7 | BEST PRACTICES & GUIDELINES

This chapter is intended to provide context for the designs and concepts detailed in Chapter 8: Alternatives & Recommendations. The Facility Design Guidance consists primarily of technical directions gathered from national and state manuals. The Peer Community Review references active transportation-related programs, features, and design guidance that cities across the United States have implemented; all of the peer communities share either demographic, geographic, or climatic similarities to the Village and Town of Geneseo.

7.1 FACILITY DESIGN GUIDANCE

The design guidelines contained in this section are intended to support the recommendations presented in this Plan. They are not intended as comprehensive design standards. Rather, they reference existing design standards and provide clarification or supplemental information as necessary. There are nine primary sources of bicycle and pedestrian facility design information that were used to develop the guidelines provided in this section.

American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities – This document is intended to present information on how to accommodate bicycle travel and operations in most riding environments. It is the design guidance upon which most state and local design guidelines are based. In many jurisdictions this document is considered to set the minimum values for bicycle design.

AASHTO Guide for the Planning, Design, and Operations of Pedestrian Facilities – This document is intended to present information on how to accommodate pedestrian travel and operations in (primarily) roadway environments. It is the design guidance upon which most state and local design guidelines are based. In many jurisdictions this document is considered to set the minimum values for pedestrian design.

NY Department of Transportation Highway Design Manual Chapter 17 Bicycle Facilities Design – This document provides guidance for bicycle facilities that are included in Department of Transportation designs. Because of the scope of this document, its design criteria, while they are relevant to local projects, are not required to be met for local projects unless Federal Transportation Funds are used.

NY Department of Transportation Highway Design Manual Chapter 18 Pedestrian Facilities Design – This document provides guidance for pedestrian facilities that are included in Department of Transportation designs. Because of the scope of this document, its design criteria, while they are relevant to local projects, are not required to be met for local projects unless Federal Transportation Funds are used.

Institute of Transportation Engineers Designing Walkable Urban Thoroughfares: A Context Sensitive Approach – This document's development was supported by the Federal Highway Administration (FHWA). Designing Walkable Thoroughfares helps designers understand the flexibility for roadway design that is inherent in the AASHTO guide A Policy on the Geometric Design of Highways and Streets with a focus on balancing the needs of all users.

Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) – The MUTCD is the national standard for signing, markings,signals, and other traffic control devices. New York State has also adopted a supplement to the MUTCD that provides New York specific standards.

Federal Highway Administration Separated Bike Lane Planning and Design Guidance – Outlines planning considerations for separated bike lanes(also sometimes called "cycle tracks" or "protected bike lanes") and provides a menu of design options covering typical one-way and two-way scenarios. To encourage continued development and refinement of techniques, the guide identifies specific data elements to collect before and after implementation to enable

future analysis across facilities in different communities. It identifies potential future research, highlights the importance of ongoing peer exchange and capacity building, and emphasizes the need to create holistic ways to evaluate the performance of a separated bike lane.

National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide **–** FHWA has issued a memo supporting the use of this document to further develop non-motorized transportation networks, particularly in urban areas. Many of the designs in this document have been used successfully in urban areas. However, care should be exercised when applying the treatments described in this document to suburban or rural areas.

National Association of City Transportation Officials (NACTO) Urban Street Design Guide – This document provides information relevant to pedestrian, bicycle, and public transit facility design in areas with high levels of pedestrian and bicycle traffic. The recommendations within this guide may only be applicable in certain busier districts within this project.

BIKE LANES

Definition: A bike lane is a portion of the roadway that has been designated for preferential or exclusive use by bicyclists by striping, signing and pavement markings. Bike lanes are intended for one-way travel, usually in the same direction as the adjacent travel lane. Bike lanes should be designed for the operation of bicycles as vehicles, encouraging bicyclists and motorists to interact in a safe, legal manner. Bike lanes should be designated with bike lane markings, arrows, and bike lane signs.

Types:

- *Typical Striped & Signed Bike Lane:* Typical Bike Lanes are separated from the roadway via a striped line, and indicated for bicycle-use only by signage and pavement markings.

- *Buffered Bike Lane:* A buffered bike lane is a bike lane that is separated from adjacent through lanes by a striped out buffer area. In areas with space over 6 feet, on roadways with faster vehicular traffic, or where a wide bike lane might be perceived as on-street parking or as another travel lane, a buffered bike lane may be considered. Between intersections, the buffered bike lane is separated from the travel lanes by a chevroned buffer. The width of the buffer will vary depending upon such conditions as motor vehicle speed, percent heavy vehicles, roadway cross slopes, and desired level of accommodation of bicycles. At intersections, buffered bike lanes must be striped to allow for right turning motorists. Typically this is done by eliminating the buffer on the approach to intersections and striping the area as one would a regular bike lane.

Design Guidance: Usable width of pavement.

Widths	Conditions	Bike Lane Facility
<4 Feet	All Roadways	None
4 - 5 Feet	Roadways with no curb & gutter and no on-street parking	Striped & Signed Bike Lane
5 Feet +	Roadways with curb and guttered edges, and/or on-street parking	Striped & Signed Bike Lane
6 Feet +	All Roadways, particularly those with higher speeds	Buffered Bike Lane

**Along sections of roadway with curb and gutter, a usable width of 4 feet measured from the longitudinal joint (the seam where one paved lane meets another) to the center of the bike lane line is recommended.*

***AASHTO Guide for the Development of Bicycle Facilities*

Intersection Design: At intersections, bike lanes must be designed to encourage legal movements at the intersection; this includes proper positioning of bicyclists and motorists. Bike lane stripes should be dashed on the approaches to intersections without right turn lanes. Where there are right-turn lanes, through bike lanes must be placed to the left of the right turn lane. Right-turn only lanes should be as short as possible in order to limit the speed of cars in the right turn lane. Fast moving traffic on both sides can be uncomfortable for bicyclists (NACTO). Per Section 4.8 of AASHTO Guide for the Development of Bicycle Facilities, bike lanes should be continuous through intersections. For example, if a bike lane is provided to the intersection, a receiving bike lane should be provided on the departure side of the intersection.

Signage: The NYS Supplement to the MUTCD requires bike lane signage to be present for marked bike lanes.

MULTI USE SHOULDERS

Definition: Multi-Use Paved Shoulders are on-road facilities separated from vehicular traffic by edge lines. These areas are shared by multiple user groups, including cyclists, pedestrians, joggers, in-line skaters, and emergency vehicles. Though not as comfortable or safe for cyclists or pedestrians as bike lanes or sidewalks, multi-use shoulders can provide opportunities for active transportation on roadways that may not be conducive to other facilities.

Design Guidance: *Usable Width:* On new or retrofitted roadways, paved shoulders should meet or exceed AASHTO standards.

Width	Conditions
4 Feet +	All roadways without curbs or vertical obstructions immediately adjacent to the roadway
5 Feet +	All roadways with curbs or vertical obstructions immediately adjacent to the roadway

**roadways with expected higher bicycle usage rates, roadways with motor vehicle speeds exceeding 50 mph, or roadways heavily used by trucks and buses should have increased shoulder widths as necessary.*

Signage: Signage guides cyclists and alerts motorists to the presence of cyclists and/or pedestrians. If a roadway is along a designated bicycle route, signs can be used to alert cyclists to the presence of an interregional or state route. If desired by a municipality and, if necessary, approved by NYSDOT, the MUTCD's Bicycle Warning Sign (W11-1) could be used to alert road users to locations where unexpected entries into the roadway by cyclists could be expected. Section 1A.03: Design of Traffic Control Devices, in the NYSDOT MUTCD states that "highway agencies may develop word message signs to notify road users of special regulations or to warn road users of a situation that might not be readily apparent. Unlike symbol signs and colors, new word message signs may be used without the need for experimentation."

