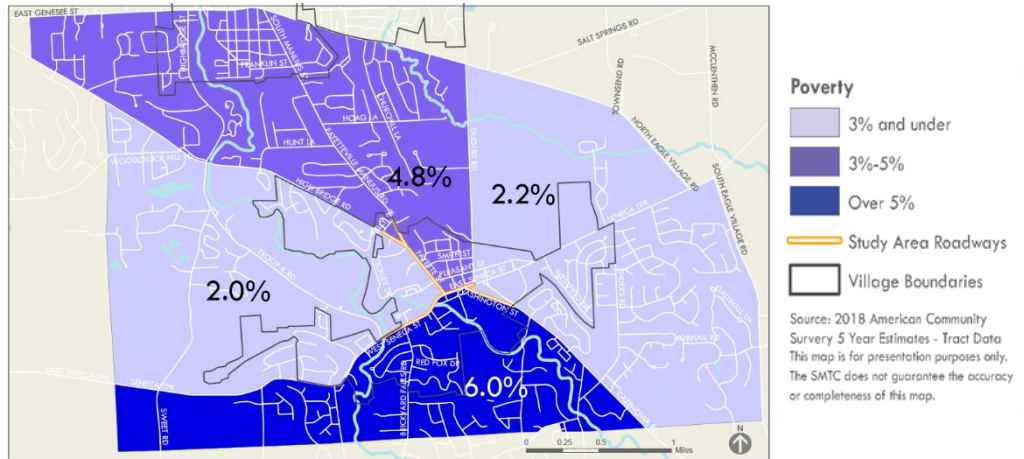


Figure 8: Poverty Rate

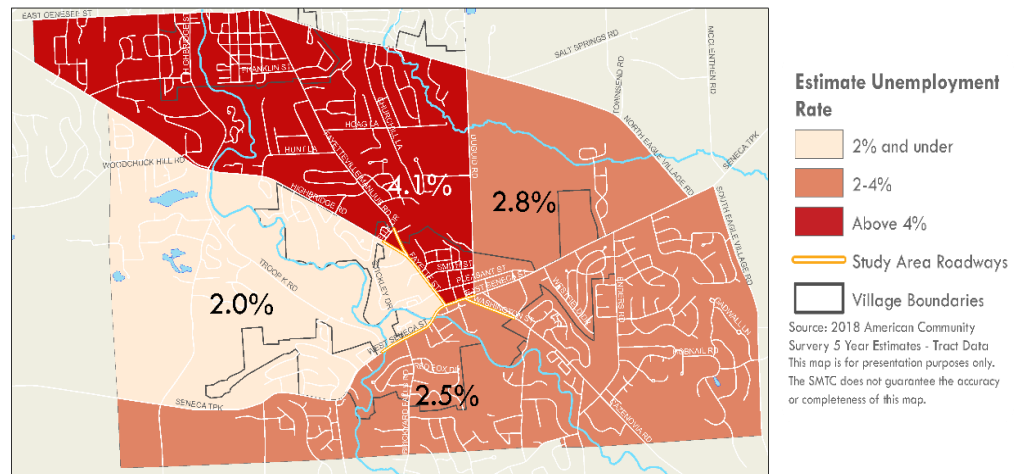


Figure 9: Unemployment Rate

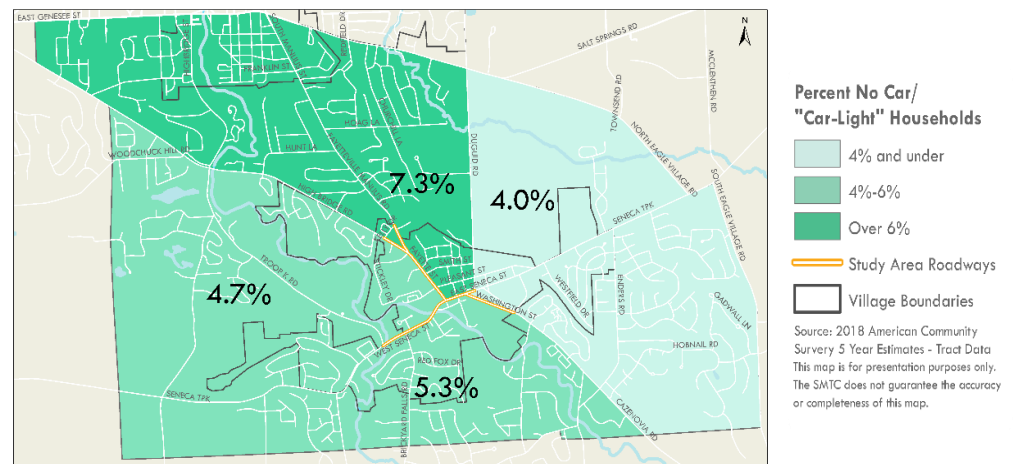


Figure 10: "Car-Light" Households

a zero-vehicle and “car-light” households combined rate of around 17 percent, which drops to around 10 percent when excluding the City of Syracuse. The Village is well below both rates, with about 4 to 7 percent of households having no vehicle or considered car light.

Limited English Proficiency, Languages spoken at home, and Environmental Justice

The SMTC regularly reviews American Community Survey data for Limited English Proficient (LEP) population in our MPA. This section summarizes pertinent demographic data pertaining to the SMTC’s Limited English Proficiency Plan (as part of SMTC’s 2015 Title VI & LEP Plan). Census tract 152.01 (see Figure 4) has a LEP population between four and ten

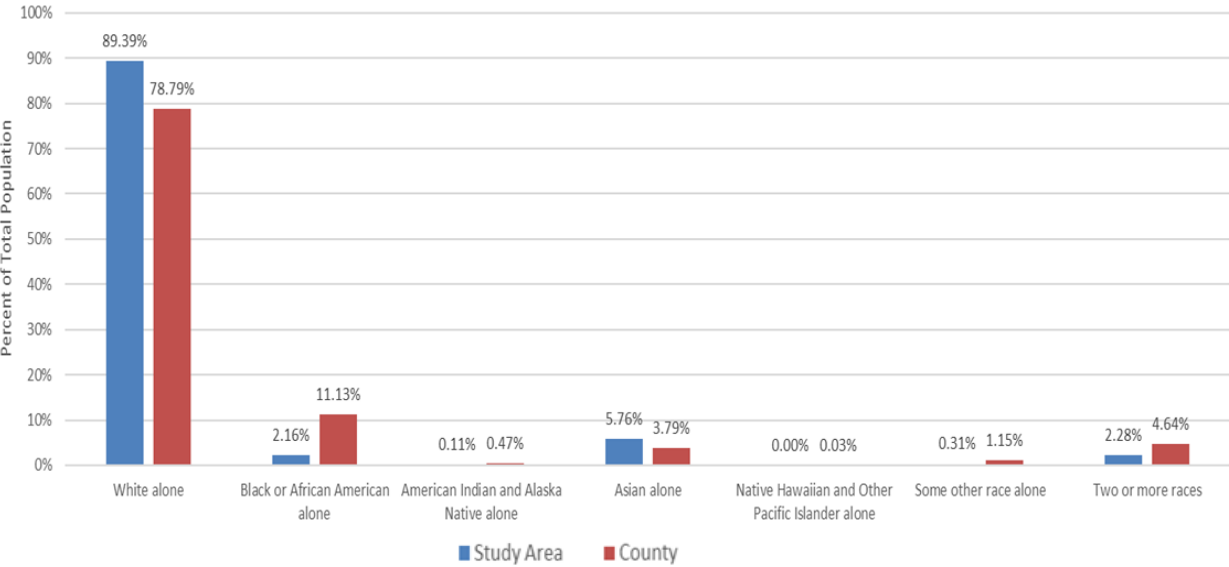
language other than English and speaks English less than “very well” is 4.6%, which is higher than the MPA-wide average of 3.5%. However, none of the tracts within the study area meet the definition of a “safe harbor” for a language other than English.⁴

Race

As shown in Figure 11, the study area’s population is less racially and ethnically diverse than both the City of Syracuse and Onondaga County.

The SMTC’s most recent Environmental Justice Report (2018) does not identify any of the Census tracts in this study area as an environmental justice target area.

Figure 11: Race (Study Area vs Onondaga County)



percent. This area is deemed to have a “concentrated” LEP population because the percentage of the population that speaks a

Overall, the study area has a higher proportion of white residents and Asian residents (89% and 6%, respectively) compared to all of Onondaga

⁴ A tract is known as a “Safe Harbor” if LEP speakers of a certain language* consist of at least 5% of the overall tract population, using ACS data. (*Haitian, Italian, Sicilian, Portuguese, Greek, Armenian, Persian, Gujarati, Hindi, Urdu, Punjabi, Bengali,

Nepali, Marathi, other Indic languages, Albanian, Lithuanian, Pashto (Pushto), Romanian, Swedish, Telugu, Tamil, Malayalam, Kannada, other Dravidian languages.)

County (80% and 4%, respectively), and lower proportions of Black or African American residents (2%, compared to 11%). This is on par with other suburban villages such as Baldwinsville and Fayetteville.

Transit, Bike, and Walking Commuters

Figure 12 shows the percent of residents who walk, bike, or take the bus to work.

Commercial use continues down Fayette Street with park land and public service developments on the western side of the corridor, around the Village library, court, and police department.

East Seneca Street is mostly commercial, with residential use east of Washington Street. West Seneca Street also consists of commercial uses, before switching to residential uses between Fairgrounds Drive and Brickyard Falls Road. A

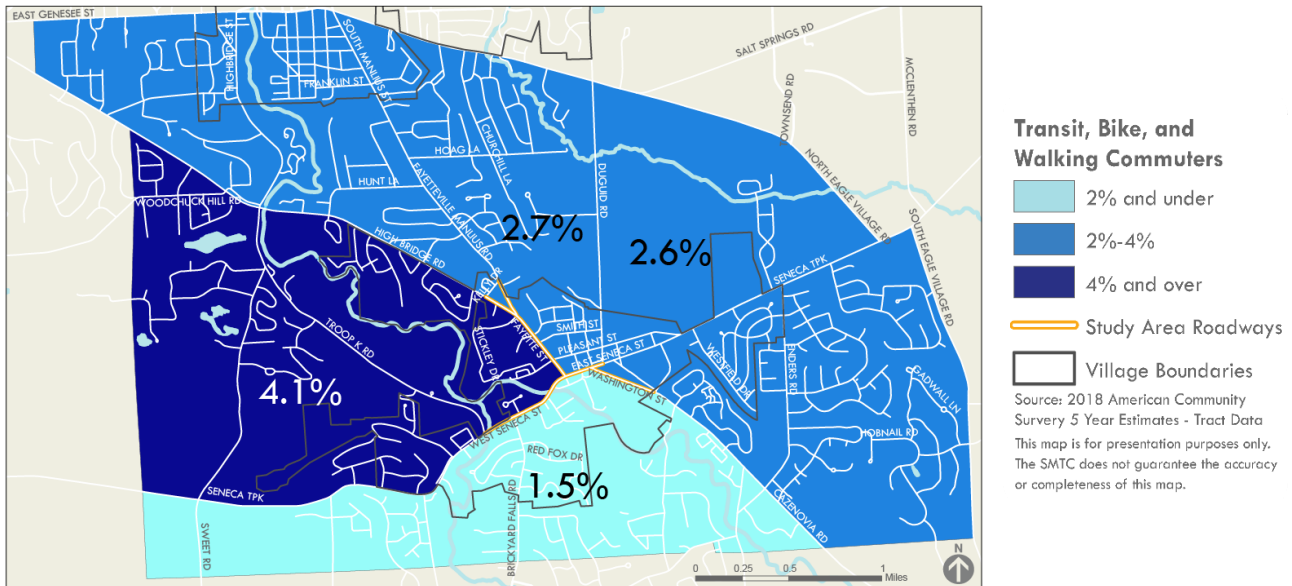


Figure 12: Transit, Bike, and Walking Commuters

Although low, the share of commuters using an alternative mode of transportation is line with the MPA average of 2.4 percent (when excluding the City of Syracuse).

3.2 Land use

At the northern end of the study area, residential land uses occupy both sides of High Bridge Road and Fayetteville-Manlius Road, before transitioning to commercial use at their intersection with Stickley Drive (see Figure 13).

small commercial node exists between Brickyard Falls Road and Troop K Road.

Washington Street is solely residential in land use, save for St. Ann’s Church, whose parking lot abuts the street. Roadways outside of the main corridors in the Village are primarily residential in character and use with some small areas of industrial uses, most significantly around the Stickley furniture building.

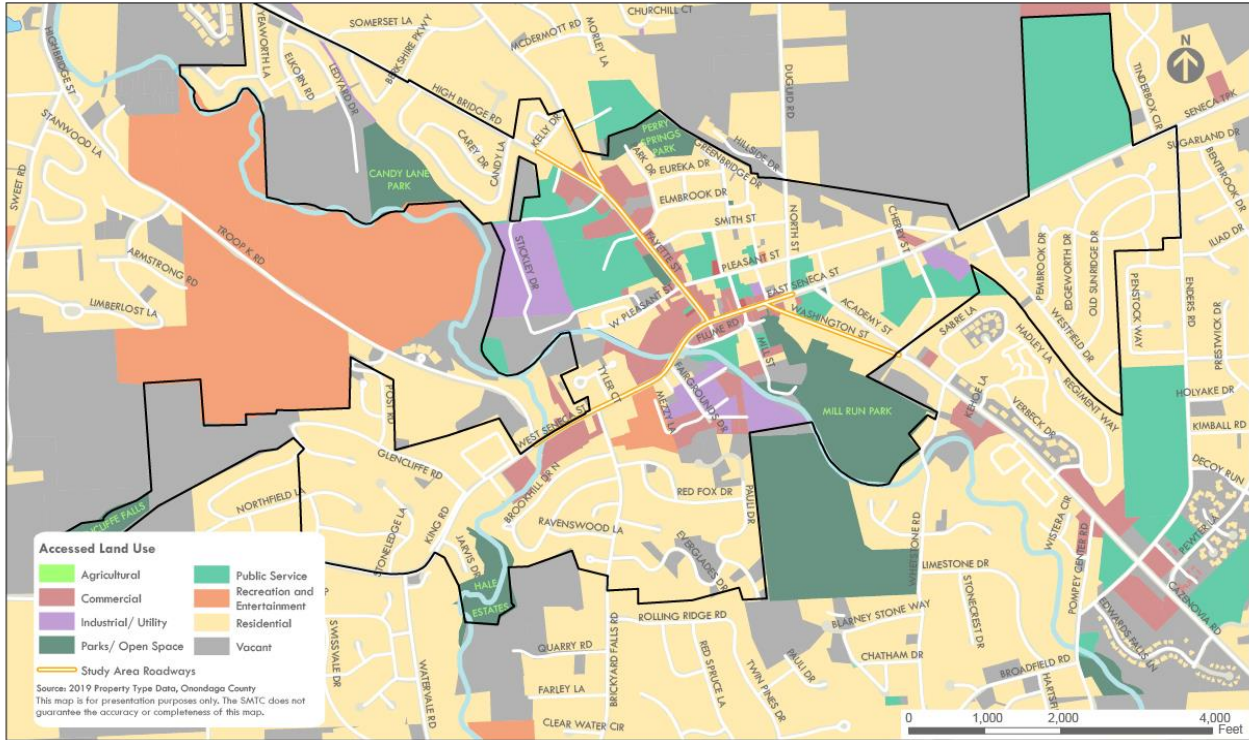


Figure 13: Land Use

3.3 Zoning Regulations

Zoning districts include commercial, residential, and industrial zoning. Route 173 and Route 92 primarily consist of commercial districts.

As shown in Figure 14, Manlius’s village center is characterized by Commercial District C and C-1, which require little to no setback and include businesses such as retail stores, banks, and restaurants, as well as uses permitted in any residential districts, except dwellings. This includes public educational institutions, churches, and parks.

To the north and east of the village center, the area is regulated as R-1 and R-2 zones, which primarily correspond to one-family and two-family residential buildings. To the south and west along Route 173 as the area is a mixture of Industrial (IND), Residential Multi-Use (R-M), Commercial (C and C1), as well as Residential

(R1 and R2). Parking requirements for some permitted uses are shown in Table 1.

Table 1: Minimum Parking Requirements

Use Category	Manlius Village Code Minimums
<i>Multiple Dwellings</i>	2 ¼ per dwelling unit
<i>One- and Two-Family Dwelling Units & Townhouses</i>	2 per dwelling unit
<i>Retail Businesses</i>	1 per 150 sq ft
<i>Restaurants</i>	1 per 3 seats
<i>Offices or Office Buildings</i>	1 per 150 sq ft

3.4 Conclusions - Demographic, Land Use & Zoning Regulations

The U.S. Census divides the Village of Manlius into four Census Tracts that overlap with portions of land from the surrounding suburban communities in the Town of Manlius. In general, there are a greater number of children up to 18 years old and people 44 years old and older in this area than the county.