SHARED LANE MARKINGS

- ***Definition:*** When traffic lanes are too narrow to be shared side by side by cyclists and passing motorists, Shared Lane Markings (SLMs) provide an alternative. While generally less impactful than other more substantial facility improvements, SLMs encourage vehicular drivers to recognize that cyclists have the right to ride closer to the center of the road when needed for safety, and cues motorists to pass with sufficient clearance. By riding further to the left, cyclists can avoid riding too close to parked cars, where they can be struck by a suddenly opened car door, and can avoid riding on the roadway edge, which often is filled with drainage structures, poor pavement, debris, and other hazards.

Shared Lane Markings are designed to:

- Alert motorists to the lateral location bicyclists are likely to occupy within the traveled way
- Encourage safe passing of bicyclists by motorists,
- Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane,

- Reduce the incidence of wrong-way bicycling, and
- Where on-street parking exists, to assist bicyclists with lateral positioning in a shared lane with on-street parallel parking to reduce the chances of a bicyclist impacting the open door of a parked vehicle.

While widely used, it is important to remember that Shared Lane Markings are best conceptualized as secondary measures when other facility improvements are not practical or possible.

Design Guidance:

Speed Limits: MUTCD guidance suggests that SLMs be used on roadways with speed limits at or under 35MPH. NYSDOT TSMI 13-07 - Shared Lane Markings (SLMs) Policy should be referenced for NYSDOT roadways.

Placement:

- SLMs may only be used on roadways with lanes 14' or less in width
- On roadways without on-street parking, the centers of the SLMs must be placed at least 4 feet from the edge of the roadway
- On roadways with on-street parking, the centers of the SLMs must be placed at least 11 feet from the edge of the roadway

Usage: SLMs are not permitted to be included on shoulders or in conjunction with other bicycle facilities, such as bike lanes

BICYCLE BOULEVARDS

Definition: A bike boulevard is a local street or series of contiguous street segments that have been modified to provide enhanced accommodation as a through street for bicyclists while discouraging through automobile travel. Bike boulevards usually make use of low volume, very low speed local streets. Often bike boulevards include bicycle friendly traffic calming treatments (speed pillows, mini traffic circles, chicanes with bike bypass lanes, etc.) to reduce speeds of motor vehicles along the roadway.

Design Guidance:

Location: When primary arterial roadways cannot be improved to the point where most cyclists feel safe and comfortable, a parallel roadway may be designated as a 'Bike Boulevard.' These roadways can be improved in stages, initially with signage and Shared Lane Markings and ultimately with more substantial improvements such as traffic calming measures and diverters.

Signage: Because of low motor vehicle speeds and volumes, bike lane markings are often not necessary along Bike Boulevards. However, Shared Lane Markings are permitted on Bike Boulevards, and on-road signage that states “BIKE BLVD” has also been used.

BIKE ROUTES

Definition: Bike routes are a wayfinding system of route signs that designate a collection of facilities that are preferable for bicycle travel. At a minimum, bike routes include a system of route signs that provide information about the destinations, distances, and directions.

Types:

- *General Bike Routes* link specific origins to specific destinations, including attractions, neighborhoods, and trail networks.
- *Numbered Bike Routes* form a network of bike routes that serve as general travel routes throughout a community or region.

Design Guidance:

Location: Bike routes are generally designed to link high-demand areas, including residential, retail, and educational districts.

Signage: Per the D11 Series in the MUTCD, signs may be provided along designated bicycle routes to inform cyclists of route direction changes, distances, and destinations. The development and placement of specific signs can be developed based on local needs and wayfinding opportunities.

BICYCLE PARKING FACILITIES

Definition: Bike parking facilities encourage community members to cycle, by providing safe, accessible, and protected spaces for people to store bicycles at key destinations. Bicycle parking provides numerous benefits to the community, as businesses profit from catering to the cycling community and illustrating their commitment to sustainability and cyclists benefit from safe, secure places to lock their bicycles. Additionally, providing bicycle parking reduces the amount of bicycles that are haphazardly locked onto street furniture and railings; this improvement helps prevent damage to street furniture, ensure that railings are free to be used by those with mobility challenges, and improve the aesthetics of an area.

Design Guidance: Bicycle parking facilities should be available at all key destinations within a community, and should be built on a firm, stable surface. If possible, larger sheltered bicycle parking facilities should be provided in centralized areas with high demand. In particular, covered bicycle shelters provide protection from all weather, promoting year-round use of bicycles. All specific parking requirements should follow Leadership in Energy and Environmental Design (LEED) Design Standards for sustainable sites.

SHARED USE PATHS

Definition: Shared Use Paths are facilities separated from motor vehicle traffic by open space or a barrier, and are located either in the highway right-of-way or on an independent right-of-way. They are open to many different user types including cyclists, pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. Most shared use facilities are two-way, and may not be used by emergency vehicles except in emergency situations.

Design Guidance:

Widths, Speeds, & Other Design Criteria: Shared use paths have design criteria for many of the same parameters as roadways. These include widths, horizontal clearances, design speed, horizontal alignment, stopping sight distance, cross slopes, grades, vertical clearance, drainage, and lighting. The AASHTO Guide for the Development of Bicycle Facilities should be consulted for design values.

Pavement: Most shared use path projects will be paved. Asphalt and Portland cement concrete are the two most common surfaces for shared use paths. In areas where path use is expected to be primarily recreational, unpaved surfaces may be acceptable for shared use paths. Materials should be chosen to ensure the ADA requirements for a firm, stable, slip resistant surface are met. Even when meeting ADA criteria, some users such as in-line skaters, kick scooters, and skateboarders may be unable to use unpaved shared use paths.

Geometric Design: The geometric and operational design of shared use paths is quite similar to that of roadways. However, additional considerations such as aesthetics, rest areas, amenities, and personal security are also important to ensure the maximum number of potential users are encouraged to use the path for both utilitarian and recreational purposes.

Safety: Sometimes local resistance to implementing shared use paths and other trail facilities exists because of perceived potential negative impacts to neighboring communities, usually in terms of property values and crime or vandalism. A valuable resource in discussions of these matters is a summary of national research conducted for a state department of transportation. The studies cited collectively suggest that property values frequently increase following the construction of shared use paths while crime rates are sometimes found to decrease.

Signage: The MUTCD provides the standards for signing, striping, and markings shared use paths. In most cases, the signs and markings use on shared use paths are smaller versions of those used on roadways. Many shared use paths are separated from the roadway network. Consequently, street name signs should be provided at intersecting roadways to help users orient themselves to the roadway network. Wayfinding signs should be used on paths and to potential destinations along the path such as locations where users can access water fountains and restrooms. At trailheads and rest areas, the distance and direction to the next trail head should be posted

SIDEWALKS

Definition: For the purposes of design, the term sidewalk means a smooth, paved, stable and slip-resistant, exterior pathway intended for pedestrian use along a vehicular way.

Design Guidance:

Location: Wherever possible, sidewalks should be provided on both sides of all public roadways. Sidewalk alignments, which are set back from the roadway, should taper for alignment closer to the roadway at intersections. This will allow for coordinated placement of crosswalks and stop bars. On roadways with curb and gutter, sidewalks should be located six feet from the back of curb when feasible. This minimizes the encroachment of curb ramps and driveway cuts into the sidewalk width. On roadways without curb and gutter, sidewalks should be separated from the roadway as shown by the following criteria, which are given in a sequence of desirability:

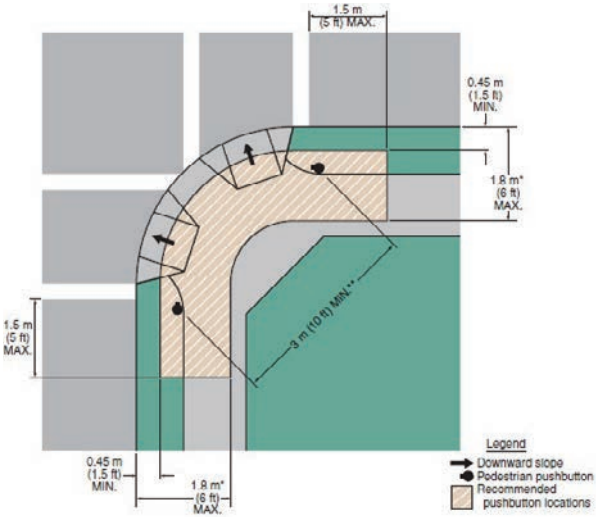
- At or near the right-of-way line (ideally, 3 feet of width should be provided behind the sidewalk for access, construction, and maintenance)
- Outside of the minimum required roadway clear zone, or
- As far from the edge of the driving lane as practical.

Width: The preferred minimum sidewalk width is 5 feet. AASHTO's A Policy on the Geometric Design of Highways and Streets and Guide for the Planning, Design, and Operations of Pedestrian Facilities recommend sidewalks at the back of curb be at least 6 feet wide.

Accessibility: All sidewalks constructed within the Village and Town of Geneseo must be compliant with the Americans with Disabilities Act Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (July 26, 2001) or most recent ADA standards for public rights of way.

Slopes: The maximum cross slope on a sidewalk is 2%. This maximum cross slope must be maintained across driveways and crosswalks. Sidewalks may follow the grade of the adjacent roadway. However, on new structures the grade of the sidewalk cannot exceed 5%. If a grade of more than 5% is required on a new structure, an ADA compliant ramp must be provided.

CURB RAMPS & BLENDED TRANSITIONS



Definition: A curb ramp is a ramp that cuts through or is built up to the curb. A blended transition is a relatively flat area where a sidewalk meets a roadway. Curb ramps and blended transitions are primarily used where a sidewalk meets a roadway or driveway at a pedestrian crossing location. Blended transitions include raised pedestrian street crossings, depressed corners, or similar connections between pedestrian access routes at the level of the sidewalk and the level of the pedestrian street crossing that have a grade of 5% or less.

Design Guidance:

Accessibility: Accessibility requirements for curb ramps and blended transitions serve two primary functions. First, they must alert pedestrians that have vision impairments to the fact that they are entering, or exiting, the vehicular area. Second, they must provide an accessible route for those using wheelchairs or other assistive devices. Ideally, a separate ramp should be provided for each crossing of the roadway.

Slopes: Curb ramps should adhere to the 2010 ADA Standards for Accessible Design, which sets allowable cross slopes of 1:48; the 2011 Notice of Proposed Rule-making is more stringent requiring 1:50 (although it is our understanding that the as yet unpublished rule will allow 1:48). FHWA has suggested that either the 2010 ADA Standards for Accessible Design or the 2011 Notice of Proposed rule-making can be used by agencies. Whichever is chosen, the chosen standards must be applied in its entirety.

MID BLOCK CROSSINGS

Definition: Midblock crosswalks facilitate crossings to places that people want to go but that are not well served by the existing traffic network, which typically only includes pedestrian crossings at intersections. Mid-block pedestrian crossings commonly occur at schools, parks, museums, waterfronts, and other destinations. While drivers may not expect to encounter pedestrians at midblock locations as much as they do at intersections, midblock crossings have fewer conflict points between vehicles and pedestrians, which is an important safety advantage over crossings at intersections.

Design Guidance:

Location(s): Midblock crossings are provided in locations where crossings at intersections are not available or are inconvenient for pedestrians to use. Midblock crossings must be placed in convenient locations to encourage pedestrians to use them rather than other, more convenient, unmarked midblock locations.

Accessibility: Aids for pedestrians with visual impairments should be provided to help recognize the presence of a midblock crossing and the best opportunities for crossing. Auditory and tactile information should be provided for pedestrians with visual impairments since clues present at an intersection crossing are not always available at a midblock crossing (such as the sound of traffic stopping and starting).

National Association of City Transportation Officials (NACTO)

Pedestrian Approach: The pedestrian approach is the area near the crossing where pedestrians wait on the side of the roadway and away from traffic until they are able to cross. It is often part of the sidewalk, if the sidewalk is adjacent to the curb line, or an extension or spur of the sidewalk that provides a path from the sidewalk to the crossing, if the sidewalk is not immediately adjacent to the curb. The pedestrian approach design should accomplish the following:

- Encourage pedestrians to cross at the marked crossing. The approach design should discourage pedestrians from crossing away from the marked crossing. The path to the crossing should be as direct and easy to navigate as possible.
- Keep pedestrians visible to approaching drivers and oncoming vehicles visible to pedestrians. Pedestrian furniture, traffic control devices, planters, and other objects should be located so they do not block pedestrians from the sight of approaching drivers. Also, on-street parking should be restricted near the crossing so that parked vehicles do not limit sight lines.
- In areas with high volumes of pedestrians, there should be sufficient space for pedestrians to queue as they wait for an appropriate time to cross. Pedestrian storage should be designed to prevent crowds of pedestrians from spilling onto the roadway. Pedestrian storage area design can be especially important at bus stops, and care should be taken so that children can wait a safe distance from the roadway while waiting for a school bus. Midblock curb extensions are a common and effective treatment at midblock locations and have many benefits.
- Direct pedestrians to the proper location to activate a pedestrian signal (if present) and wait for an appropriate time to cross. Pedestrian-activated traffic control devices should be accessible to pedestrians with visual impairments and those using wheelchairs, scooters, and walkers. The approach design should make clear where pedestrians should stand while waiting to cross.

Motorist Approach: Care should be taken to avoid locations where horizontal or vertical alignment of the roadway limit drivers' sight distance, view of the pedestrian approach to the crossing, or view of the crossing itself. Consideration should be given to how trees, shrubs, poles, signs, and other objects along the roadside might limit a driver's view of the crossing. On-street parking should be prohibited near the crossing using either signs and markings or physical barriers such as a curb extension, since a pedestrian who steps out into the road between parked cars can be blocked from the view of oncoming drivers. Traffic calming devices and

other measures to prevent high vehicle speeds should be considered along routes with midblock pedestrian crossings. More than 80% of pedestrians die when struck by vehicles traveling at greater than 40 mph versus less than 10% when cars are traveling at 20 mph or slower. In addition, vehicles traveling at lower speeds require less distance to come to a complete stop when braking.

Spacing: While there is no absolute rule for crosswalk spacing, crosswalks in busier areas that are 200' apart have generally been shown to be sufficient.

Striping: Regardless of the paving material, the crosswalk should be striped to increase visibility of the crosswalk, particularly at night. NYSDOT recommends the use of LS crosswalk striping at mid-block crossings, which includes both painted lines that are both parallel and perpendicular to oncoming traffic.

Signage: Signing and markings on and along the motor vehicle approach to a midblock crossing should be designed in such a way as to make drivers aware of the crossing in time to notice and react to the presence of a pedestrian, and to enhance the visibility of the crossing. Advanced warning signs should indicate any special traffic control used at the pedestrian crossing. In complex pedestrian environments, wayfinding signs may be appropriate to guide people to their desired destination. Actuated pedestrian signals (half signals), hybrid beacons, or rapid flash beacons may be considered at greenway crossings, midblock locations, or unsignalized crossings where infrequent crossings make a traffic signal or stop sign unnecessary. Refer to the AASHTO Guide for the Development of Bicycle Facilities for examples of midblock control treatments for shared use paths.