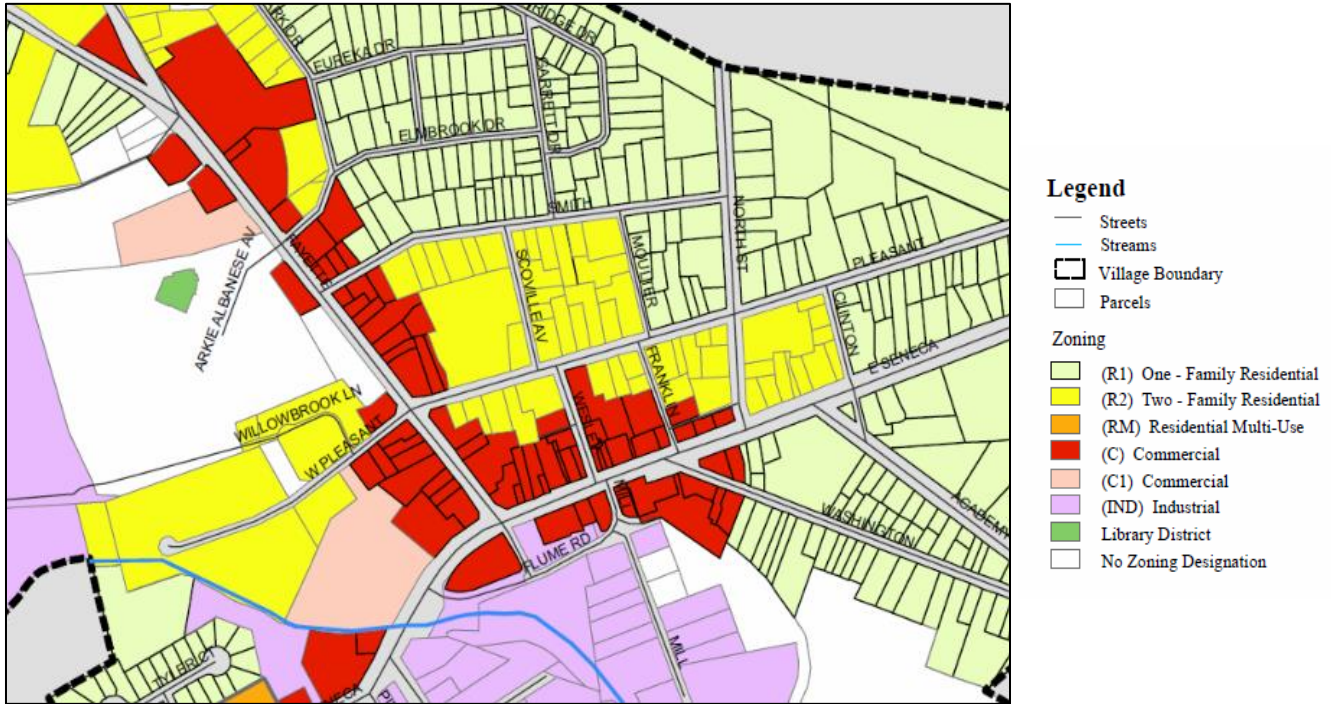


Figure 14 – Zoning Map

The area also has relatively low unemployment rates, low racial diversity, higher than average household income, and higher than average rates of households with access to a private vehicle. The percentage of commuters using an alternative mode of transportation is low within the Village, although in line with the MPA average when excluding the City of Syracuse.

Land use patterns reflect the corresponding zoning regulations with commercial properties along the two “main streets” of the Village, Route 92, and Route 173. There appear to be opportunities to better align land use and parking regulations with the Village’s comprehensive plan and the goals and objectives expressed as part of this study.

4 Issues Identification

Throughout the study, SMTC collected feedback from the SAC and the community about issues of concern. SMTC conducted SAC meetings, administered a questionnaire for village business owners, conducted two virtual engagement meetings with business owners, and summarized community feedback received from NYSDOT’s open house for its mill and pave project.

4.1 SAC Feedback

The SMTC met with the SAC to identify concerns. Participants identified several issues along Route 92 and Route 173 that discourage bicycle and pedestrian use in the central business district:

- Traffic volume
 - Too high for a “walkable/bikeable village center”
 - Commuter traffic with origins and destinations outside of the village
 - Long side street delays at expense of through street traffic
- Lacks bicycle and some pedestrian facilities
 - Incomplete sidewalk network
 - No bike lanes
 - Insufficient time for pedestrians to cross at signals (especially elderly)
- Speeding
- Four travel lanes
 - Cars jockey between lanes to beat lights
 - Left turns across two on-coming lanes
 - No space for parking, bicycle lanes
 - Long crossing distance for pedestrians
 - RRFB – traffic doesn’t stop at every lane
- Left turn issues
 - Vehicles that try to turn left often back up traffic as they wait for a gap in traffic
 - Illegal lefts in and out of “pork chop” driveways (i.e., should function as right-in, right-out only)
- Parking (lack of)
 - on-street parking options
 - municipal parking options
 - on-street space for deliveries/pick-ups
 - wayfinding/signs to lots
 - shared private parking lots
 - dedicated parking lane on 173
- Vehicles travel wrong way on Liberty Lane, and the one-way block of Pleasant Street
- Noise (e.g., motorcycles, truck breaks, etc.)
- Lots of driveways and curb cuts along Route 92 and Route 173.

4.2 Business Owner Outreach

In May 2021, SMTC created a questionnaire for local business owners. About 150 questionnaires were hand-delivered to local businesses by Village representatives. SMTC summarized responses and hosted two virtual meetings (June 2 and June 3, 2021). Takeaways from the questionnaire and meetings include:

- Support for street furniture and sidewalks
- Not clear where on- and off-street parking is allowed
- Difficult for pedestrians and bicyclists to cross the street; and for bicyclists to travel along the main streets
- Traffic blocks access to business driveways
- Dangerous driving behaviors (e.g., sudden lane changes, speeding to beat lights, etc.)

The meetings also generated ideas and suggestions for how to address the issues:

- Slow traffic
- Reconfigure travel lanes
- Improve pedestrian crossings
- Consolidate curb cuts
- Combine parking lots as municipal lots.

4.3 NYSDOT ‘Open House’ summary

Throughout the study process, NYSDOT coordinated with SMTC about issues. Late in the study process, an opportunity presented itself for SMTC to help inform NYSDOT’s design process for a pavement project (Route 173 and Route 92). Since SMTC was conducting a study concurrently, NYSDOT sought to inform the design of their maintenance (MBC) project to maximize community benefits. In response, SMTC added several tasks – including a traffic operations analysis – which expanded this study’s scope of work.

In the spring of 2022, SMTC completed the traffic analysis for three road modification alternatives – see Chapter 8. At NYSDOT’s request, SMTC provided a draft list of issues to consider (as well as other information⁵), which included:

- Inconsistent crosswalks & curb ramps
- Lack of bicycle facilities and amenities
- Missing street trees and lighting
- Illegal left turns (into and out of “pork chop” driveways)
- Numerous curb cuts
- Multiple driveways to single lot
- Lack of on-street parking
- Dual-purpose parking & travel lane (Route 173) confusing – should it be one or the other? (i.e., a travel lane or a dedicated parking lane?)
- East Seneca Street is four lanes wide. Often, when a pedestrian activates the existing Rectangular Rapid Flashing Beacon (RRFB) and enters the crosswalk, drivers in the outermost lane stop for the pedestrian,

but drivers in the innermost lane usually does not stop (i.e., may not see the pedestrian or notice the flashing lights). Likewise, once the pedestrian is in the center of the road, drivers in the innermost lane tend to stop while drivers in the outermost lane do not stop. Often, drivers who do not see the pedestrian or the flashing lights are confused when drivers in the adjacent lane stop mid-block.

- Lack of RRFBs throughout the village
- Insufficient number of loading zone(s) for delivery trucks and parcel pick-ups
- Need to assess other lane modification and road closure alternatives
- Lack of signs to municipal parking lots
- Speeding
- Insufficient pedestrian crossing time – especially for elderly pedestrians.

On July 27, 2022, NYSDOT hosted an open house to review their paving project (MBC, NY Routes 92 & 173 Town & Village of Manlius). NYSDOT collected additional public comments. SMTC attended the open house and NYSDOT provided SMTC a copy of all comments. Comments from the open house generally fell into three categories: parking, biking, and pedestrian safety.

- Several participants expressed concerns about the dual-purpose parking and travel lane along the north side of the 92/173 overlap. (Currently, the northern lane serves as a parking lane for much of the day, with parking prohibited only between 6:00 a.m. and 9:00 a.m.) Participants indicated that the parking results in unsafe lane changes and impedes westbound

⁵ In addition to the list of preliminary issues, SMTC also provided NYSDOT a summary of traffic operation analysis findings, a public comment

summary (collected as of March 2022), a crash summary, and an initial list of ideas to consider as part of the design process for the paving project.

traffic flow. One comment favored lane closure in exchange for a dedicated on-street parking lane.

- Bicycle-related comments included concerns with high traffic volumes, storm drains (not flush with pavement), bicyclists being “doored” and riding on sidewalks.
- One comment suggested that bike infrastructure should be added around, not through, the village center.
- NYSDOT also received comments about pedestrian safety. One comment noted that vehicles sometimes travel west along Pleasant Street where it is signed as one-way eastbound, which poses safety risks. Several comments support a road-diet along Route 92. People also voiced support for wayfinding signage improvements to direct drivers to parking lots.

NYSDOT’s coordination with SMTC and the public resulted in several enhancements to its design that included elements beyond a typical MBC replacement-in-kind project.

4.4 Issues Conclusion

SMTC’s assessment confirmed that traffic volumes are too high to reduce Route 92 from two westbound lanes to one westbound lane. In 2012, the *GTS Corridor Alternatives Assessment* confirmed similar findings for a ‘road diet’. SMTC’s assessment also confirmed that routes 92 & 173 can accommodate the following alterations:

- add a dedicated (westbound) on-street parking lane along Route 173 between the RRFB and Washington Street
- close Liberty Lane
- consolidate and/or narrow several driveways (SMTC provided list to NYSDOT).

In August 2022, NYSDOT provided SMTC with final design plans that incorporated SMTC’s findings and design elements.

5 Inventory of Road, Bicycle, Bus, and Pedestrian Facilities

5.1 Roadway Features

Route 92 (Fayette Street)

Route 92 consists of two travel lanes in each direction. Fayetteville-Manlius Road (Route 257) consists of one travel lane in each direction. Route 92 and Route 257 maintain a posted 30-mph speed limit.

The northwest approach of Route 92 at the Stickley Drive/Route 257 has one left-turn lane to Stickley Drive, one single-travel lane to Route 92, and one lane that directs to either Route 92 or Fayetteville-Manlius Road. Heading southeast from the intersection, Route 92 narrows to four lanes to Pleasant Street. The inner lanes allow through/left turn movements.

In general, Route 92 is approximately 49 feet wide in the central business district. Sidewalks are typically five feet wide and crosswalks eight feet wide in this area. A single parking lane exists next to the Manlius Swan Pond (on that side only). The right lane approach at the Route 92/Route 173 intersection allows traffic to turn east, west, or south. The left lane is a left-turn only lane that heads southeast on Route 173.

Route 173 (East & West Seneca Streets)

The speed limit along Route 173 reduces from 35 mph to 30 mph east of Troop K Road. Route 173 is two lanes wide on both approaches into the Village (i.e., west of Pine Street and east of Washington Street). Route 173 widens to four lanes through the village center. Dedicated left turn lanes exist at Fairgrounds Drive, Flume Road, Tops Plaza, and at Fayette Street (Route

92). The eastbound approach at Tops and at Route 92/Liberty Lane maintain two through lanes in addition to the left turn lanes.

Left turns are prohibited onto Liberty Lane at the intersection with Route 92/Liberty Lane. The intersection's westbound approach restricts movements to one through lane and a right-turn only lane turns onto Route 92. Left turns are also prohibited onto Washington Street (Route 92).

The Route 173/Washington/Franklin Street intersection is skewed. The westbound approach is a single lane that allows through and right-turn movements only. The eastbound approach includes one through/left turn lane as well as a right-turn (slip) lane. The northbound approach includes a single lane that splits into through/left lane and a right-turn (slip) lane.

In general, Route 173 is approximately 50 feet wide. The sidewalks are approximately five feet wide and crosswalks eight feet wide. The sidewalk along a northside of the Route 173/Route 92 overlap is around 19 feet wide.

A single westbound dual-purpose lane exists along the Route 92/Route 173 overlap. The dual-purpose lane allows on-street parking for all day, except from 6:00 a.m. to 9:00 a.m.

5.2 Highway Designations

An individual roadway can carry a variety of designations, such as ownership, functional classification, and route numbers. These designations determine design criteria, funding availability, and the process for undertaking capital or maintenance projects on the road. Each of these designations is described below and summarized in Table 2.

Table 2: Highway designation for Federal Aid-Eligible road within/adjacent to study area

Highway Name	Segment	Route / Touring Number	Owner	Functional Classification	Bike Route	National Highway System (NHS)?
Cazenovia Road	SE of Academy St / Washington St intersection	92	NYSDOT	Principal Arterial - Other	N/A	Yes
East Seneca Street	Fayette St to Westfield Dr.	92/173	NYSDOT	Principal Arterial - Other	N/A	Yes
East Seneca Turnpike	E of Westfield Dr / E Seneca St intersection	173	NYSDOT	Major Collector	N/A	No
Fayette Street	Fayetteville Manlius Rd to E Seneca St	92	NYSDOT	Principal Arterial - Other	N/A	Yes
Fayetteville Manlius Road	N of Fayette Street	257	NYSDOT	Minor Arterial	N/A	No
Highbridge Road	NW of Fayette Street	92	NYSDOT	Principal Arterial - Other	N/A	Yes
Troop K Road	Highbridge to W Seneca St		OCDOT	Major Collector	N/A	No
Washington Street	E Seneca St to Cazenovia Rd	92	NYSDOT	Principal Arterial - Other	N/A	Yes
West Seneca Street	E of Fayette St	173	NYSDOT	Minor Arterial	N/A	No

Functional Classification

Functional classification is the process by which roads are categorized according to the type of service they are meant to provide. According to the Federal Highway Administration (FHWA):

[Principal Arterials] serve major centers of metropolitan areas, provide a high degree of mobility, and can also provide mobility through rural areas. Unlike their access-controlled counterparts, abutting land uses can be served directly. Forms of access for Other Principal Arterial roadways include driveways to specific parcels and at-grade intersections with other roadways.

Minor Arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher Arterial counterparts and offer connectivity to the higher Arterial system. They interconnect and augment the higher Arterial system, provide

*intra-community continuity, and may carry local bus routes, and typically do not penetrate identifiable neighborhoods.*⁶

Functional classification is directly related to federal aid-eligibility, which determines if a road can receive federal transportation funding. Federal-aid eligible status is given to those roads that provide critical connections within or between communities.⁷

As shown in Figure 15, Route 92 is functionally classified as a principal arterial from Highbridge Road down Fayette Street to East Seneca Street to Washington Street out of the village.

Route 257 and Route 173 (West Seneca Street) are classified as minor arterials. Routes 92, 173, and 257 are owned by NYSDOT. Troop K Road is owned by Onondaga County, while the remaining streets are locally owned, as shown in Figure 16.

⁶ FHWA, Highway Functional Classification Concepts, Criteria, and Procedures, 2013 Edition, p. 15-16.

⁷ Syracuse Metropolitan Transportation Council *Transportation Atlas*, June 2015, p. 41.

MANLIUS VILLAGE CENTER TRANSPORTATION STUDY



Figure 15: Functional Classification

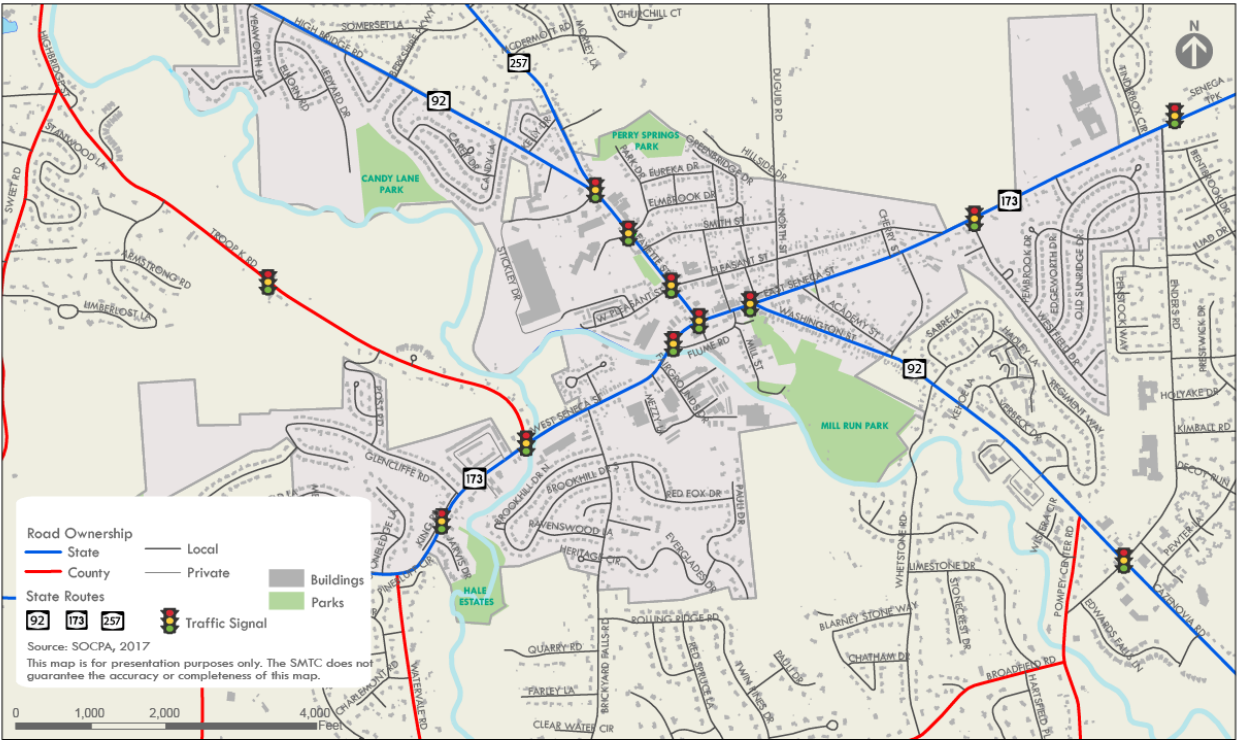


Figure 16: Road Ownership

National Highway System

According to the Federal Register, 23 USC § 101(a)(16), the term “National Highway System” (NHS) means the Federal-aid highway system as described in section 103(b). The NHS “consists of the highway routes and connections to transportation facilities that shall serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel and commerce.”

Roads on the NHS are prioritized for receipt of federal transportation funding. Route 92 (including the overlap with Route 173) is part of the NHS; however, most of the remainder of the study area is not part of the NHS.

Touring Routes and Designated Bike Routes

Signed State highways in New York, referred to as “touring routes” by the NYSDOT, are numbered from 1 to 899. NYSDOT also designates and signs bicycle routes. No State-designated bicycle routes or bicycle facilities exist within the study area.

5.3 Transit facilities

The Village is served by Centro bus line 62, specifically Routes 162, 262, 262x, and 462. These routes follow 257 into the Village, down 92, and turn (right) onto 173 to Limestone Commons. The routes connect Fayetteville, Dewitt, and Syracuse. The Tops Shopper, Sy 92, also serves the Village on Fridays, bringing residents to the Tops grocery store in the Towne Center plaza in Fayetteville. The route only runs from 9:15am to 12:35 pm.

As shown in Figure 17, bus stops are present at nearly every intersection along Fayette Street and Seneca Street. One bus shelter exists in the study area, located on the southeast corner of Fayette Street and Pleasant Street.

5.4 Pedestrian facilities

SMTC staff inventoried existing pedestrian facilities within the study area in summer 2020. Many streets within the study area have sidewalks on both sides, with the few exceptions being the far western edge of West Seneca Street past Brickyard Falls Road, and the northern blocks of High Bridge Road and Fayetteville-Manlius Road.

The presence of crosswalks, pedestrian signals/buttons, pedestrian countdown timers, curb ramps and detectable warnings on curb ramps was also recorded (the conditions of these facilities were not documented). Figure 17 documents the presence of pedestrian amenities. Table 3 identifies intersection/crossing amenities and indicates how each intersection is controlled, whether by signal, one-way or two-way stop, yield sign, or by some other means.

Only three crossings have pedestrian amenities at each approach (West Seneca Street/ Fayette Street/ Liberty Lane / East Seneca Street; Fayette Street / Pleasant Street; Fayette Street / Elmbrook Drive / Arkie Albanese Avenue). Two midblock crossings (along East Seneca Street, and along Washington Street) utilize caution and yield signs to increase the visibility of pedestrians crossing in the area. The mid-block crossing along East Seneca Street also is served by a push button-activated rectangular rapid flashing beacon (RRFB).



Figure 17: Pedestrian and Transit Facilities

Table 3: Traffic control and pedestrian amenities at study area intersections

Intersections	Control	Crosswalks	Ped. signals/ Buttons	Countdown timers	Curb Ramps	Detectable warnings
W Seneca St./Troop K Rd.	signal	-	-	-	-	-
W Seneca St./Brickyard Falls Rd.	stop	-	n/a	n/a	o	o
W Seneca St./Tyler Ct.	stop	-	n/a	n/a	o	o
W Seneca St./ Mezzy Ln.	stop	sidewalk	n/a	n/a	-	-
W Seneca St./Pine St.	stop	o	n/a	n/a	o	o
W Seneca St./Fairgrounds Dr.	stop	o	n/a	n/a	o	o
W Seneca St./Flume Rd.	signal	o	●	●	●	●
W Seneca St./Fayette St./Liberty Ln./ E. Seneca St.	signal	●	●	●	●	●
E Seneca St – midblock crossing	RRFB*	●	-	-	●	●
E Seneca St./Wesley St. (one way)	stop	o	n/a	n/a	o	o
E Seneca St./Mill St.	stop	-	n/a	n/a	o	o
E Seneca St./Washington St./ Franklin St. (one way)	signal	o	o	o	o	o
E Seneca St./North St.	stop	o	n/a	n/a	o	o
Washington St./Academy St./Military Dr.	stop	-	n/a	n/a	-	-
Washington St. – midblock crossing	Caution sign	●	-	-	●	-
Highbridge Rd./Kelly Dr.	stop	-	n/a	n/a	-	-
Fayetteville-Manlius Rd./ Kelly Dr.	stop	-	n/a	n/a	-	-
Fayette St./ Highbridge Rd. /Stickley Dr.	signal	o	o	o	o	-
Fayette St./Arkie Albanese Ave. /Elmbrook Dr.	signal	●	●	●	●	●
Fayette St./Smith St.	stop	o	n/a	n/a	o	o
Fayette St./Pleasant St.	signal	●	●	●	●	●

Legend: ● Present on all approaches ○ Present on some approaches - Not present
 *RRFB = Rectangular Rapid Flashing Beacon

5.5 Bicycle facilities

There is no existing bicycle infrastructure within the study area. Nature trails exist within Mill Run Park but are not connected to the road network. Bike racks were identified at two locations within the Village: the Manlius Library and the CVS Pharmacy at the corner of Fayette Street and Elmbrook Drive.

Intersections at Kelly Drive in the northern reaches of the Village and at Troop K Road do not have any pedestrian amenities. All other intersections have pedestrian amenities with some missing and/or inadequate facilities.

5.6 Parking Facilities

On-street parking within the Village is highly restricted along the major corridors. Free parking is available on several side streets as well as portions of East Seneca Street along the

northern curb outside of rush hour (designated as 6:00 a.m. to 9:00 a.m.). No street parking is allowed from 1am to 7am during the winter months (November 1 to April 15).

On-Street Parking

As shown on Figure 18, parking is allowed in the following locations (except for street corners) and is free (i.e., not metered):

- west side of 92 along Manlius Swan Pond
- north side of Pleasant Street (North Street to Cherry Street)
- both sides of Clinton Street, (north of 173)
- East side of Scoville Avenue
- East side of Wesley Street
- North side of 173, along 173 and 92 overlap

Reserved parking for people with disabilities:

- West side of Academy Street in front of Saint Ann’s Church



Figure 18: On-Street Parking Restrictions

Off-Street Parking

Figure 19 and its corresponding Table 4 show the off-street locations.

Several areas are municipal lots - Stickley Drive (Lot P), Arkie Albanese Ave (Lot A4), and Pleasant St (lot H9). Other lots, such as A2, A3, and I1, are reserved for individuals that are utilizing the municipal services such as the Manlius Library at A2 or the USPS at I1. Lots I2 and I3 are reserved for USPS employees only.

Apart from parking lots for residential and educational/religious uses, most remaining lots within the village accommodates customers and employees of the retail, restaurant, and office uses.

Some lots, like A1, F, L, M1, M5, and N3, are shared between multiple businesses/uses.



Figure 19: Parking Lot Reference Map

Table 4: Parking Lot Reference Table

Reference Location	Address	Use	Approx. # spaces
A1	315 Fayette	Employee & Customer	100
A2	Arkie Albanese	Government/Municipal	25
A3	Arkie Albanese	Government/Municipal	110
A4	Arkie Albanese	Public Parking	45
B1	301 Fayette	Employee & Customer	35
B2	Fayette & Smith	Employee & Customer	20
C1	107 Pleasant	Religious	55
C2	108 Pleasant	Religious	20
D	109 Pleasant	Employee & Customer	10
E	215 Pleasant	Residential	10
F	119 Seneca	Employee & Customer	215
G1	104 Pleasant	Employee & Customer	5
G2	116 Fayette	Employee & Customer	30
G3	110 Fayette	Employee & Customer	5
H1	104 Fayette	Employee & Customer	20
H2	104 Fayette	Employee & Customer	10
H3	111 E. Seneca	Residential	20
H4	117 E. Seneca	Employee Only	25
H5	123 E. Seneca	Employee Only	40
H6	107 Wesley S	Employee & Customer	5
H7	109 Wesley	Employee & Customer	5
H8	111 Wesley	Religious	10
H9	116 Pleasant	Public Parking	25
I1	110 Wesley	Government/Municipal	40
I2	106 Wesley	Employee Only	15
I3	111 Wesley	Employee Only	30
I4	111 Franklin	Employee Only	5
J	115 Franklin	Residential	15
K	106 Franklin	Employee & Customer	40
L	102 E. Seneca	Employee Only	65
M1	100 E. Seneca	Employee Only	60
M2	107 Flume	Public Parking	-
M3	122 E. Seneca	Employee Only	10
M4	100 E. Seneca	Employee & Customer	15
M5	112 E. Seneca	Employee & Customer	30
N1	206 E. Seneca	Employee Only	10
N2	228 E. Seneca	Employee & Customer	25
N3	102 Washington	Employee & Customer	45
O	300 E. Seneca	Employee & Customer	20
P	89 Stickley	Public Parking	40
Total			1310

6 Crash Assessment

6.1 Crash Summary

NYSDOT maintains a database known as the Accident Location information System (ALIS), which catalogues information about crashes that occur throughout New York. The SMTC used this database to examine the crash history for a five-year period from January 1, 2015 to December 31, 2019.

Number of Crashes

There were 517 crashes examined in the study area during this period.

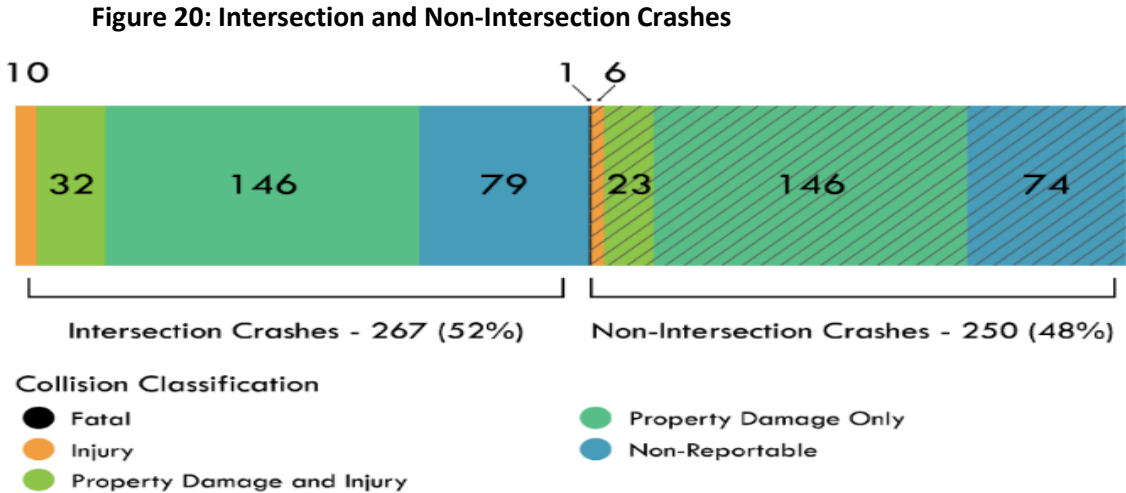
Intersection and Segment Crashes

Crashes are categorized as “intersection” or “non-intersection” (i.e., segment – which were measured from signalized intersection to signalized intersection) crashes. As shown in Figure 20, 52% of crashes occurred at an intersection. As shown in Figure 21, the intersection with the largest number of crashes is Fayette and Seneca Streets. Along segments, many crashes occurred on Route 92 between Route 257 and Route 173.

Crash Rates

Crash rates were calculated for intersections and for segments. Intersection crash rates are based on millions of entering vehicles (MEV), and roadway segment crash rates are based on Millions of Vehicle Miles Traveled (MVMT). These formulae require an estimate of the Annual Average Daily Traffic (AADT) entering an intersection or passing through a segment. Either through estimates or actual counts, the NYSDOT has traffic volume information for all segments on the corridor. Intersection counts are also available for several study intersections as well, although this information is largely limited to signalized intersections.

The intersection of Fayette and Seneca Streets had the highest crash rate for intersections from available data. Portions of Seneca and Fayette Streets approaching that intersection also had some of the highest segment crash rates. Figure 22 shows crash rates for segments and intersections.



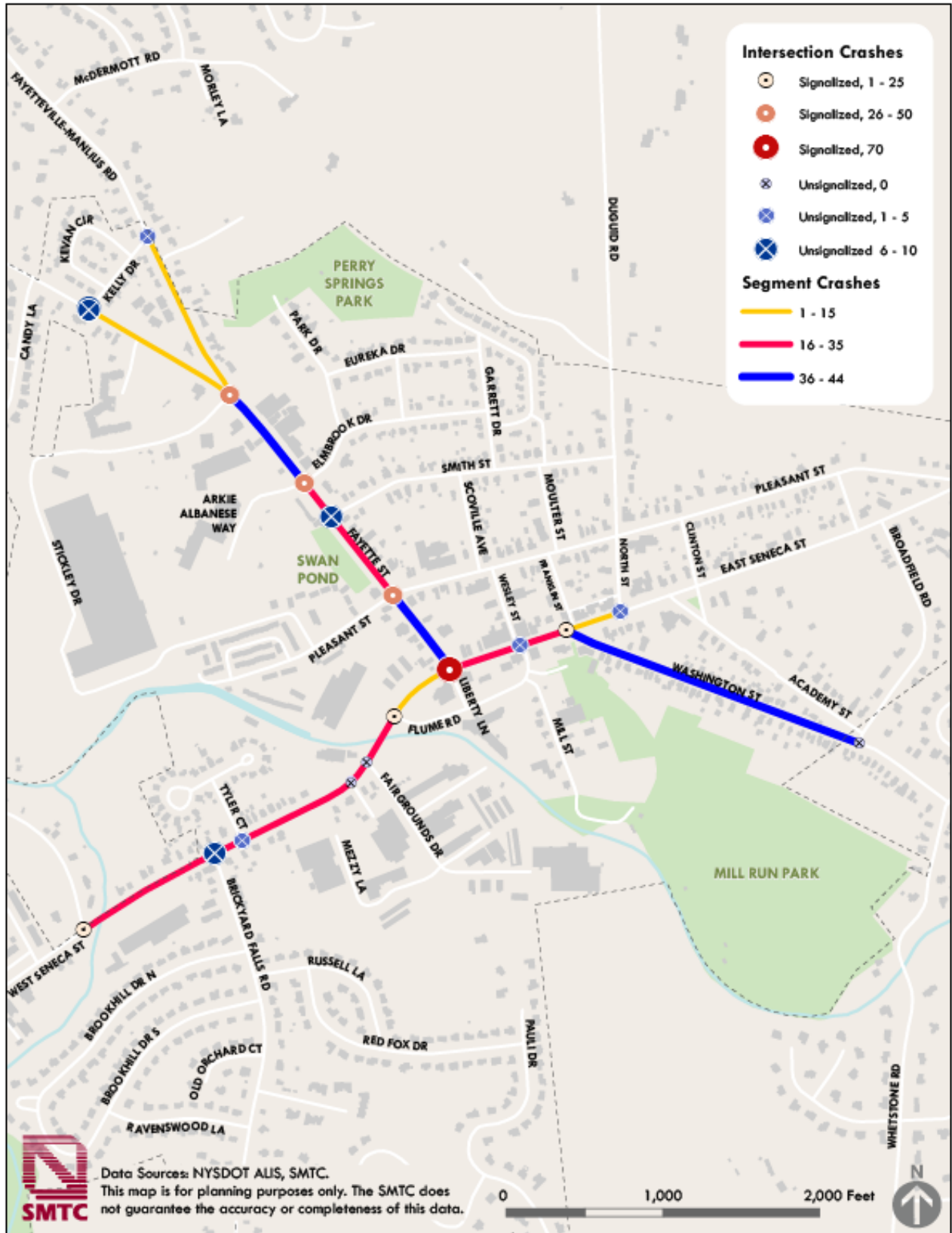


Figure 21: Segment and Intersection Crashes



Figure 22: Segment and Intersection Crash Rates

Crash Classification

Crashes are classified as either “reportable” or “non-reportable” by the Department of Motor Vehicles. A crash is classified as reportable if it results in death, personal injury, or property damage to any single motor vehicle that meets a threshold of at least \$1,000. All other crashes that do not meet these criteria are considered non-reportable. Reportable events are classified into four categories by severity: fatal, injury, property damage and injury, and property damage only. Table 5 summarizes crashes that occurred in the primary study area during the five-year period by type and severity.