Activated Crossing Technology: Rapid Rectangular Flashing Beacons are pedestrian-activated flashing lights that supplement existing crosswalk signage. RRFBs have been generally shown to enhance the safety of pedestrian crossings, and have interim approval from NYSDOT on state roadways. Though there are no national warrants for RRFB installation, the MUTCD's interim approval document contains general guidelines for installation that can be utilized throughout all roadways.

TRANSIT STOPS

Definition: Improving transit stops can increase convenience, comfort, and attractiveness, thus potentially increasing ridership and encouraging more use of active transportation modes. Transit stops provide opportunities to utilize sustainable design and construction strategies, improve storm water quality with green infrastructure, and improve the streetscape aesthetics.

Research: A study conducted by the Robert Wood Johnson Foundation in 2009 found that Public Transit and Active Transportation are closely related and mutually supportive. Every ride on a bus starts and

ends with walking. Nationwide, 29 percent of those who use transit were physically active for 30 minutes or more each day, solely by walking to and from public transit stops. Similarly, transit users took 30 percent more steps per day and spent 8.3 more minutes walking per day than did people who relied on cars.

Design Guidance:

Accessibility: Both new and existing bus stops need to be ADA accessible. To be accessible, the following details need to be considered during design and construction:

- A firm, stable surface when new bus stop pads are constructed at bus stops where a lift or ramp is to be deployed
- A minimum clear length of 96” (measured from the curb or vehicle roadway edge) and a minimum clear width of 60” (measured parallel to the vehicle roadway) to the maximum extent allowed by legal or site constraints
- Connections to streets, sidewalks or pedestrian paths by an accessible route
- The slope of the pad parallel to the roadway should be the same as the roadway, and for water drainage, a maximum slope of 1:50 (2%) perpendicular to the roadway
- New or replaced bus shelters should be installed or positioned so as to permit a wheelchair or mobility aid user to enter from the public way and to reach a location, having a minimum clear floor area of 30” x 48”, entirely within the perimeter
- Shelters should be connected by an accessible route to the boarding area.

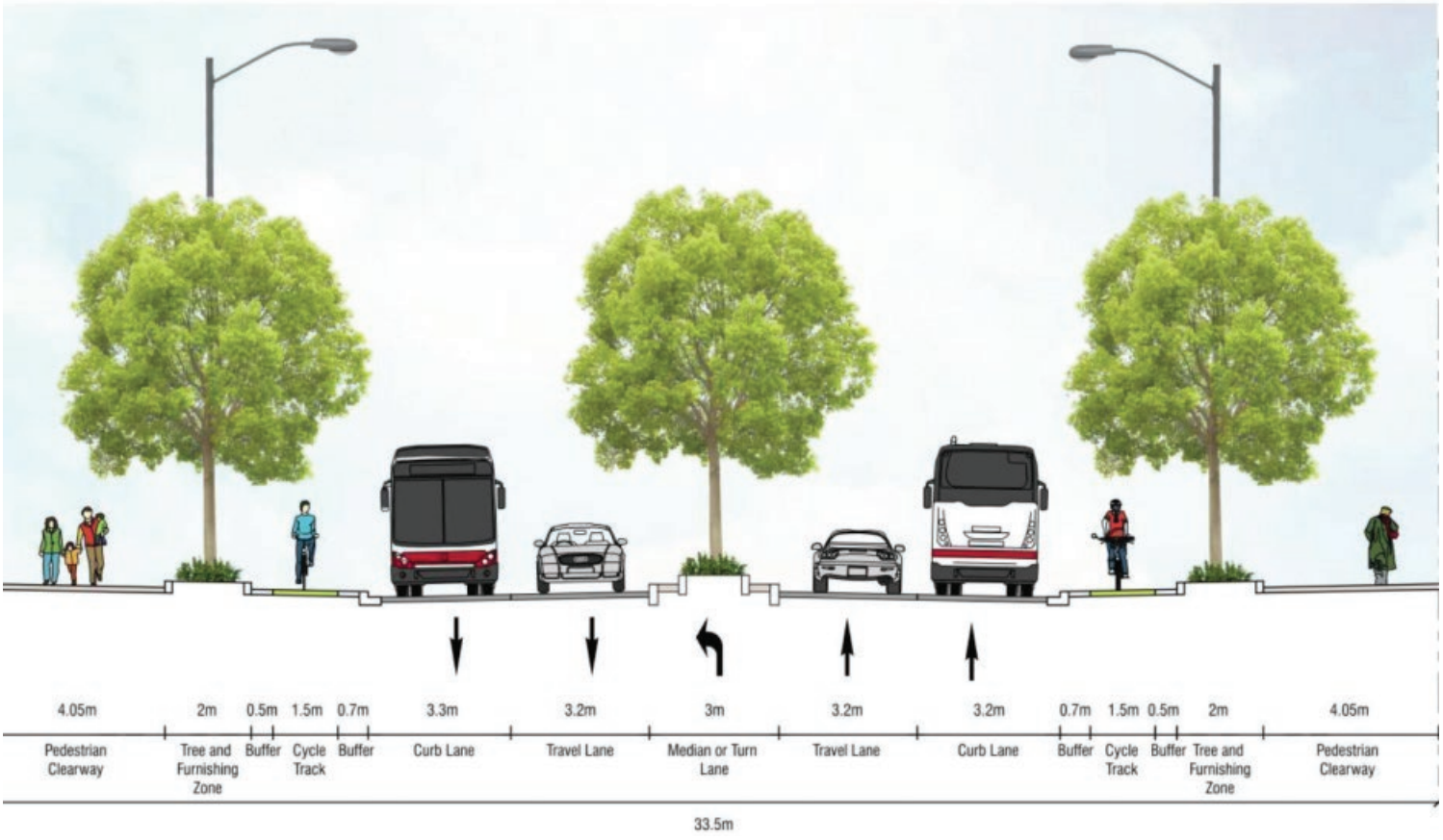
Signage: All new bus route identification signs should be appropriate in finish and contrast, character height and proportion. When applicable, wayfinding signage can help community members locate the nearest public transit stop to their residence or destination, potentially increasing ridership.

COMPLETE STREETS

Definition: According to the National Complete Streets Coalition (NCSC),complete streets are roadways designed and operated to enable safe, attractive, and comfortable access and travel for all users. Pedestrians, bicyclists, motorists and public transport users of all ages and abilities are able to safely and comfortably move along and across a complete street. Complete streets also create a sense of place, improve social interaction, and generally increase land values of adjacent properties.

Research: A Federal Highway Administration safety review found that designing a street for pedestrian travel by installing raised medians and redesigning intersections and sidewalks reduced pedestrian risk by 28%.

Design Guidance: Complete streets look different in different places. They must fit with their context and to the transportation modes expected. Although no singular formula exists for a complete street, an effective one includes at many of the following features: sidewalks, bus pullouts, bike lanes, special bus lanes, wide shoulders, pedestrian scale lighting, raised crosswalks, plenty of crosswalks, audible pedestrian signals, refuge medians, and sidewalk bump-outs (bulb-outs).