Table 5: Summary of Crashes by Type and Severity

Type	Reportable				Non-Reportable	Total
	Fatal	Injury	Property Damage and Injury	Property Damage Only		
Motor Vehicle	0	10	52	266	131	459
Pedestrian	1	3	1	0	2	7
Bicyclist	0	0	0	0	1	1
Other	0	3	2	26	19	50
Total	1	16	55	292	153	517

There was one fatal crash in the primary study area or on nearby roads during the five-year period analyzed. Additionally, the SMTC determined how many crashes involved “serious injuries.” Serious injuries include severe lacerations, broken or distorted limbs, skull fractures, crushed chest, internal injuries, being unconscious when taken from the crash scene, and being unable to leave the crash scene without assistance. Of the 517 total crashes examined, 3 involved a serious injury. There were no crashes with more than one serious injury occurring, but some crashes had both a serious injury and at least one injury, and 68 injury crashes resulted in 99 injuries. Figure 23 shows the approximate location of fatal and serious injury crashes. Of the 72 crashes that

involved a fatality, a serious injury, or an injury, about sixty percent occurred at intersections.

Collision Type and Contributing Factors

For all recorded crashes in the ALIS database, the type of collision (i.e., rear end, right angle, etc.) is noted, and all recorded crashes must also have at least one apparent contributing factor indicated (i.e., human, vehicular, and/or environmental). Common collision types within the study area were Rear End and Overtaking. The most common contributing factors were “Following Too Closely” and “Failure to Yield Right of Way.”

The SMTC also reviewed the common collision types and contributing factors specifically for the intersections and segments with the highest crash rates and found that they were generally consistent with the results for the study corridor overall.

Crashes Involving a Bicyclist or Pedestrian

Over the five-year period, there were 7 crashes that occurred with a pedestrian and one crash that occurred with a bicyclist. The one fatal collision in the study area was with a pedestrian. There were no serious injuries reported, but four collisions with pedestrians resulted in an injury.

Of these collisions with bicyclists or pedestrians,

- 4 occurred at an intersection
- 4 occurred not at an intersection
- 7 occurred during daylight hours, one at dawn
- All occurred with dry road conditions.

Crashes involving bicyclists and pedestrians are shown on Figure 24.



Figure 23: Fatal and Serious Injury Crashes



Figure 24: Bicycle and Pedestrian Crashes

7 Vehicle, Bus, Bicycle, and Pedestrian Activity

7.1 Existing Traffic Volumes and Trends

As shown in Figure 25, traffic volume along Route 92 (Fayette Street) was greater than 22,500 vehicles per day (vpd) and 22,000 vpd along Route 173 (East Seneca Street) (NYSDOT, 2021).

NYSDOT conducted the counts in 2021 during the post-pandemic recovery period. By comparison, in 2005 traffic volumes were greater than 27,000 vpd along Fayette Street and 26,000 vpd along Seneca Street. In 2009, Fayette Street had a volume greater than 23,000 vpd. Figure 26 shows the “2022 Base Conditions” assumptions which include the most current traffic count data available.⁸

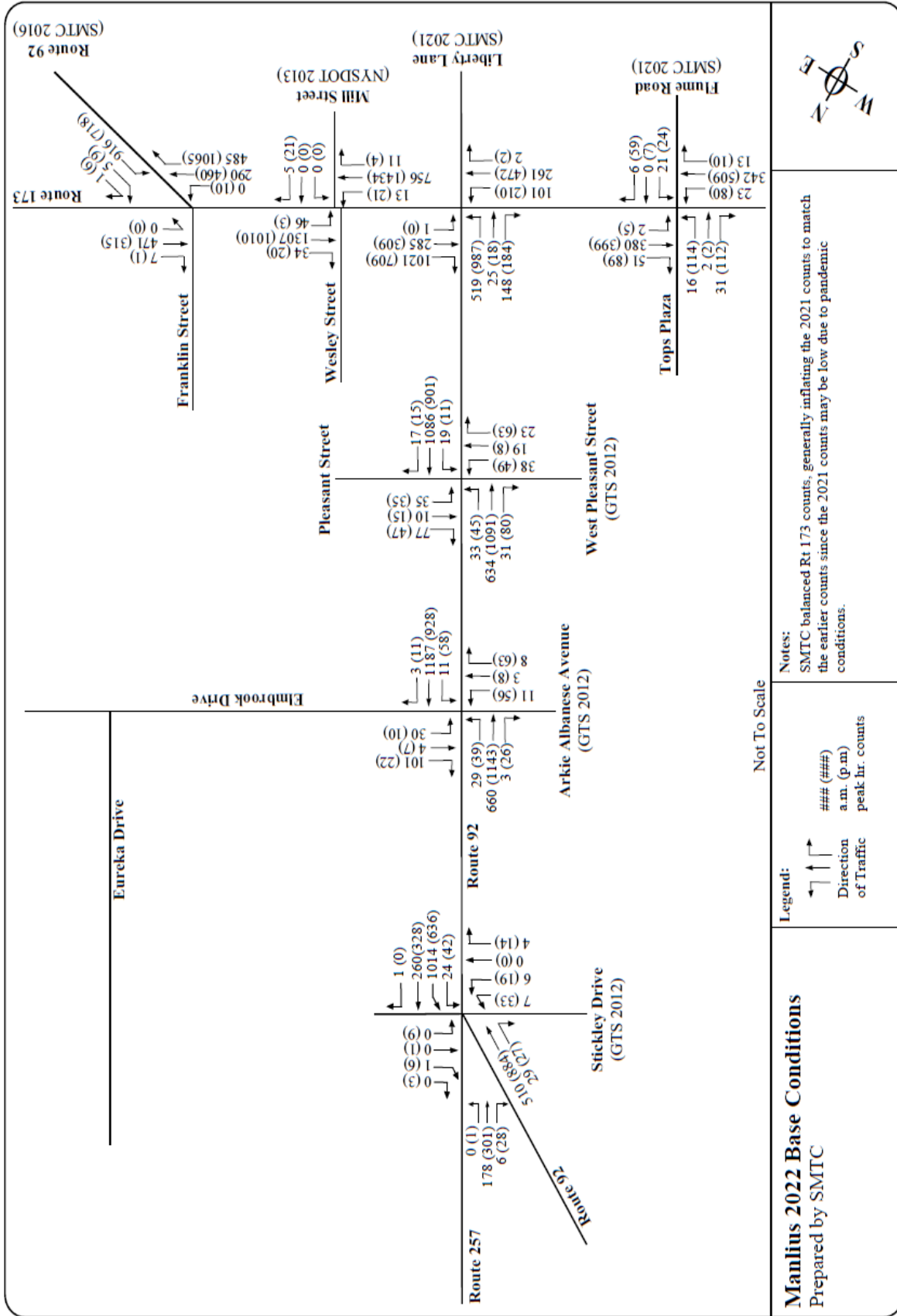


Figure 25: Traffic Volume

⁸ SMTC conducted the most recent counts in 2021 during post-pandemic travel conditions. SMTC balanced the counts taken at

different times for the six intersections to ensure less than a 10 percent change between upstream and downstream traffic flows.

Figure 26 – 2022 Base Conditions



Hourly Volumes

Traffic flow experiences a traditional morning and evening peak coinciding with the daily commutes, with the heavier traffic during the evening peak, as shown in Figure 27 and Figure 28. Overall, the heaviest traffic volumes are experienced along the southern portion of Fayette Street towards Seneca Street, with peak volumes of around 2,300 vehicles per hour.

Turning movement counts were performed for study area intersections during different years (i.e., 2012, 2016, and in 2021). The data collected shows traffic moving through the Village, with the morning traffic flowing west down East Seneca Street before heading north on Fayette Street towards Syracuse via High Bridge Road, and the evening traffic flowing in the opposite direction although with higher overall volumes, as shown in Figure 29 and Figure 30.

Figure 27: Hourly traffic volumes on Route 92 from Route 257 to Route 173 (2009)

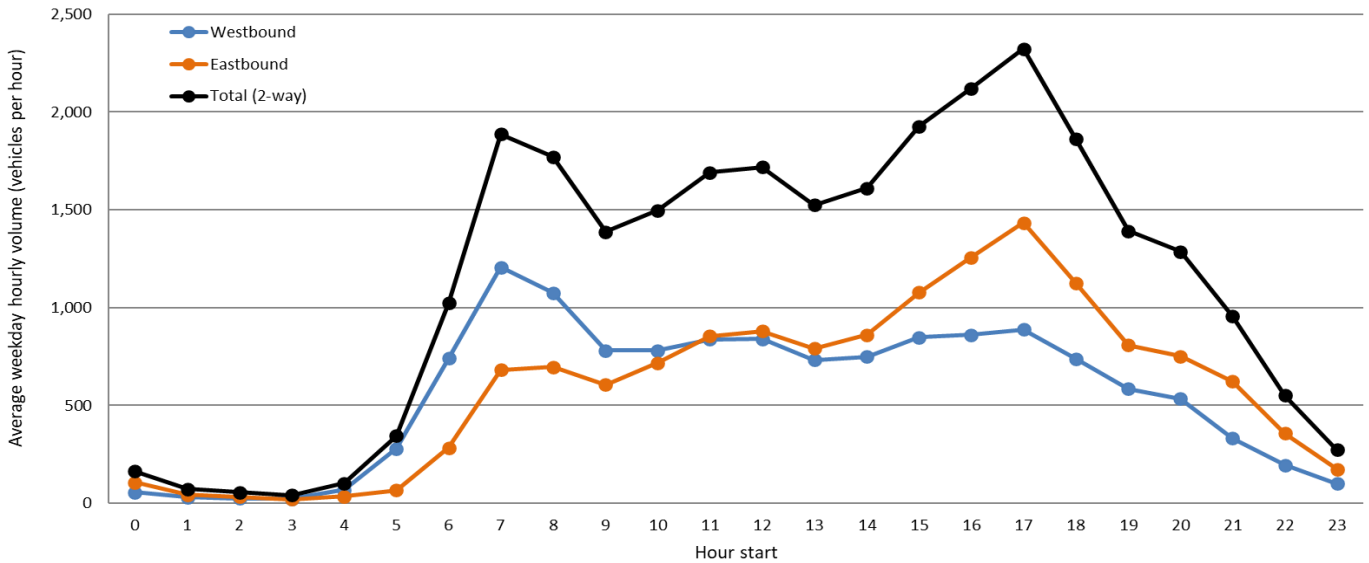


Figure 28: Hourly traffic volumes on Route 92 and Route 173 Overlap (2005)

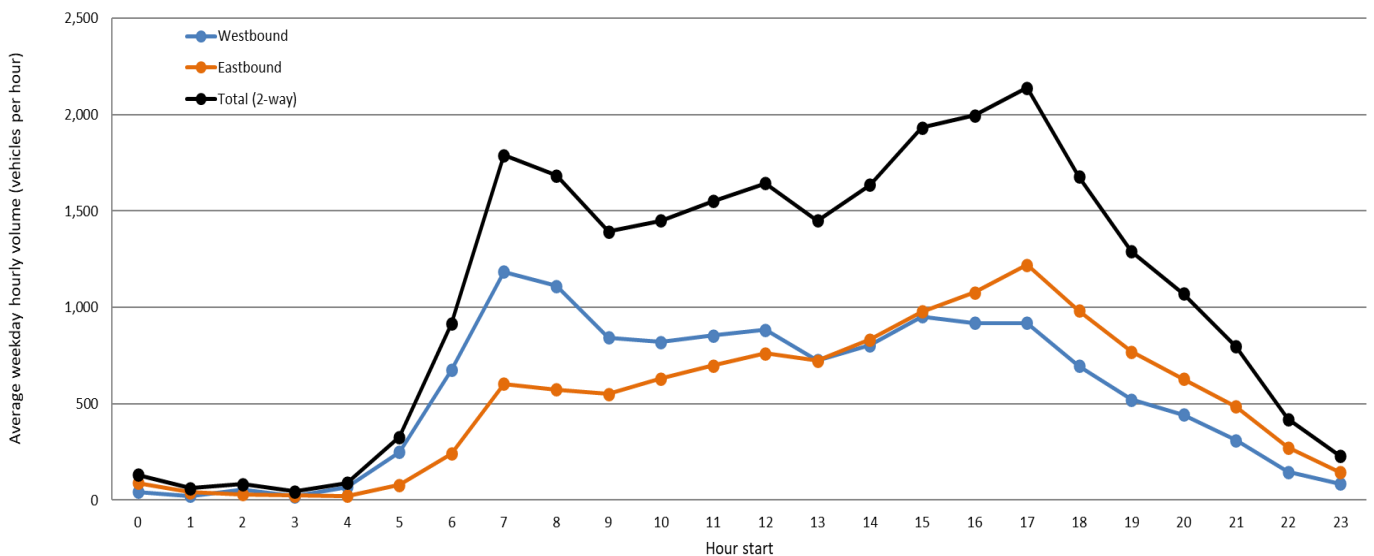




Figure 29: AM Traffic Flow

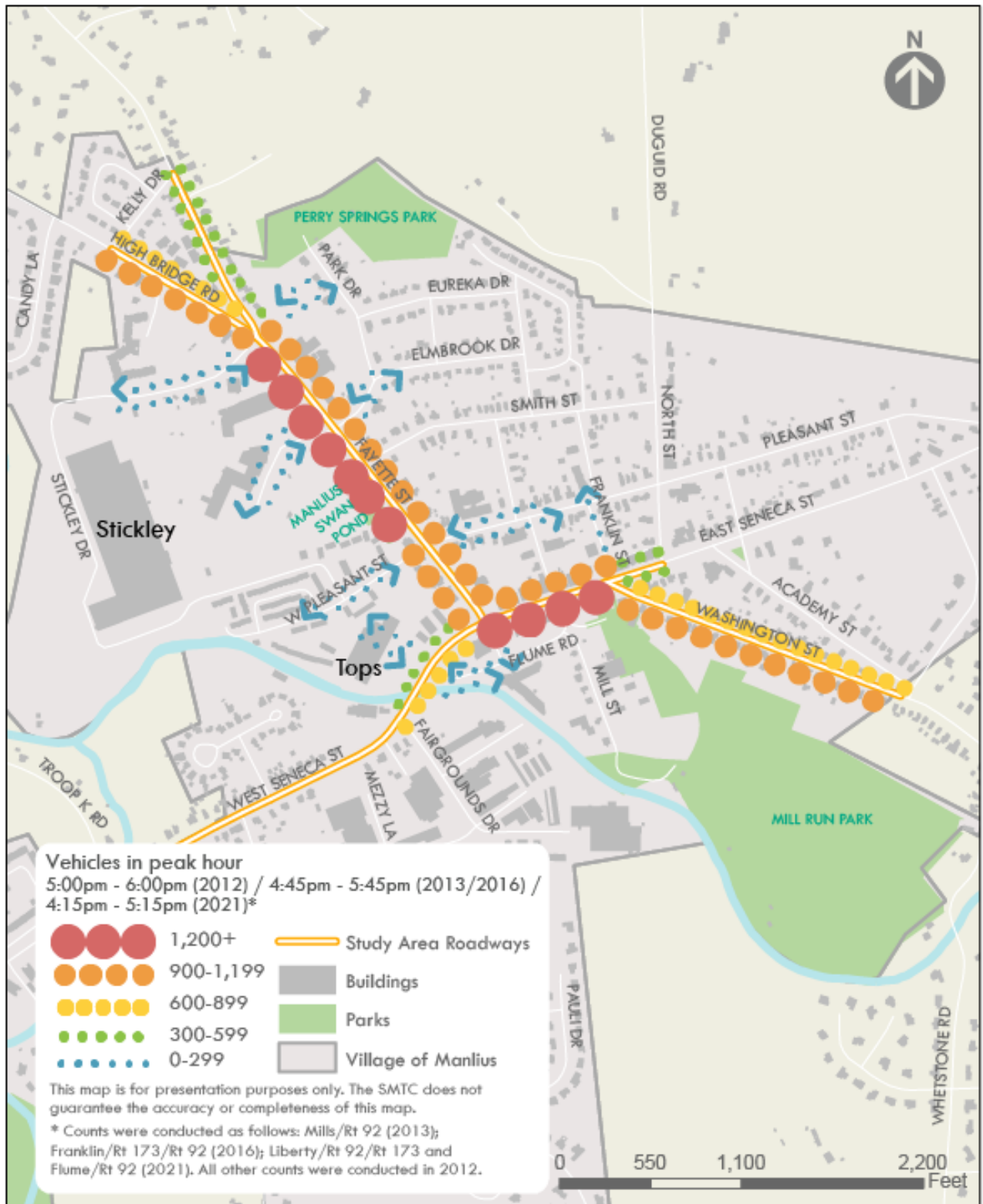


Figure 30: PM Traffic Flow

Origins and Destinations

Using the information gathered from previous traffic counts, SMTC staff used its Regional Travel Demand Model to determine where traffic on East Seneca Street between Fayette Street and Mill Street was headed during the evening commute, and where they originated from in the morning. As shown in Figure 31, the model indicates that most vehicles that travel this section of East Seneca Street have an origin/destination close to the Village center, with around 40 percent tied to residential neighborhoods surrounding Enders Road and 20 percent in the neighborhoods south of Route 92. About 30 percent have a destination south and 10 percent east of the Village.

7.2 Traffic Speed

NYS DOT collected speed data for Route 92 and Route 173 between September and October 2021. Figure 32 and Figure 33 show the average number vehicles for each hour over a 24-hour period arranged into the following three categories:

- not speeding
- speeding 1-5 MPH over the speed limit
- speeding 6+ MPH over the speed limit.

The percent of vehicles speeding each hour is also indicated.



Figure 31: Origins/Destinations for Trips on Route 173/Route 92 Overlap (WB AM peak, EB PM peak)

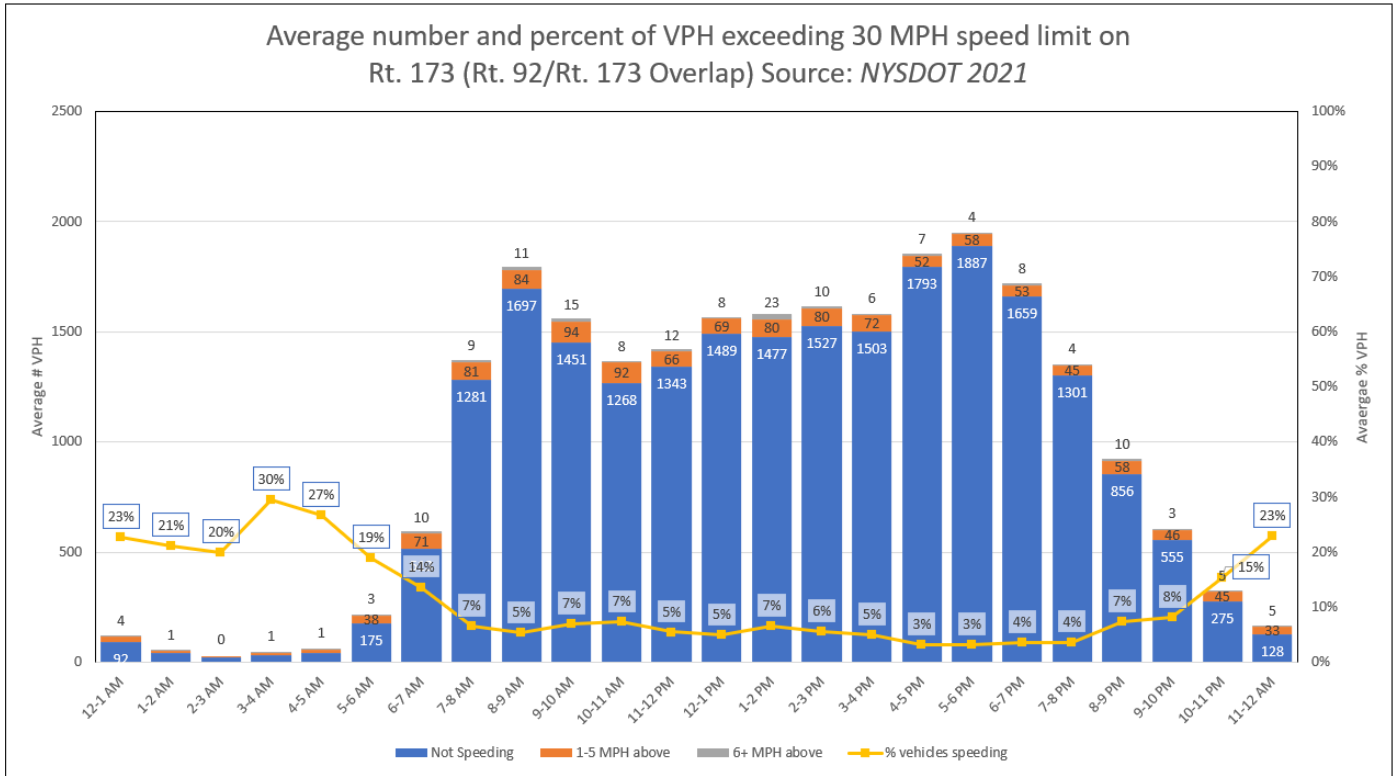


Figure 32: Average number and percent of VPD exceeding 30 MPH speed limit on East Seneca Street (Route 173)

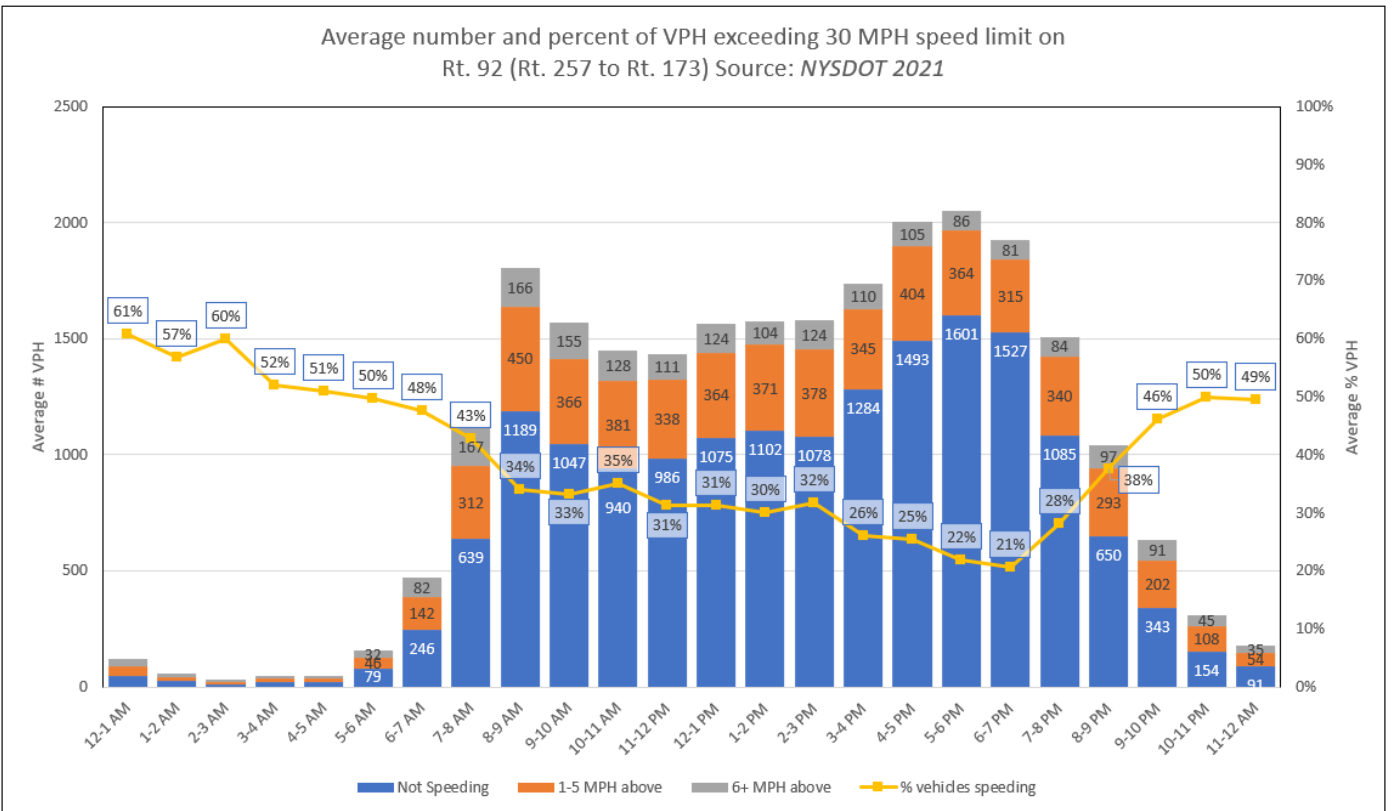


Figure 33: Average number and percent of VPD exceeding 30 MPH speed limit on Fayette Street (Route 92)

Pedestrian counts were included in several traffic counts that occurred throughout a 21-year period, between June 2000 and September 2021. Most pedestrian activity was recorded during the evening between 4:00 p.m. and 6:00 p.m.

The most heavily trafficked intersection for pedestrians was Route 92 and Elmbrook Drive, where most pedestrians crossed Elmbrook Drive on the western side of the intersection. The second most heavily trafficked intersection was Route 92 and Pleasant Street, where pedestrians crossed Pleasant on either side of Route 92.

A crosswalk existed across Route 173 at Wesley Street (just west of Mill Street) at the time that pedestrian counts were conducted (2013), but it has since been replaced by a midblock crossing with an RRFB (Rectangular Rapid Flashing Beacon) between the Liberty Lane and Mill Street on Route 173. A pedestrian count at the new midblock crosswalk has not been conducted.

Bicycle Activity

Bicycle count data is extremely limited within the village for few traffic counts that occurred between June 2000 and September 2021. Only three cyclists were observed at two intersections along Route 173:

- Route 92 / Liberty Lane
- Flume Road.

Traffic counts were also conducted at the Route 173 / Washington Street / Franklin Street intersection, but no bicycles were observed. Data on bicycles along Rt. 92 does not exist.

7.4 Bus Ridership

According to 2019 ridership data provided by Centro, three bus stops within the study area rank in the top 25 percent of overall ridership within the Syracuse/Onondaga County service area.

These stops are noted in Table 6 along with the factored estimated daily boardings and alightings per stop. It is important to note that these numbers are prior to the Covid-19 pandemic which has shifted travel patterns and bus ridership.

Table 6: Transit stops in the study area that rank in the top 25% of overall ridership (in the Syracuse/Onondaga County service area)

Stop Name	Factored Estimated Boardings/day	Factored Estimated Alightings/day	Notes
Limestone Commons	8.14	15.17	Shopping plaza
Fayette St & Pleasant St	7.8	0.04	Near M&T Bank
Limestone Gardens	5.33	6.61	Senior apartments

Source: Centro, 2019

7.5 Conclusion

Traffic volume is relatively high for village center roadways. Traffic flow experiences a traditional morning and evening peak coinciding with the daily commutes, with the heavier traffic during the evening peak. The heaviest traffic volumes are along the southern portion of Fayette Street towards Seneca Street, with peak volumes of around 2,300 vehicles per hour. Although bicycle and pedestrian activity is low in general, most bicycle and pedestrian activity tends to occur during the evening peak period between 4:00 p.m. and 6:00 p.m.

8 Capacity Assessment

SMTC staff analyzed existing traffic operations and three alternative roadway configuration scenarios using Synchro analysis software. The Synchro models were based on previous analysis files created by NYSDOT and provided to SMTC; SMTC staff updated these to reflect current operating conditions (including signal phasing changes at the Route 92/Elmbrook Dr intersection that were implemented by NYSDOT in December 2020).

8.1 Synchro and Levels of Service

As a micro-simulation modeling tool, Synchro is used to describe the operation of intersections. It also provides an interface to SimTraffic, which can be used to view a simulation of traffic operations. Synchro is an industry-accepted standard and was used to determine the Levels of Service (LOS) for the analyzed intersections.

LOS is defined in terms of “control delay”. Control delay is a measure of the total travel time lost and includes slowing delay, stopped delay, queue move up time, and start up lost time. LOS may be calculated per movement (i.e., through, left, or right) or per approach (i.e., northbound, southbound, eastbound, or westbound) for signalized intersections.⁹

LOS thresholds are defined as average delay in seconds per vehicle over a fifteen-minute analysis period and range from LOS “A” to “F”. Table 7 provides a summary of the LOS thresholds (per the Highway Capacity Manual). LOS “A” represents free flowing traffic with little or no delay. LOS “F” represents highly congested traffic with substantial delays. An

overall intersection LOS “D” or better is generally considered acceptable at a signalized intersection. This indicates that the average control delay will not exceed 55.0 seconds.

Table 7: Level of Service Thresholds

Level of Service Thresholds	Signalized Intersections (Delay in seconds)
A Little or no delay	< 10.0
B Minor, short delays	10.1 to 20.0
C Average delays	20.1 to 35.0
D Long, but acceptable delays	35.1 to 55.0
E Long, near unacceptable delays	55.1 to 80.0
F Unacceptable delay	> 80.0

8.2 Scenario Assessment

SMTC developed and assessed three scenarios based on feedback from the Village, NYSDOT, and local business owners. SMTC did not assess a traditional “road diet” scenario because that concept was analyzed as part of a previous study and ruled out as a viable option (see Chapter 2). Alternatively, SMTC received feedback from NYSDOT and the public about their interest to assess a “lane reallocation” alternative that would reconfigure the Route 92 corridor as one westbound lane and two eastbound lanes. All scenarios were assessed using 2022 baseline condition assumptions, as shown previously on Figure 26. Signal timings were optimized in each scenario. Table 8 summarizes LOS results for a side-by-side comparison of scenarios. Summary Synchro reports are provided in Appendix C.

⁹ LOS may also be calculated per approach for all-way stop controlled (AWSC) configurations. LOS for a two-way stop-

controlled intersection is defined in terms of the average vehicle delay of an individual movement, not the entire intersection.)

Scenario A - 'Route 173 WB Right Turn Bay'

- Modify the Seneca Street WB approach at Fayette Street
 - Dedicated right-turn lane west of the RRFB crosswalk
 - All-day on-street parking east of the RRFB crosswalk
- No change to Fayette Street (Route 92)

Scenario B - 'Close Liberty Lane'

- Close Liberty Lane (currently one-way in only)
- Existing Route 92 through traffic onto Liberty assumed to turn right onto Route 173 then left onto Flume Road

Scenario C - Route 92 'Lane Reallocation'

- Reduce Route 92 (Fayette Street) to 1 WB lane; maintain 2 EB lanes
- Create center turn lane (i.e., Two Way Left Turn Lane (TWLTL)), with exclusive left-turn lanes at signalized intersections
- No change to Route 173

8.3 Synchro Assessment Overview

Per NYSDOT’s request, SMTC provided a summary of analysis findings, public feedback, and a list of preliminary improvement ideas. SMTC provided this information to NYSDOT during the summer of 2022. NYSDOT used this information to inform the final design for the Route 92 and Route 173 paving project, which was happening at the same time.

The information helped NYSDOT eliminate design alternatives. NYSDOT also incorporated several improvement ideas into its design (e.g., access management options, closure of Liberty Lane, and additional on-street parking).

As shown in Table 8, signalized intersections are expected to operate at an overall LOS C or better for both the AM and PM conditions under the existing conditions as well as for Scenarios A and B. Compared to the existing conditions, intersections are expected to experience minimal change in delay (-3 to +1 seconds) for these two scenarios. Five individual movements in Scenarios A and B could be expected to experience LOS of E or worse during the AM and PM conditions.

All intersections in Scenario C are expected to operate at an overall LOS C or better for both the AM and PM conditions except for two signalized intersections during the morning. The Route 92/Pleasant Street and Route 92/Liberty/Route 173 intersections are expected to operate at LOS F and LOS D, respectively, during the AM condition. When compared to the existing conditions, Route 92/Pleasant Street is expected to experience an increase in overall average delay of 70 seconds, and Route 92/Liberty/Route 173 is expected to experience an increase in overall average delay of 17 seconds.

Alternative C is anticipated to significantly increase delay at two individual movements during the AM condition at two separate intersections. The WB through/right-turn movement at Route 92/Pleasant St is expected to degrade from a LOS A to LOS F with an overall average delay of 136 seconds (i.e., a 127-second increase). Likewise, the WB right-turn movement at the Route 92/Liberty/Route 173 intersection is expected to degrade from a LOS C to LOS E with an overall average delay of 66 seconds (i.e., a 40-second increase).