7.2 PEER COMMUNITY REVIEW

This section examines several communities that have faced active transportation opportunities and challenges that are similar to those found in Geneseo. Whenever possible, communities with similar demographic, geographic, and climatic characteristics to Geneseo have been chosen; when necessary, best practices from municipalities across the United States have been cited. Based on information gathered during this project's inventory and analysis phase, the following categories have been researched; at least one precedent of each has been described below:

- Bicycle Boulevards
- Sidewalk Dining Standards
- Bike Share Programs
- Connections to Trailways
- Rural Road Facilities
- Winter Snow Removal
- Bike Parking Codes

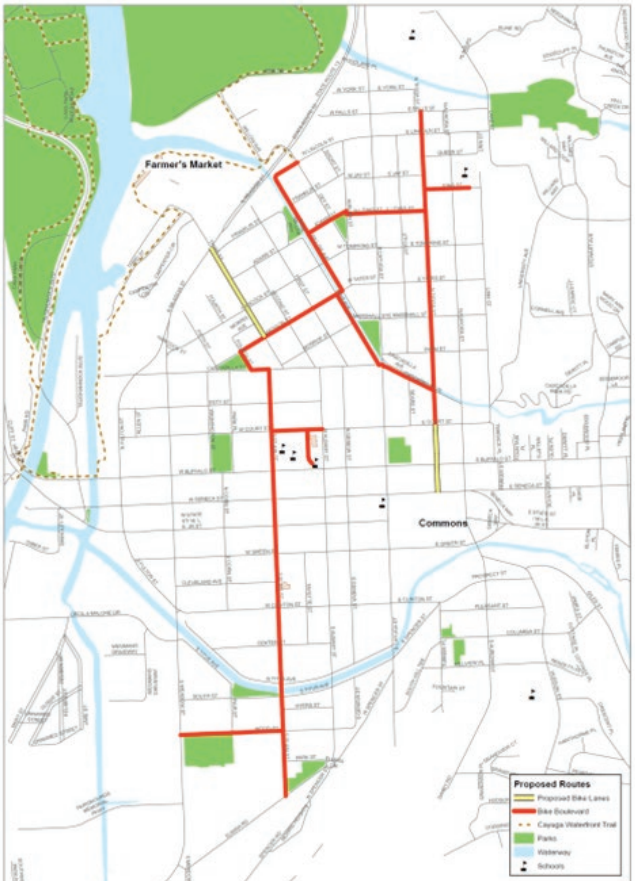
BICYCLE BOULEVARDS

City of Ithaca, New York

The City of Ithaca, NY bears many resemblances to the Village of Geneseo. Both are relatively small communities with similar Upstate New York climates and hilly terrain whose economies are centered largely on post-secondary education. Both are principal population centers in a largely rural county, and offer services both to local and regional residents.

The City of Ithaca Engineering Office produced the City of Ithaca Bicycle Boulevard Plan in 2012. It identified priority routes consisting of low-traffic residential streets that could be connected to form low-stress, bicycle-prioritizing routes through the city. These include traffic calming measures such as speed tables and chicanes, and provide wayfinding signage to allow bicyclists to easily navigate the street network and reach their destinations quickly. The network of bicycle boulevards laid out in the city was estimated to cost under $100,000 and provided a significant benefit to casual transportation bicyclists, as well as children and older adults who are especially likely to feel uncomfortable riding on busy main streets.

Bicycle Boulevard Map



SIDEWALK DINING GUIDELINES

Cities of Ithaca, NY; Geneva, NY; Richmond, VA

Particularly along 'downtown' corridors, sidewalk dining guidelines can help ensure that outdoor eating spaces do not inhibit the pedestrian right of way and or infringe upon minimum standards for accessibility. By balancing various functions, sidewalk dining guidelines can help streets can become safe and enjoyable places to both walk through and spend time on. The following cities have successful sidewalk dining guidelines and corridors that are similar in character to the Main St./ Downtown district in Geneseo.

Ithaca	The dining area shall not block fire lanes or impede pedestrian traffic flow. The dining area shall not extend beyond the Applicant's storefront. Any signage must be contained within the marked outdoor dining area.
Ithaca	Furniture and fixtures, as well as any means used to define the dining area, will be allowed only during approved outdoor dining hours and must be located within the defined outdoor dining space.
Ithaca	The merchant shall be completely responsible for all aspects of the area including cleanliness, ensuring all furniture and fixtures are within the defined dining space, and stain removal, using the maintenance guidelines established by the Department of Public Works.
Ithaca	The City cleans/sweeps all sidewalks downtown beginning at 7:00 a.m. daily. If tables and chairs are placed outside prior to that work being completed, it will be the responsibility of the business to clean and sweep their sidewalk and outdoor dining area.
Ithaca	The Annual Outdoor Dining Permit shall run from April 1 through March 31; A Seasonal Permit may be requested for April 1 through October 31.
Geneva	All sidewalk dining areas must allow for 6 feet of unencumbered pedestrian flow along the sidewalks. These areas must be ADA accessible.
Richmond	If sidewalk dining areas extend more than 36" away from the building, barriers must be included at the edge of the applicant's storefront to warn pedestrians of upcoming obstacles
Richmond	All barriers must be no more than 6" off of the ground, so that sight-impaired individuals may be able to detect obstacles

BIKE SHARE

City of Rochester, New York

The City of Rochester Bicycle Master Plan includes many recommendations for improving bicycling, and the City shares Geneseo's climate as well as a substantial student population.

The City introduced a bicycle sharing system in 2017, with approximately 40 stations spanning the City and concentrated near popular locations, such as the University of Rochester and the dense urban neighborhoods in and adjacent to downtown. The system is owned and operated by a private company. It allows people who do not own bicycles or do not wish to lock them outdoors to participate in bicycle transportation, and increases options and flexibility for multimodal transportation. This bicycle share system sees several hundred thousand rides per year and is considered to be very successful.

Village of Brockport, New York

The Village of Brockport has similar size and configuration as Geneseo, with a small downtown core and a SUNY campus located just outside it. It also shares Geneseo's climate. The Bike Share program at SUNY Brockport helped the school gain recognition as a Bicycle Friendly University in 2016.

SUNY Brockport operates the Fast Trax bicycle sharing service through Parking and Transportation Services. This allows students, faculty, and staff to check out bikes at no cost for 24 hour blocks. Each bike is issued with a lock, and helmets are available. Bikes are available at several locations around campus, in order to facilitate the use of the bikes for short-term rides. The school also offers the Eagle Bike Share program, which allows registered members to check out a bicycle for up to 48 hours.

TRAIL CONNECTIONS

City and Town of Geneva, New York

Geneva's size, geographic location, and identity as a college town are similar characteristics to Geneseo. Its proximity to the Cayuga-Seneca trail also offers a worthwhile comparison, as the City center is located within biking and walking distance to the trail, similar to the Village of Geneseo's proximity to the Genesee Valley Greenway.

The Cayuga-Seneca Trail in Seneca and Ontario counties is being constructed in phases, and it currently begins near the border of the City of Geneva and ends in the Village of Waterloo. Eventually, this trail is planned to connect to Montezuma Wildlife Refuge and the Erie Canal Trail. It has the potential to be useful for commuting and recreational cycling and walking, as well as cyclo-tourism, but the trail initially ended abruptly with the only connection to the City of Geneva being along a high-volume roadway. In the Geneva Active Transportation Plan, a strategy was identified to construct a short segment of trail to link in with the existing network within Seneca Lake State Park. This connection, which included the construction of a boardwalk, a pedestrian bridge under NYS Route 96A, and a safe railroad crossing, was completed in late 2018, allowing safe passage of bicyclists and pedestrians from the urban center to the trail.

RURAL ROADWAY FACILITIES

Town of Geneva, New York

The rural roads within the Town of Geneva are similar in speed, width, and surrounding character to the roads in the Town of Geneseo.