Table 8: Level of Service and Delay Summary Table

Approach	Lane Configuration	- Rounded to Nearest Second -							
		2022							
		AM Peak Hour Scenario				PM Peak Hour Scenario			
		Existing Cond.	A 173 WB Right Turn Bay	B Close Liberty Lane	C Lane Re- allocation	Existing Cond.	A 173 WB Right Turn Bay	B Close Liberty Lane	C Lane Re- allocation
257/92/Stickley									
SB (257)	HARD LEFT / LEFT / RIGHT	E (57)	Same as Existing Conditions		E (57)	E (62)	Same as Existing Conditions		E (59)
EB (92)	THRU	A (10)			B (10)	C (22)			C (22)
	THRU RIGHT								
WB (92)	LEFT	B (12)			A (10)	C (23)			B (18)
	THRU	B (15)			D (37)	C (22)			C (27)
	THRU RIGHT								
NB (Stickley)	RIGHT/ HARD RIGHT				A (10)				B (17)
	HARD LEFT/LEFT/THRU	D (48)			D (49)	E (69)			E (69)
SB (Parking Lot)	RIGHT	D (48)			D (46)	D (47)			D (47)
	LEFT/THRU/RIGHT	D (46)			D (45)	F (80)			F (80)
	OVERALL	B (18)		C (29)	C (31)		C (31)		
92/Albanese/Elmbrook									
EB (92)	LEFT		Same as Existing Conditions		B (16)		Same as Existing Conditions		A (8)
	LEFT/THRU	A (8)				B (10)			
	THRU / RIGHT								
	THRU				A (5)				A (8)
WB (92)	THRU / RIGHT				A (8)				A (9)
	LEFT								
	LEFT/THRU	A (3)			C (32)	A (5)			B (16)
THRU / RIGHT									
NB (Albanese)	LEFT/THRU	E (58)			E (58)	E (65)			E (65)
	RIGHT	C (32)			C (31)	C (34)			C (34)
SB (Elmbrook)	LEFT/THRU/RIGHT	C (32)		C (34)	C (23)		C (23)		
	OVERALL	A (7)		C (23)	B (12)		B (15)		
92/Pleasant									
NB (Pleasant)	LEFT / THRU / RIGHT	E (57)	Same as Existing Conditions		E (57)	D (52)	Same as Existing Conditions		D (52)
SB (Pleasant)	LEFT / THRU	D (54)			D (54)	D (54)			D (54)
	RIGHT	C (21)			B (16)	A (9)			A (9)
EB (92)	LEFT				A (10)				B (13)
	LEFT / THRU	A (3)				B (11)			
	THRU / RIGHT								
	THRU				A (5)				B (11)
WB (92)	THRU RIGHT								
	LEFT				A (4)				A (4)
	LEFT / THRU	A (9)				A (9)			
THRU / RIGHT				F (136)		C (29)			
	OVERALL	B (11)		F (81)	B (13)		C (21)		
92/Liberty/173									
EB (173)	LEFT	C (24)	C (24)	C (24)	C (24)	C (27)	C (27)	C (27)	C (27)
	THRU			C (22)				C (21)	
	THRU RIGHT	C (22)	C (22)		C (22)	C (21)	C (21)		C (21)
WB (92)	THRU	D (45)	D (45)	D (45)	D (42)	D (55)	D (55)	D (55)	D (55)
	RIGHT	C (26)	C (26)	C (26)	E (66)	B (13)	B (13)	B (13)	B (16)
EB (92)	LEFT	B (19)	B (19)	B (17)	B (17)	C (32)	C (32)	C (27)	C (30)
	LEFT/RIGHT								
	LEFT/ THRU / RIGHT	B (19)	B (19)		B (17)	C (33)	C (33)		C (31)
	OVERALL	C (25)	C (25)	C (25)	D (42)	C (28)	C (28)	C (25)	C (27)
92/173/Franklin									
EB (173)	LEFT / THRU	C (29)	Same as Existing Conditions		C (23)	C (24)	Same as Existing Conditions		C (24)
	RIGHT	A (2)			A (3)	A (9)			A (9)
WB (173)	THRU RIGHT	D (37)			D (37)	B (18)			B (18)
WB (92)	LEFT/ RIGHT/ HARD RIGHT	D (55)			D (55)	D (44)			D (44)
					C (34)	C (22)			C (22)
	OVERALL	C (34)							
173/TOPS/Flume									
SB (TOPS)	LEFT	C (27)	C (27)	C (28)	C (27)	D (43)	D (43)	D (51)	D (43)
	THRU / RIGHT	B (15)	B (15)	B (15)	B (15)	B (10)	B (10)	B (10)	B (10)
NB (Flume)	LEFT / THRU / RIGHT	A (1)	A (1)	A (1)	A (1)	B (18)	B (18)	B (18)	B (18)
EB (173)	LEFT	A (4)	A (4)	A (4)	A (4)	A (7)	A (7)	A (8)	A (7)
	THRU								
WB (173)	THRU / RIGHT	A (5)	A (5)	A (8)	A (5)	A (9)	A (9)	B (12)	A (9)
	LEFT	A (4)	A (4)	A (4)	A (4)	A (6)	A (6)	A (6)	A (6)
	THRU / RIGHT	B (11)	B (11)	B (10)	B (11)	C (29)	C (29)	C (29)	C (29)
	OVERALL	A (8)	A (8)	A (9)	A (8)	B (19)	B (19)	B (20)	B (19)

The SimTraffic simulation for Alternative C indicates consistent queuing from Route 92/Pleasant Street through the Route 92/Route 173 intersection. This queuing severely degrades the WB right-turn movement from Route 173/Route 92 Overlap onto Route 92, and the WB through/right-turn movement at Route 92/Pleasant. No other significant queues or delays were observed.

8.4 Conclusion

Scenarios A and B were found to result in little to no changes in delay and levels of service.

Scenario C (lane reallocation) was found to result in significant queueing, increased delay, and degradation of level of service for some key turning movements, especially during the AM peak. Additionally, this scenario would not provide a benefit such as adding bike lanes, on-street parking, etc.

After reviewing the traffic operations analysis findings, the NYSDOT proposed to incorporate elements of Scenario A and Scenario B in its pavement project design. The final design plans for NYSDOT's Routes 92/173 paving project as provided to SMTC show several access management improvements, closure of Liberty Lane and all-day on-street parking along East Seneca Street (Route 173) east of the crosswalk. The NYSDOT plans do not include Scenario C (nor the road diet previously assessed by GTC Consulting Inc.).

9 Conceptual Ideas to Inform Future Decisions

This report serves as a reference document to guide future decisions. It may also be used to support funding applications. As with all SMTC planning studies, the inclusion of concepts in this report does not obligate road owners or municipalities to act on these ideas.

Planning-level ideas presented in this chapter seek to balance issues, opportunities, and community preferences with site and resource constraints. Should community interest exist, some ideas presented can be implemented immediately. While others may require additional steps (e.g., engineering-level design, secure funding, etc.) and require special design considerations (e.g., one-way road with two-way bike facilities, etc.).

9.1 Issues Addressed

During the planning process, some participants indicated a preference to add bike lanes along Fayette Street (Route 92) and East Seneca Street (Route 173). The State (NYSDOT) owns and controls these two roads. NYSDOT must consider a variety of factors to determine what improvements are appropriate for State roads.

As a separate initiative from this study, NYSDOT obligated funds to re-pave both Route 92 and Route 173. In August 2022, the State completed its final design plans. As a maintenance-by-contract (MBC) project, the State's scope is limited to paving, striping, and improving compliance with ADA requirements. Re-engineering (i.e., redesigning) a corridor is not included in an MBC scope.

However, SMTC's concurrent study presented NYSDOT with a unique opportunity to consider

community preferences for lane modifications and other improvements, such as adding bike lanes. Initially, SMTC's study did not include a capacity analysis. However, as the study progressed, SMTC saw value in assessing road alternatives to inform the design of a multi-million-dollar MBC project.

SMTC's capacity analysis considered other scenarios not previously studied. (As summarized in Chapter 2, GTS Consulting assessed a "road diet" scenario in 2012. Since current conditions remain similar, findings from the GTS study remain reasonable.) Thus, SMTC assessed three additional road alternative scenarios (see Chapter 8).

9.2 Ideas provided to NYSDOT

NYSDOT requested that SMTC share information from its planning study to inform their MBC design plans. SMTC provided a summary of community concerns (Chapter 4) and capacity assessment findings (Chapter 8). SMTC also provided a preliminary list of ideas to improve Route 92 and Route 173. NYSDOT incorporated the following ideas into its final design plans:

- Access management improvements
- Narrowing of wide driveways
- Liberty Lane closure and conversion to a multi-use pathway
- Dedicated on-street parking/loading zone lane along East Seneca Street.

9.3 Village Bicycle Network

The capacity analysis helped the State determine that it is not feasible to modify travel lanes to add bike lanes along Route 92 and Route 173. Therefore, SMTC considered an alternative option for a bike network.

The option uses Village-owned roads. As shown in Figure 34, the bike network guides cyclists to and through the village using local roads and existing pathways. It links Village roads with Town-owned roads to the north, south, east, and west. Routes follow low volume (neighborhood) roads and link to pathways, parks, and the high school.

The network includes an east-west route and two north-south routes (one west, and one east of Route 92). Although routes avoid bicycling along the heavily trafficked portions of Route 92 and Route 173, it is necessary to cross these roads to establish a bicycle network.

Pedestrian crosswalks are envisioned along Route 92 and Route 173 at all bike network crossing locations. Bicycle intersection crossing markings should also be considered.¹⁰ Should a cyclist be uncomfortable riding across the road, crosswalks also provide an option to dismount and walk across the road instead. Pedestrian signals with countdown timers, push buttons, curb cuts with detectable warnings, etc. are also envisioned at these locations.

SMTC developed a bike wayfinding plan - Figure 35 - to guide bicyclists through the village along primary routes. Sign design, placement, and legends must comply with NYS Supplement to the Manual on Uniform Traffic Control Devices. See Table 9 for a listing of suggested destinations to list on Decision "B" Signs.

Opportunities currently exist to incorporate portions of the envisioned bike network into proposed developments. Currently, the Village is reviewing several proposals (e.g., Fayette Street PUD proposal, Dunkin Donuts, firehouse

property, etc.). Illustrated ideas (e.g., Figure 34, etc.) can inform the site planning process about mobility improvement ideas and important network connections. For instance, a shared-use path is envisioned along the south side of Stickley Drive in front of the firehouse, it then extends through the proposed PUD site, and then across the Dunkin Donuts site.

9.4 Pleasant Street & Willowbrook Drive

Willowbrook Drive connects to Pleasant Street 200 feet west of the driveway into Tops Plaza. Willowbrook apartments has a private driveway 50 feet east of the Tops Plaza driveway. SMTC developed a concept to relocate the intersection to the Tops Plaza and Willowbrook apartment driveways. Figure 36 to Figure 39 show existing conditions and concept ideas.

Many of the ideas are shown in areas that are privately owned. As an aspirational planning-level concept – there is no intent to change properties or take them via eminent domain. The concept is for presenting ideas only based on planning-level assumptions.

In addition to new bikeways and sidewalks into the Tops Plaza, Village officials want to improve access to the Willowbrook Drive ballfields, the Village Centre, and the Swan Pond. A shared-use path from Willowbrook Drive into these areas is shown via an existing access road. Green space can replace the current alignment of Willowbrook Drive. Green space is also obtainable next to the Tops Plaza (shift road east). A two-way stop-controlled intersection here could facilitate bicycle and pedestrian movements and connect to a shared use path that extends to Route 173 at Flume Road.

¹⁰ (Federal Highway Administration Manual on Uniform Traffic Control Devices 2009 - Section 3B.08,

and National Association of City Transportation Officials - Urban Bikeway Design Guide.)

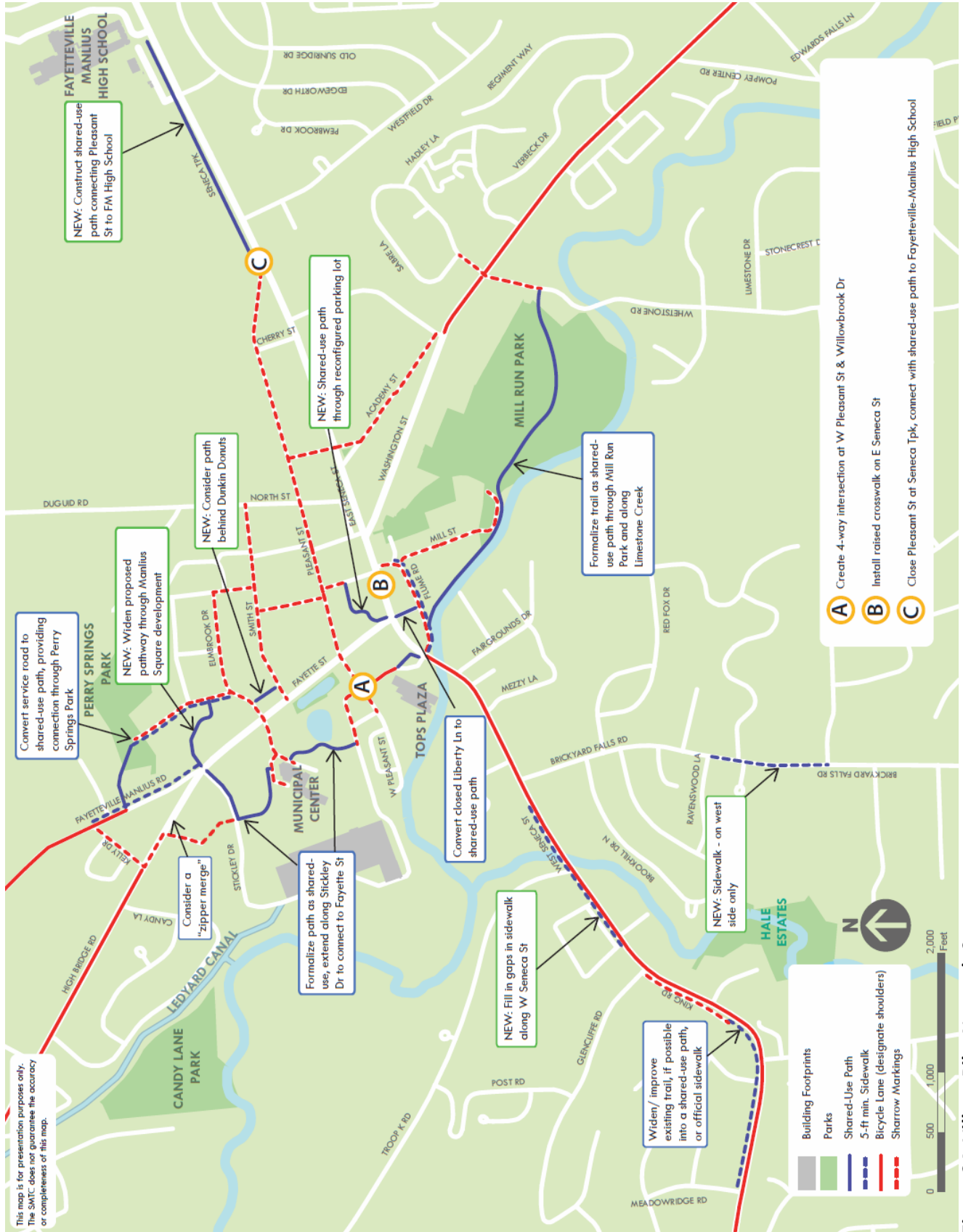


Figure 34: Village Bike Network Concept

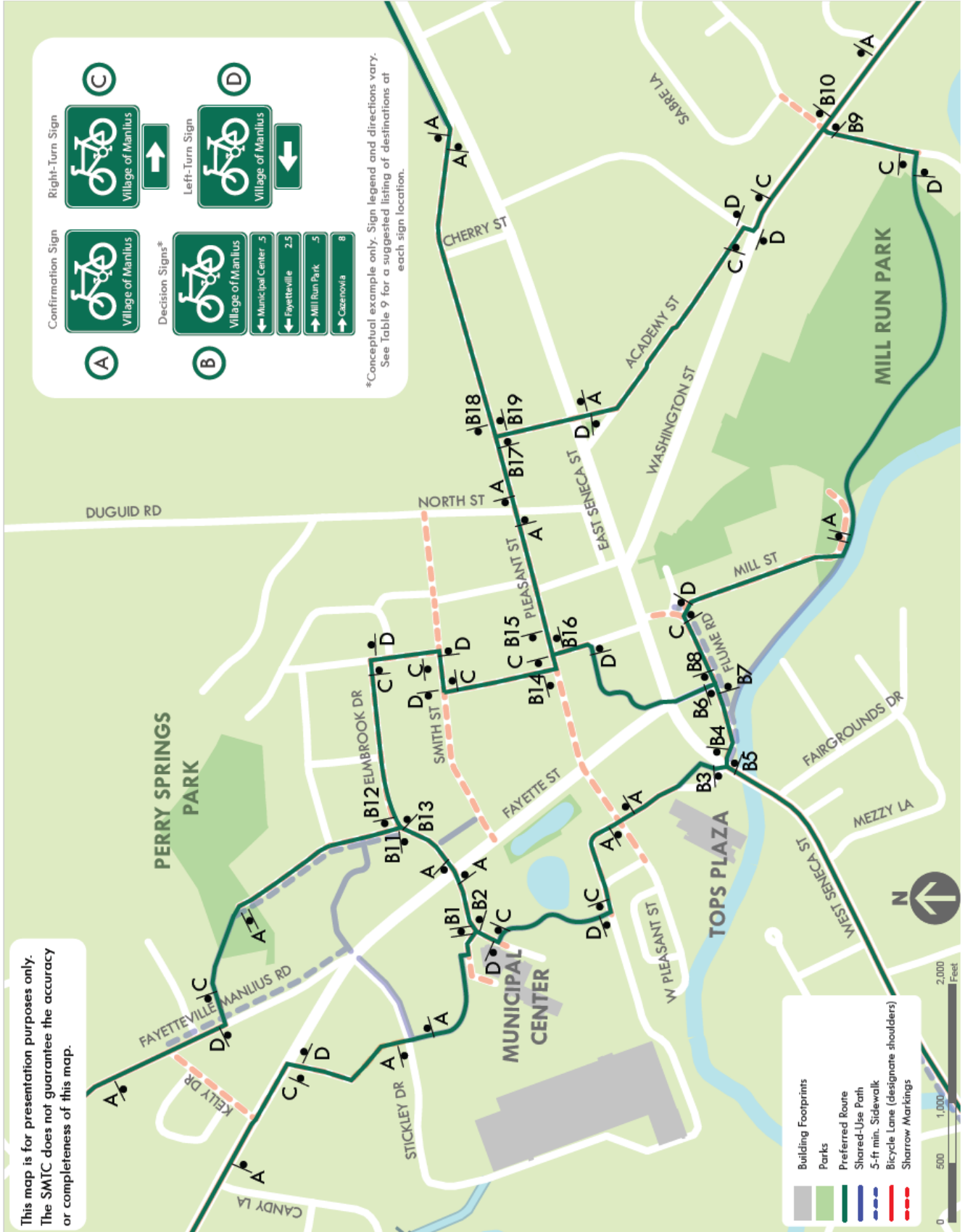


Figure 35: Wayfinding Sign Concept for Primary Bike Route to and through the Village of Manlius

Table 9 - Destinations to consider listing on Decision "B" Signs

Sign	Left Arrow	Right Arrow	Thru Arrow
B1 (*EB)	FM High School Cazenovia	Mill Run Park Jamesville	
B1 (**WB)	Mill Run Park Cazenovia Jamesville	Lyndon's Corners	
B2	Lyndon's Corners	Perry Springs Park FM High School Fayetteville	
B3		Jamesville	Mill Run Park FM High School Cazenovia
B4	Jamesville		Municipal Centre Fayetteville
B5	Municipal Centre Fayetteville	Mill Run Park Cazenovia	
B6	Mill Run Park Cazenovia	Municipal Centre Jamesville	
B7	FM High School Fayetteville		Mill Run Park Cazenovia
B8		FM High School Fayetteville Cazenovia	Municipal Centre Jamesville
B9	Municipal Centre FM High School Fayetteville		
B10	Mill Run Park Municipal Centre		FM High School Fayetteville
B9	Village Centre FM High School Fayetteville	Cazenovia	
B10	FM High School Cazenovia	Municipal Centre Lyndon's Corners	
B12		Perry Springs Park Fayetteville	Municipal Centre Lyndon's Corners
B13	Perry Springs Park Fayetteville		FM High School Mill Run Park
B14	FM High School Cazenovia		Mill Run Park Jamesville
B15	Mill Run Park Jamesville	Municipal Centre Fayetteville	
B16	Municipal Centre Fayetteville	FM High School Cazenovia	
B17		Cazenovia	FM High School
B18	Cazenovia		Municipal Centre Fayetteville Jamesville
B19	Municipal Centre Fayetteville Jamesville	FM High School	

NOTE: Sign designs shown in Figure 35 are conceptual and their placement is approximate. An official sign plan would have to be developed. Final sign placement will affect (and possibly change) arrows - care should be given during final design and installation. Sign design, sign placement, and sign legends must comply with the New York State Supplement to the Manual on Uniform Traffic Control Devices (NYS Supplement to the MUTCD). Destinations listed in Appendix D are suggestions for consideration only. They reflect public destinations. The number of destinations and the types of destinations listed (i.e., public, not private) must also comply with the NYS Supplement to the MUTCD. If allowed, the milage to the destination should be indicated.