The Geneva Active Transportation plan advises that providing multi-use shoulders on roads (often rural) that are incompatible with or cost-prohibitive to add bike lanes, construction of a properly designed multi-use shoulder can be nearly as good for bicycle and pedestrian level of service as a true, officially signed bicycle lane. Design of new or retrofit of existing paved shoulders should comply with AASHTO standards; "on uncurbed cross sections with no vertical obstructions immediately adjacent to the roadway, paved shoulders should be at least 4 ft wide to accommodate bicycle traffic. Shoulder width of 5 ft is recommended from the face of a guardrail, curb, or other roadside barrier to provide additional operating width…" Areas with expected higher bicycle use should have increased shoulder widths as necessary in addition to areas where motor vehicle speeds exceed 50 mph or are used by trucks and buses.

WINTER SNOW REMOVAL

City of Boulder, Colorado

Though far larger than Geneseo, and located in a different geographical area, the City of Boulder faces similar issues with winter weather and still maintains an active bicycling and pedestrian community.

Formal snow maintenance policies have been in place since 1996. A crew dedicated to clear the off-street trail system (for trails adjacent to city property) is deployed at the same time the road clearing crew is dispatched. Trails that are on University or County property are the responsibility of that agency. Because the primary route is towards the center of the road, bike lanes may get secondary treatment but are still typically cleared within a day or two of a snow event. Wide sidewalks (Boulder designates some of them as multi-use paths) tend to be maintained by the City, though the city's code makes clearing a minimum five foot path the responsibility of the property owner.

ZONING CODES & BICYCLE PARKING

City of Minneapolis, Minnesota

The City of Minneapolis has fostered a thriving active transportation community through codes that require an abundance of pedestrian and bicycle infrastructure. Though the city is far larger than Geneseo, it can provide a model for progressive policies and programs.

Minneapolis has an extensive bicycle parking program and has published a Bike Racks and Lockers Map to help bicyclists find available parking. There are approximately 3600 racks, 16,000 spaces, 29 locker locations and 249 locker spaces. Showers are available with rental of bike lockers at two locations. Costs are as follows:

- $10: Key Deposit
- $30: Seasonal Locker (Apr 1-Nov 30)
- $50: Annual Locker
- $80: Seasonal Locker and Shower (Apr 1-Nov 30)
- $100: Annual Locker and Shower

Most new buildings in Minneapolis are required by zoning law to provide bicycle parking. The table below outlines these requirements.

New Buildings (as of 1/09)	*Minimum Bicycle Parking Requirement*
Non-residential uses < 1,000 sq. ft.	Exempt
Residential – Single Family to 4 units	Exempt
Multi-family dwellings (5 or more units)	1 space per two dwelling units
Schools (K-12)	3 spaces per classroom
Community centers	6 spaces
Theaters	3 spaces
General retail sales & services	3 spaces or 1 space per 5,000 sq. ft. of general floor area
Offices	3 spaces or 1 space per 15,000 sq. ft. of general floor area
Restaurant or coffee shop	3 spaces
Indoor or outdoor recreation facility	3 spaces
Sports & health facility	3 spaces or 1 space per 10,000 sq. ft. of general floor area
Medical clinic	3 spaces
Industrial uses	2 spaces or 1 space per 20,000/30,000/40,000 sq. ft.
Post office	3 spaces

The ongoing Bicycle Parking project will install bike racks in partnership with private business owners (such as restaurants and retail stores) and public agencies (such as schools and libraries). The project will pay 50% of the cost of rack purchase and installation at private locations, and 100% at public agency locations.

8 | ALTERNATIVES & RECOMMENDATIONS

This chapter presents potential active transportation-related improvements in Geneseo. The sections of this chapter correspond to the section in Chapter 6: Needs Assessment. The improvements detailed in this chapter are then prioritized in Chapter 9: Implementation Matrix.

8.1 INTERSECTION IMPROVEMENTS

The following pages detail specific improvements to the seven priority intersections identified in this project in Figure 10. The recommendations for improvements presented in this plan are conceptual in nature, and would be subject to further study to determine feasibility before advancing to design development and implementation.

For all intersections, the consideration of the following is recommended for all approaches:

- Sidewalks.
- Curb ramps – must be ADA compliant.
- Pedestrian Signals where there are traffic signals and crosswalks.
- Upgrading existing pedestrian push buttons and indications to current New York State standards.
- No Turn on Red / Yield to Pedestrians on-demand blank-out signs.
- Leading pedestrian intervals (LPI) where there are right turn lanes.
- At all signalized intersections, the vehicular detection should be checked to ensure it detects bicyclists and the detection zone marked with bicycle detection symbols supplemented with the Bicycle Signal Actuation (R10-22) sign.
- During final design, separated curb ramps should be considered where feasible.
- Where width allows, bike lanes should be included along approach roadways. However, NYSDOT does not currently approve of the installation of these facilities along NYSDOT roadways.

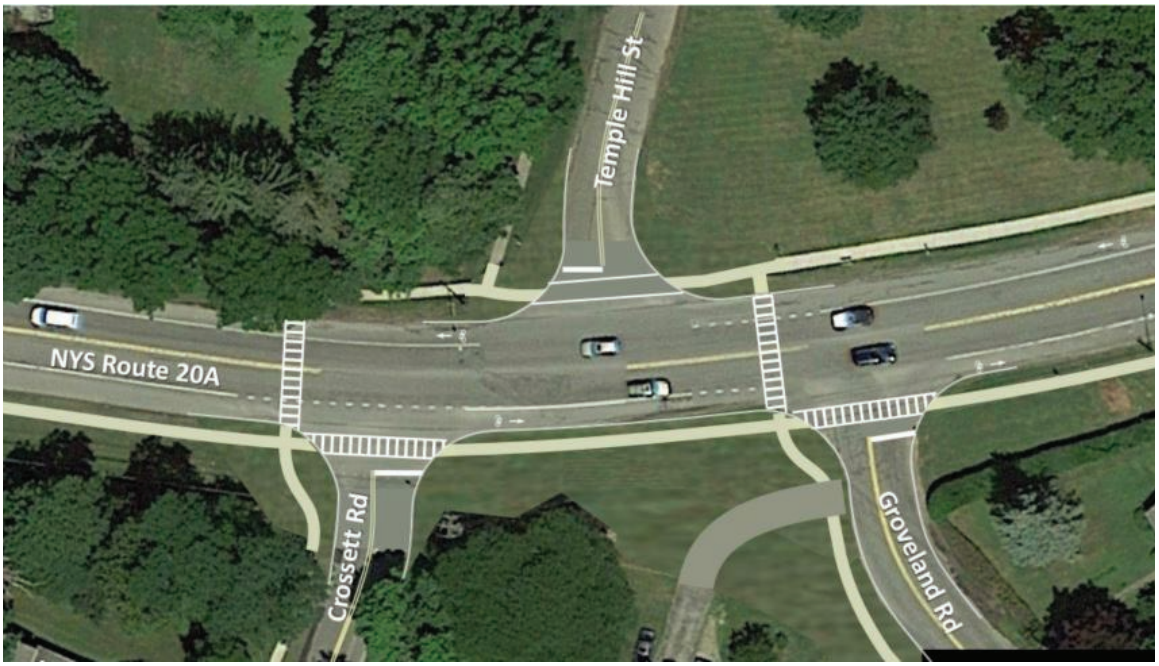
INTERSECTION

1

ALTERNATIVE

A

Temple Hill Road, NYS Route 20A, Crossett Road, Groveland Road



This alternative squares off the approaches of Crossett Road, Temple Hill Street, and Groveland Road to create perpendicular intersections with NYS Route 20A. This alternative specifically includes curb radii at 30' to control vehicular movements on the intersection approaches, the removal of the high-speed right from NYS Route 20A to Groveland Road, and two crossings of NYS Route 20A to the west of Crossett Road and Groveland Road with Rapid Rectangular Flashing Beacon installation at these locations.

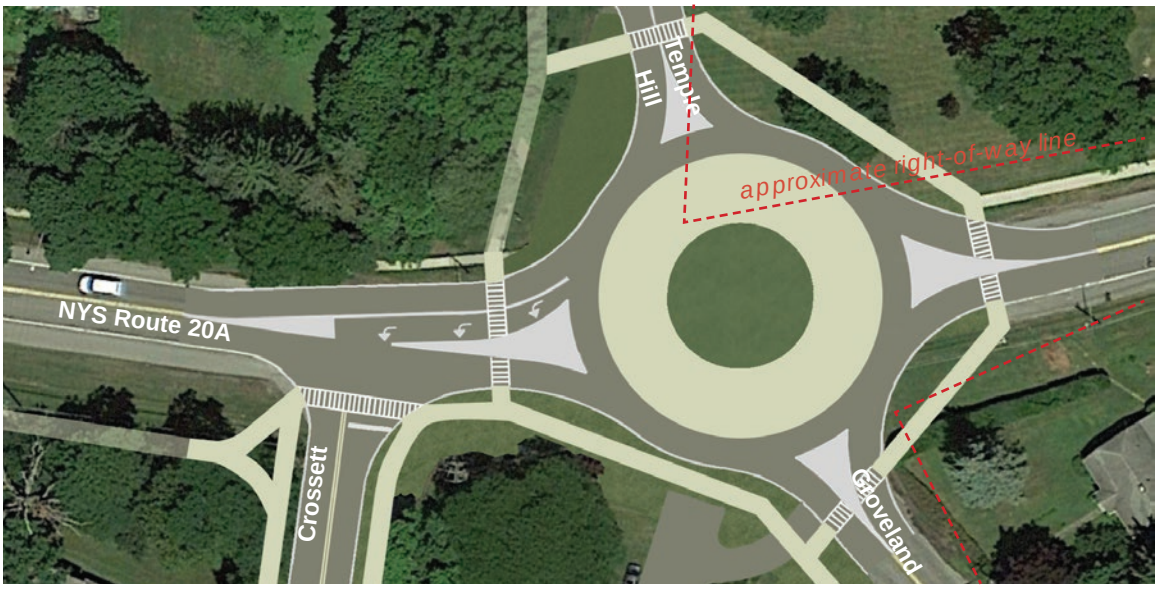
INTERSECTION

1

ALTERNATIVE

B

Temple Hill Road, NYS Route 20A, Crossett Road, Groveland Road



This alternative responds to high vehicular and pedestrian traffic and limited visibility at this intersection. Though a roundabout would require right-of-way acquisition, it is operationally feasible at a concept level, with the drawing above showing an inscribed diameter of 140'. The roundabout would significantly reduce traffic speeds, reduce unprotected pedestrian crossing distances, and simplify potential conflict points between all modes of travel. **Initial idea for this concept previously proposed in NYS Route 20A Access Management Study and Geneseo Pilot Plan.*

INTERSECTION 2

Center Street, NYS Route 20A, Medical Center

- Removed free flow right turn lane onto Center St
- Reoriented sidewalk along north side of NYS Route 20A
- New sidewalk along south side of NYS Route 20A
- Potential activate crossing over NYS Route 20A
- Bike Lanes along NYS Route 20A
- **based on a preliminary review of 2016 data, there does not appear to be enough vehicular volume to warrant a traffic signal at this intersection. Please refer to Chapter 11: Follow-On Activities for additional information.*

INTERSECTION 3

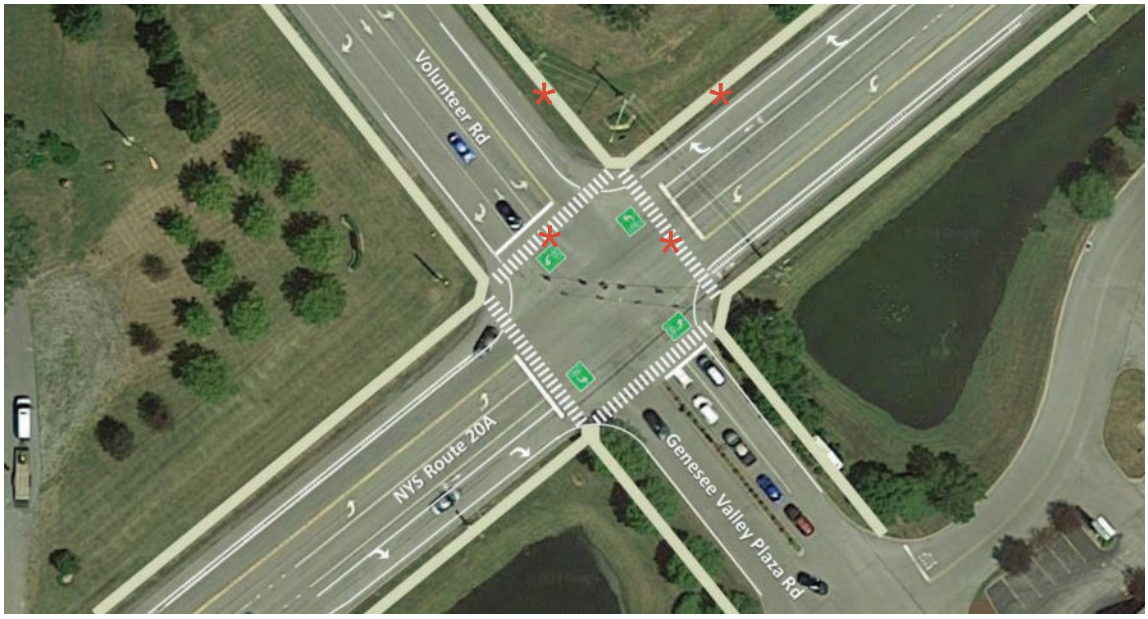
Reservoir Road, Megan Drive, NYS Route 20A

- Installation of crosswalks and curb ramps
- Pedestrian signal infrastructure
- New sidewalk along south side of NYS Route 20A (east of Reservoir Rd)
- Potential bike lane along NYS Route 20A
- **the curb along the south side of NYS Route 20A precludes the implementation of a continuous bike lane. Should the intersection be redesigned, an additional 5' of pavement would enable the bike lane or multi-use shoulder to be incorporated.*

INTERSECTION 4

NYS Route 20A, Volunteer Road, Genesee Valley Shopping Center

Two stage left turn boxes are under experimental approval, and are not preferred by NYSDOT until approval for general MUTCD use.