* Eastbound ** Westbound



Figure 36: Existing Conditions – West Pleasant Street and Willowbrook Drive

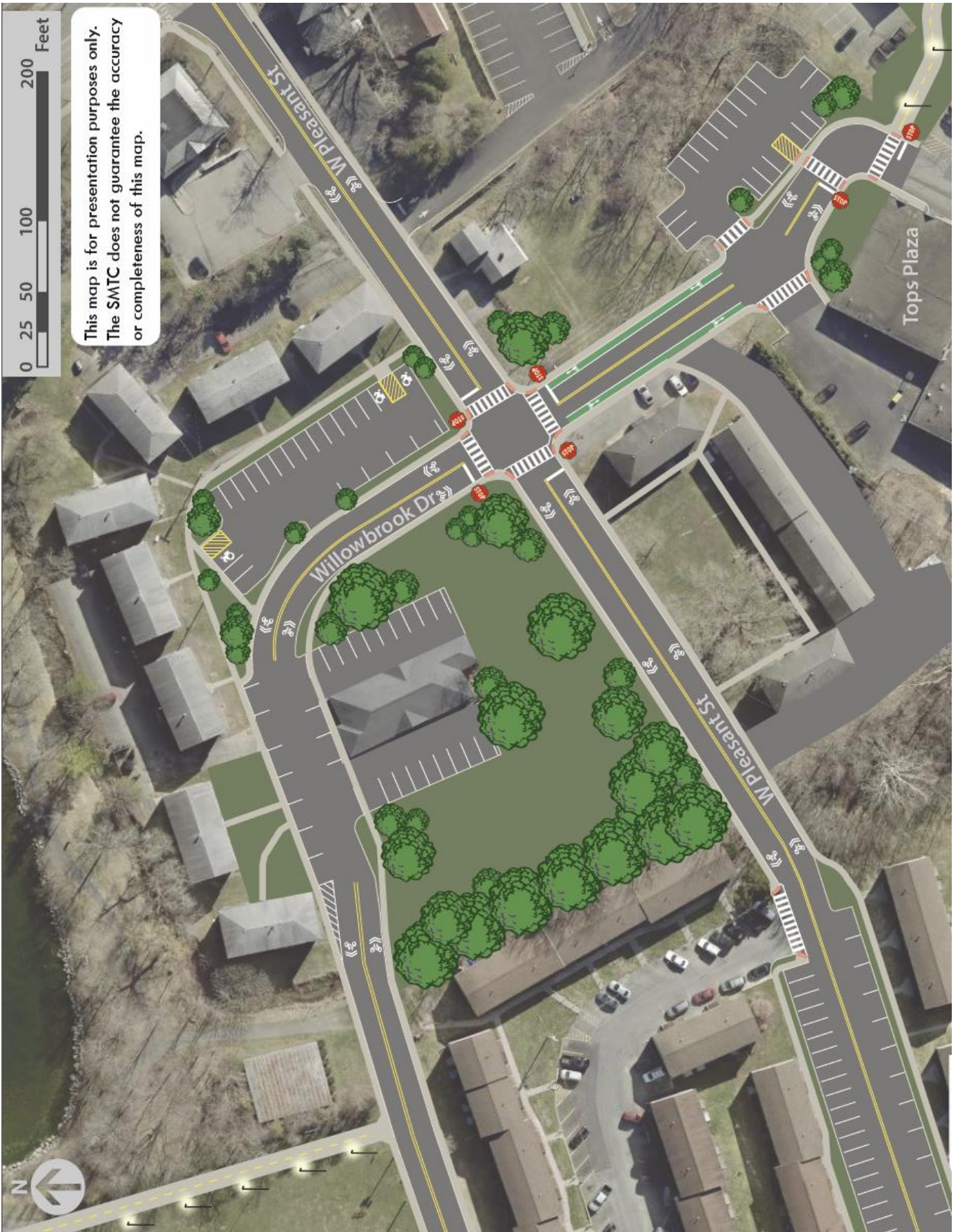


Figure 37: 4-Way Intersection Concept for Willowbrook Drive and West Pleasant Street



Figure 38: Existing Conditions – Tops Plaza



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

Figure 39: Shared Use Path Concept to Route 173



Figure 40: Connections between Figure 38 and Figure 39 (Willowbrook to Tops Plaza)

9.5 Raised Crosswalk

The community wishes to calm traffic (i.e., reduce travel speeds) through the heart of the Village. Figure 41 shows a concept for a raised crosswalk across East Seneca Street. Raised crosswalks allow pedestrians to cross flush with the sidewalk, and with the added benefit of reducing vehicle speeds.

NYS DOT's paving project will include a dedicated parking lane along the north side of West Seneca Street. The number of travel lanes at the existing mid-block crossing will reduce from four to three lanes. The State will maintain two eastbound lanes and one westbound lane. Figure 41 shows this configuration and includes a bump out to buffer the on-street parking and shorten the length of the mid-block crossing. Vehicles are shown parked along the roadway.

The existing crosswalk includes a Rectangular Rapid Flashing Beacon (RRFB). The NYS DOT plans to add a second RRFB on Washington Street. A similar raised crosswalk concept could be considered at that location as well.

9.6 Route 173 shared-use path to high school

The suggested bicycle network (see Figure 34) includes a shared-use path along the north side of Route 173 from Pleasant Street to the high school. Figure 42 shows existing conditions and Figure 43 a design concept for this pathway.

Currently, Pleasant Street connects to Route 173 at a skewed intersection with a tapered approach. Although Pleasant Street is two-way, it is a one-way (out only), which only allows for left-turn movements onto Route 173.

A single "do not enter" sign exists. However, residents along Pleasant Street have said that

some westbound motorists along Route 173 ignore the sign and enter the road illegally. Vehicles that illegally enter Pleasant Street at this location raise safety concerns.

Currently, a sidewalk exists along the south side of Route 173 only. People who wish to walk from Pleasant Street towards the high school must cross Route 173 twice.

Figure 43 shows Pleasant Street terminating as a dead end with a new path that extends along the north side of Route 173 and links to the high school. This shared use path accommodates walkers and bicyclists and would allow people to walk and bike from Pleasant Street to the school without having to cross Route 173.

9.7 Shared/municipal parking lots & "P" signs with directional arrows

Feedback from business owners indicated a need for more parking with better access. Some business owners said their customers don't know where to park due to the number of driveways and lack of parking signs. Also, left turns to and from driveways are difficult. In response to these concerns, SMTC staff developed a shared/municipal parking lot concept in an attempt to achieve the following:

- increase number of parking spaces
- provide access to the signal at Fayette/Pleasant for left turns
- use signage ("P") to direct traffic
- consolidate access points
- connect Route 92 with Wesley Street via an extension of Keith Morgan Way
- connect to envisioned bike network.

Figure 44 shows existing conditions. Figure 45 shows a shared parking concept that maintains buildings and considers site constraints such as

topography at a planning-level (engineering site surveys were not conducted, as that is beyond the scope of this planning study).

Benefits

- Provides examples of aspirational planning-level principles to guide future decisions
- Increases the number of parking lots connected to each other with shared access points to streets
- Directs more traffic to use the signal at Route 92 and Pleasant Street (for left turns)
- Shows a connection to the envisioned bike network via a shared use trail – it prioritizes a route by repurposing Liberty Lane as a shared use trail
- Prioritizes bike and pedestrian crossing locations across Route 173
- Improves bike and pedestrian access linking the neighborhoods to the north with the businesses as well as to Mill Run Park further south
- Maximizes the number of parking spaces off Flume Road – although the number is limited based on existing location of buildings and topography
- Prioritizes property access to Flume Road by relocating driveways on Route 173 (near the Washington Street intersection)
- Consolidates curb cuts along Route 92 and Route 173, which reduces conflict points
- Provides guidance for “P” parking sign placement.

We acknowledge that the concept has several limitations. However, some of the benefits noted above are worthy of considering further (e.g., ped/bike connections) while others are just too challenging and don’t provide significant benefits. SMTC identifies the following limitations:

Limitations

- Village (SAC) representatives indicated they are not interested in this concept
- Most property is privately owned (there is no intent to change ownership or take properties via eminent domain.)
- If changes were to ever occur, property owners would have to agree with any ideas put forth at that time
- The Village could consider incentives such as taking responsibility for maintenance, snow removal, etc.
- Some existing buildings, site topography, and a “drive through” limit:
 - the number of new parking spaces
 - best layout options for an internal road/driveway
 - access management options to streets.

The concept likely does not achieve the highest and best use and layout to maximize efficiencies. However, some planning-level principles shown (e.g., site access management, bikeway connections, shared parking, improved signage, priority pedestrian crossing locations, etc.) provide value to future decision-making processes.



Figure 41: Route 173 (East Seneca Street) Mid-block Raised Crosswalk



Figure 42: Pleasant Street Existing Conditions



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

Figure 43: Pleasant Street Bikeway to Fayetteville-Manlius High School

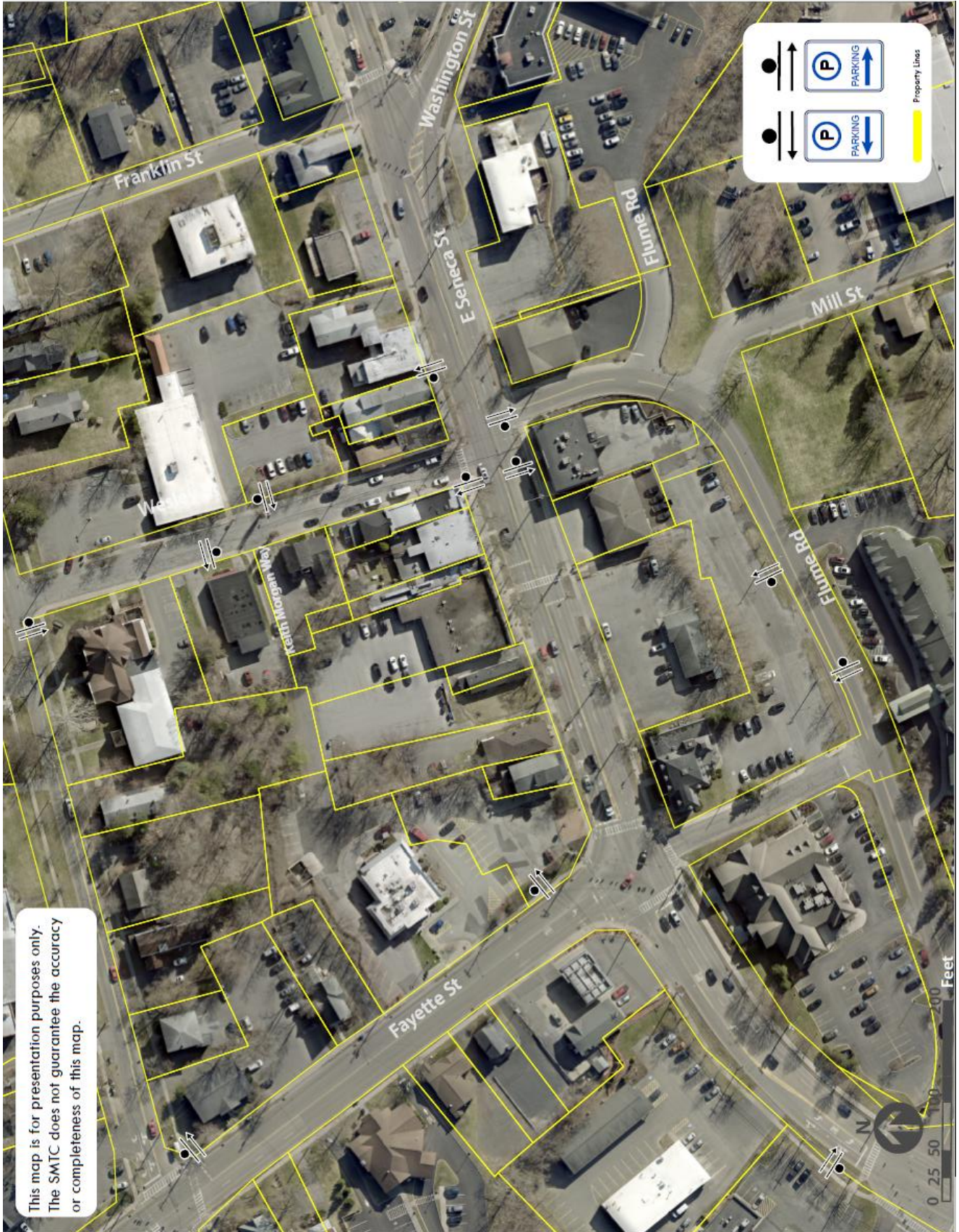


Figure 44: Existing Conditions – Village Center Parking

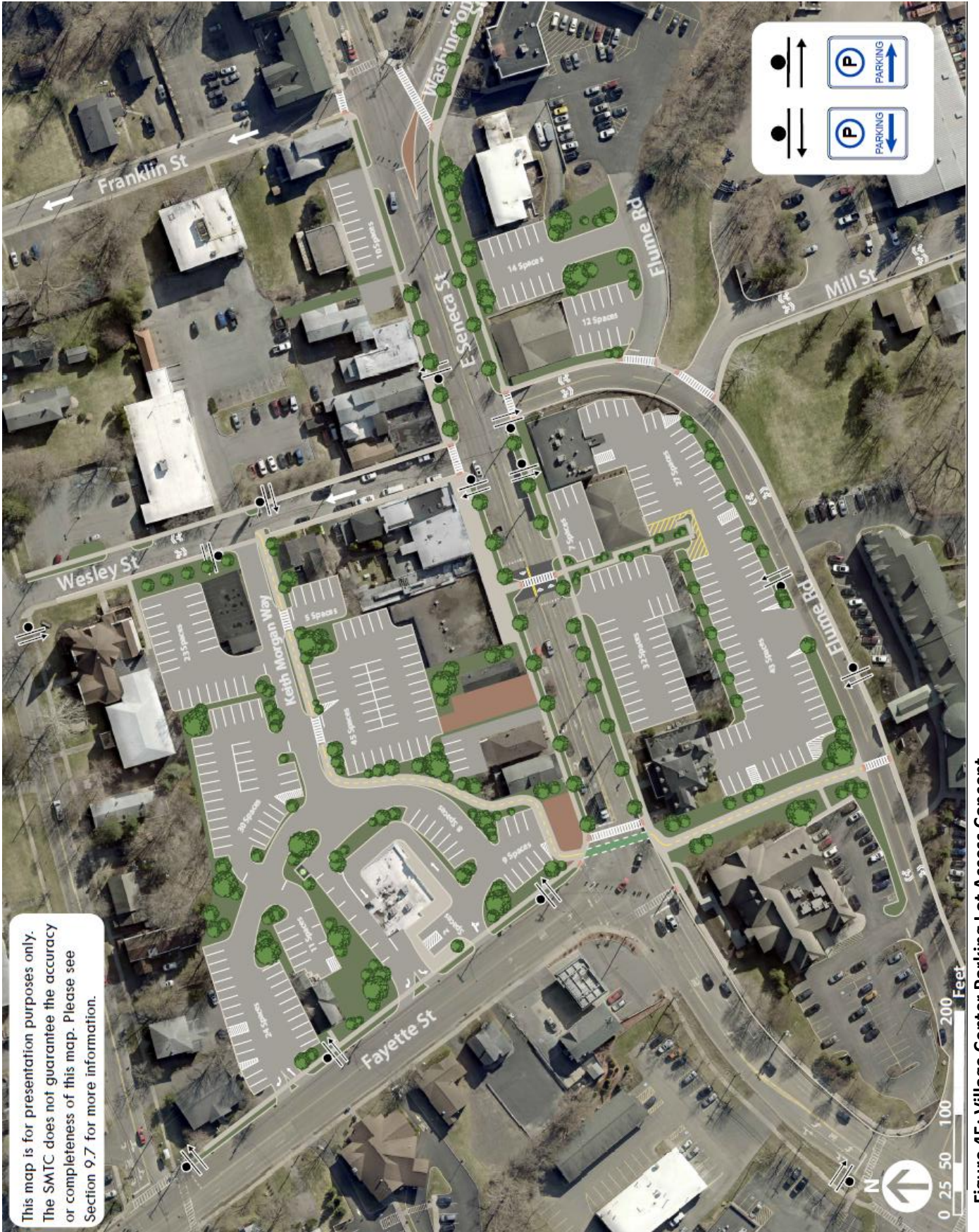


Figure 45: Village Center Parking Lot Access Concept

Wesley Street provides primary access to the lots north of Route 173. Two other access points are shown along Fayette Street. An internal road network directs motorists to parking areas.

Parking lots off Flume Road could maximize the number of spaces by consolidating driveways. Access to the mid-block crossing on East Seneca Street is currently being improved by the village through its grant award from Onondaga County. Figure 45 shows the concept for an improved pathway to be implemented by the Village (Onondaga County Main Street Grant Funds) between Bruegger's and the laundromat. This pathway would connect the mid-block crossing with the parking lot on Flume Road.

The NYSDOT is closing Liberty Lane as part of the upcoming paving project. As shown in Figure 45, an opportunity exists to convert this space into a shared use path to connect walkers and bicyclists between Route 173 and Flume Road. This idea can benefit Brookdale (senior) residents and residents north of Route 173 who want to walk or bike to Mill Run Park.

Suggestions for "P" ("Parking") signs and arrows are provided in Figure 44 and Figure 45. Sign suggestions shown in Figure 44 could be considered if parking lots remain unchanged. Sign suggestions shown in Figure 45 could be considered if the concept plan is implemented.

The former bank building at the corner of East Seneca Street and Washington Street is shown with new access via Flume Road only.

9.8 Miscellaneous Ideas

The following ideas help supplement those presented earlier. They provide additional guidance and insight into refining mobility improvements throughout the community.

- Shared-use paths should be 12' wide (minimum 9') and, where desired, include pedestrian-scale lighting (preferably ornamental). Wider pathways more easily accommodate walkers and bikers and can be more easily maintained by plows in the wintertime. Lighting promotes use and safety, including in the winter when days are shorter.
- Café 119 has a driveway onto Route 173. If desired, the space could be considered for an outdoor seating area (restaurant) or for use as a shared use pathway connection to improve bike and pedestrian access to the businesses fronting Route 173.
- Leading Pedestrian Intervals (at select signalized intersections). Age-restricted senior housing facilities exist – residents often walk for exercise or to access goods and services. Extending the crossing time for pedestrians (including seniors) at the following intersections could be considered if not already incorporated as part of recent or planned improvements:
 - Route 92 and Route 173
 - Route 92, Route 257, Stickley Drive.
- A "zipper merge" may help transition Highbridge Road's (Route 92) two westbound lanes to one westbound lane (before Kelly Drive) earlier from Route 257 and Stickley Drive. Merging the two westbound lanes sooner would allow more space along Highbridge Road to accommodate bike lanes and a pedestrian crossing at Kelly Drive.
- The Village (and Town) of Manlius could also revisit the idea of the Ledyard Canal Trail to provide a shared-use path route between the Village of Manlius and the Village of Fayetteville.

- Roundabouts were not studied in detail for Route 92 and Route 173 due to high traffic volumes and multiple travel lanes. However, SMTC did conduct a preliminary screening to determine where single lane roundabouts may possibly fit (six signalized intersections). Based upon geometric constraints – only two signalized intersections appear to have sufficient space: Route 92/Route 173 and Route 173/Flume Road. Figure 46 and Figure 47 show general layout assumptions.
- The *Eastern Onondaga County Area Study Report* (dated March 1998) identifies an existing route that could allow drivers to bypass the village to the south (page 11, Alternative 2): heading northwest along Route 92 from Cazenovia, left onto Enders Road, left onto Pompey Center Road, right onto Broadfield Road, right onto Gates Road (or right onto Sweet Road). Wayfinding signage along the route could help encourage use.

9.9 Community Feedback

Village Board Meeting - December 13, 2022

SMTC staff gave a 15-minute presentation to the Village Board during their December 13, 2022 business meeting, which started at 6:30 p.m. in the Village Hall. The presentation was an overview of SMTC and of “big picture” ideas developed as part of this study. This was an informational item only – no action was required. In total, approximately 30 people viewed the presentation (Appendix D).

In addition, SMTC staff were available to review printed graphics with the public one hour before and one hour immediately after the presentation. Printed graphics were available to view in the auditorium. Approximately ten

people viewed the graphics before the presentation and one person after.

Participants at the meeting generally voiced support for the following elements of the concepts:

- Align West Pleasant Street & Willowbrook Drive as a new intersection with sidewalks and bike facilities into Tops Plaza:
 - the creation of additional green space
 - the stop-controlled intersection at the corner of the Tops Plaza would improve safety and allow for crosswalks
 - the shared use path from the corner of Tops Plaza to Flume Road (and from Willowbrook Drive into the Village Centre) creates a vital link for bicyclists and walkers to access the Village Centre
 - pedestrian scale lighting improves safety and community aesthetics
 - during community events, people park at Tops Plaza and walk to the Village Center to watch firework shows, parades, etc. – they would greatly benefit from the envisioned connections
- Fill in gaps across the sidewalk network
- Close West Pleasant Street at Route 173 and create a shared use path to the FM High School along north side of Route 173:
 - This reduces the need for people to cross Route 173 twice to access the high school
 - It also prevents westbound traffic on Route 173 to enter Pleasant Street, which occurs illegally even with a posted “do not enter” sign
 - and may also improve safety by incorporating pedestrian-scale lighting

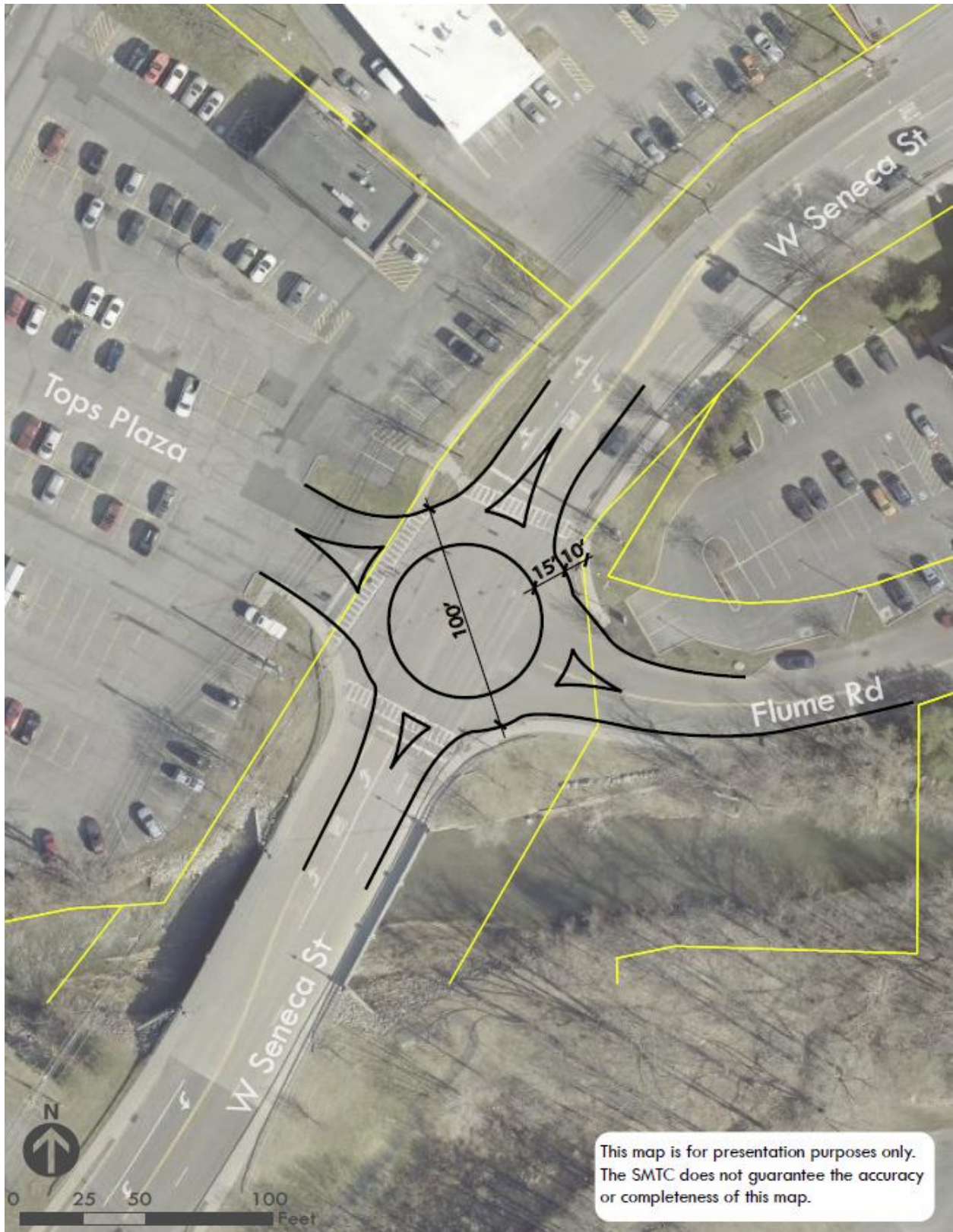


Figure 46: West Seneca Street/Flume Road Roundabout Geometry Screening Concept

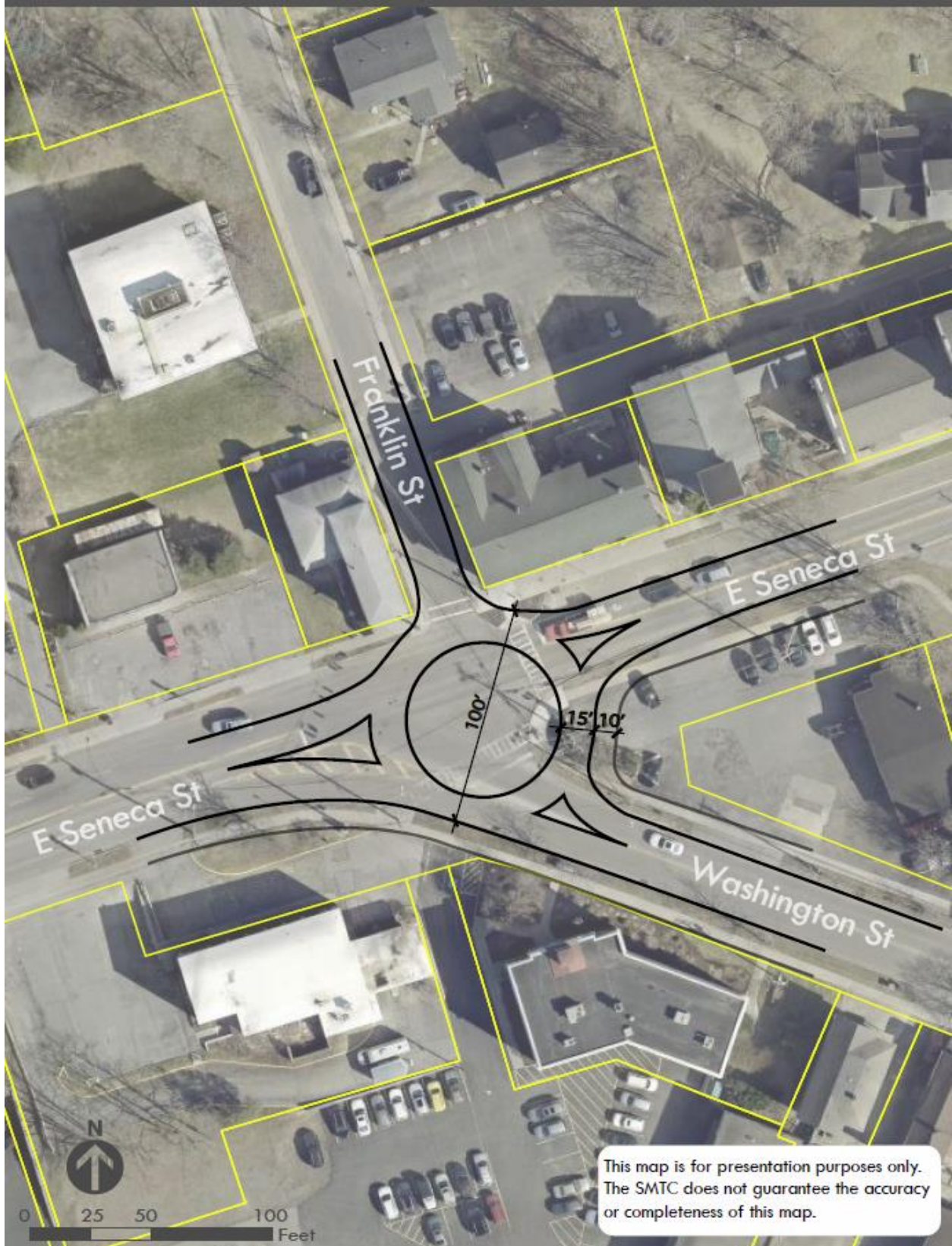


Figure 47: East Seneca Street/Washington Street Roundabout Geometry Screening Concept

- Two roundabout concepts:
 - SMTC staff explained that the concepts suggest the geometry of a single-lane roundabout could potentially fit at the East Seneca Street/Washington Street intersection and at the West Seneca Street/Flume Road intersection; however, SMTC did not conduct an operational assessment of these roundabout concepts
 - One participant suggested that the intersection of Routes 92, 257, and Stickley Drive be considered as a potential candidate for a roundabout. SMTC staff indicated that this intersection was considered in a preliminary screening but was ruled out due to having five legs, several of which are close to each other and would create conflicts with traffic entering/exiting a roundabout.

Some participants expressed concerns about the following:

- Route 173 bridge over the West Branch of Limestone Creek, east of Troop K Road.
 - Narrow shoulders and no sidewalk
 - NYSDOT installed a new pedestrian crosswalk and signals across Troop K Road, but not across Route 173. (NYSDOT PSAP improvement – installed 8/2021.) The crosswalk directs walkers to the bridge
 - Drainage concerns - on the north side of Route 173 along properties east of the bridge. Drain grates exist on the south side – but not on the north side
- Cut-through traffic in the Stoneledge Hills neighborhood expressed interest in traffic calming techniques such as speed cushions/humps.

Public Review of Draft Report – January 13, 2023 to January 31, 2023

SMTC posted a draft report (including appendices) on its website (<https://smtcmpo.org/news/>) on January 13, 2023. The draft report remained available for review and comment until January 31, 2023. SMTC accepted comments via email at: (contactus@smtcmpo.org).

On January 13, 2023, SMTC emailed the SAC and interested community stakeholders to notify them that the report was posted and available for public review. Appendix D includes copies of notices and comments received.

SMTC received two comments.

One person provided comments about the Village Center Parking Lot Access Concept. They disliked some of the ideas shown for the area north of Route 173. One comment resulted in a correction to a parking lot shown (Figure 45). SMTC also updated Section 9.7 to provide additional context and to discuss benefits and limitations. Village representatives responded directly to the commentor. (Copies of comments and responses are in Appendix D.)

The second person expressed support for the recommendations, conceptual examples, and ideas:

“I am in support of their proposed recommendations for the village. When I saw their recommendations, I especially like their proposed ideas around the Tops / Coffee Shop and Diner. I remember the former bike shop owner being frustrated with dangerous cut through traffic so it be not only good for the local businesses but also during big events like the Fireworks on 4th of July.”

9.10 Conclusion

This study does not obligate the Village of Manlius or NYSDOT to implement any of these concepts.

The concepts primarily involve enhancements along Village roads. A few ideas involve State-owned facilities as well as land areas not owned or controlled by the Village. Opportunities may exist to incorporate these concepts, including during site planning review processes as well as by discussing ideas with any parties affected by envisioned improvements. The ideas can help inform future decisions and this report can be used as a resource to help solicit support and financial assistance.

The capacity assessment presented in Chapter 8 informed the NYSDOT of options to enhance Route 173 and Route 92 as part of their upcoming paving project. Many ideas offered by SMTC to NYSDOT because of this study effort were incorporated by the State into their final design plans for the paving project.

Since the capacity assessment suggested it is not feasible to reduce travel lanes along Route 92 and Route 173 to accommodate space for bicycle lanes, SMTC developed a concept plan for a bicycle network to and through the village. Overall, community participants expressed support for concepts (except for the municipal parking lot concept) presented by SMTC to improve mobility throughout the village.