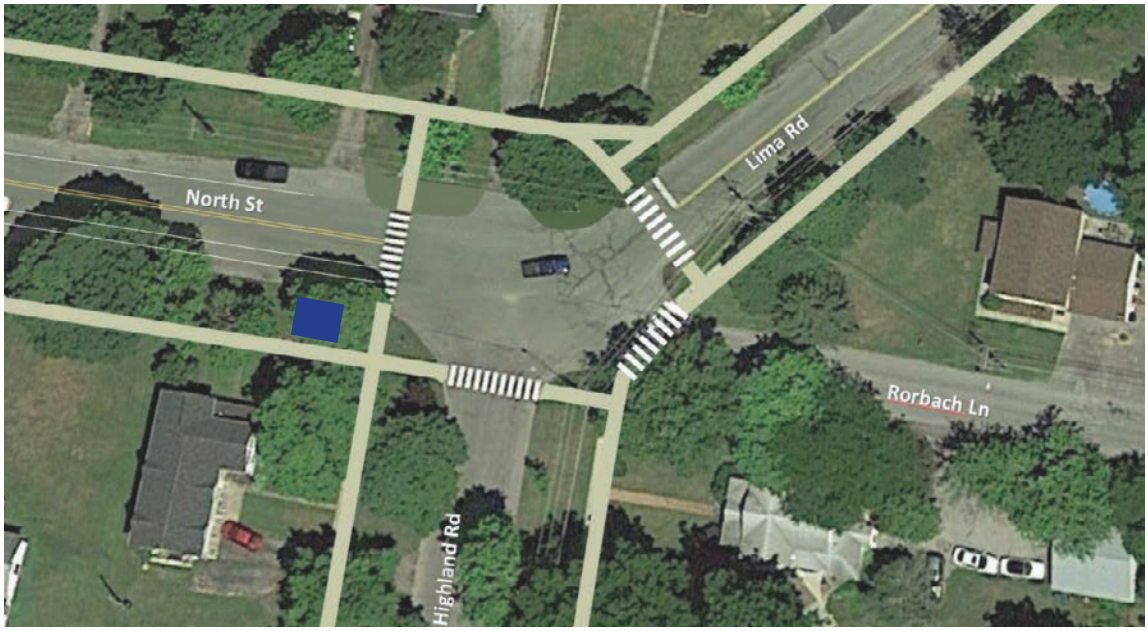


- Sidewalks along all approaches to intersection
- Crosswalks and curb ramps throughout
- Pedestrian signals at all crossings
- Bike lanes and two-stage left turn boxes
- **sidewalks, crosswalks, and pedestrian signals marked with * will be constructed and installed as part of an approved mixed-use development on the north-east corner of this intersection.*

INTERSECTION 5

North Street, Lima Road, Rorbach Lane, Highland Road

Bus Stop Location



- New crosswalk across Lima Road
- Curb extensions on north side of intersection
- Extended sidewalks to new crossings
- Enhanced bus stop facilities at southwest corner of intersection
- Two-way striped bike lanes along south side of North Street

INTERSECTION 6

Court Street, Avon Road, Main Street, North Street

- Curb extensions to better define turn radii, shorten crosswalk distances, and move STOP signs closer to intersection for improved visibility.
- Centerline guide dotted line to simplify Main - Avon movement
- Additional ADA-compliant pedestrian ramps on northwest and southeast corners
- **Use diagonal ramps on the northeast and southwest corners, since providing two ramps would require a greater skew on the crosswalks and place the crosswalk farther into the right turn departure area.*

INTERSECTION 7

Main Street, NYS Route 20A

- Reduced curb radii on northwest and northeast corners
- Marked crosswalks and appropriate pedestrian signalization at all crossings
- Potential sidewalk along south side of NYS Route 20A
- **Continued pruning of landscaping in median is necessary to improve visibility of pedestrians on 'refuge island'*

INTERSECTIONS MATRIX

This table provides a quick reference to compare safety issues and relative amounts and expected amounts of pedestrian & bicycle use at each intersection. The final column represents a high-level cost estimate for the improvements described on previous pages. The information here informs the table in Chapter 9: Implementation Matrix.

SAFETY NEEDS

GREATER NEED — LESSER NEED

EXPECTED DEMAND

GREATER DEMAND — LESS DEMAND

ALTERNATIVES & RELATIVE COSTS

ESTIMATED BASED ON TYPES OF IMPROVEMENTS

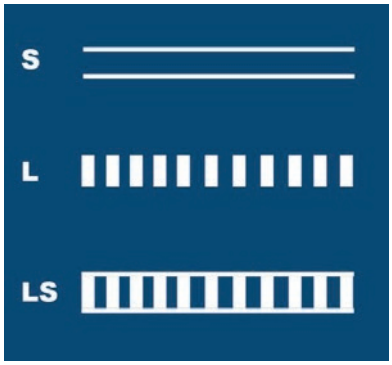
Crosswalks: $
Pedestrian Signals: $
Curb Realignment: $$
Roadway Realignment: $$$
Roundabout: $$$$

	ACTIVE TRANSPORTATION -RELATED CRASHES *(at/near intersection)*	LEVEL OF COMMUNITY SAFETY CONCERN *(based on input from survey, stakeholder and public meetings)*	OVERALL NEED FOR IMPROVED COMFORT & SAFETY *(1=Low; 5=High)*	RECREATIONAL *(parks, trails, exercise routes)*	EDUCATIONAL *(School District, SUNY Geneseo)*	SHOPPING *(retail, grocery stores, community stores)*	RESIDENTIAL *(proximity to dense residential areas)*	PUBLIC TRANSIT *(proximity to RTS bus stops)*	OVERALL EXPECTED LEVELS OF DEMAND *(1=Low; 5=High)*	
Temple Hill Rd., NYS Route 20A, Crossett Rd., Groveland Rd. (Alternative A)			5						3	$$
Temple Hill Rd., NYS Route 20A, Crossett Rd., Groveland Rd. (Alternative B)			5						3	$$$$
Center St., NYS Route 20A, Medical Center			4						2	$$
Reservoir Rd., Megan Dr., NYS Route 20A			3						2	$
NYS Route 20A, Volunteer Rd., Genesee Valley Shopping Center			3						2	$
North St., Lima Rd., Rorbach Ln., Highland Rd.			1						3	$
Court St., Avon Rd., Main St., North St.			2						4	$$
Main St., NYS Route 20A			2						2	$$

8.2 ADDITIONAL CROSSINGS

As identified in the Needs Assessment, there are several locations in Geneseo that would benefit from enhanced or new mid-block crossings. This section provides a 'toolbox' of potential crossing enhancements and identifies which of these treatments are appropriate to the specific locations.

CROSSINGS 'TOOLBOX'



PAVEMENT MARKING
S: appropriate on side roads with stop signs
L: appropriate on higher volume roads with signals or stop signs
LS: appropriate on high volume roads without signals or stop signs

CURB EXTENSIONS
can enhance pedestrian safety by reducing crossing distance and increasing the visibility of pedestrians to oncoming motorists. These are most appropriate in urban settings with on-street parking.

IN-STREET SIGNS can enhance pedestrian safety by increasing motorist awareness. These are most appropriate on low-speed, urban roadways.

RAPID RECTANGULAR FLASHING BEACONS
can be activated by pedestrians to warn motorists of a crosswalk. These are most appropriate at uncontrolled crossings in high-volume pedestrian areas and two-lane vehicular traffic.

'BACK TO BACK' CROSSING SIGNS
can increase the visibility of crosswalks by having signage on both sides of the road. The signs can be mounted on the same posts, facing opposite directions.

REFLECTIVE POSTS
can enhance pedestrian safety at night. These can be mounted onto any crossing sign in nearly all locations.

ENHANCED EXISTING CROSSWALKS

Main St (Throughout): None of the six existing crosswalks along Main St provide opportunities for pedestrians to establish eye contact with oncoming drivers before entering the roadway, as many pedestrians must look around parked cars in order to see traffic. The installation of curb extensions at several of these crosswalks would allow for shorter crossing distances, and enable increased awareness between drivers and pedestrians. Though this recommendation would result in the approximate loss of 5-7 parking spaces along Main St, the redesign could enhance the area's walkability, which could encourage more people to park farther away and walk to downtown businesses. These crosswalks could be further enhanced with LS Markings, reflective posts, in-street signs, and back-to-back signage.

North St (Throughout): Currently, there is minimal signage notifying motorists of upcoming crosswalks at minor intersections along North Street. The installation of back-to-back signage, reflective posts, and repainted L markings would enhance awareness of the existing crosswalks; depending on the implementation of other bicycle facilities, curb extensions may also be possible at these crosswalks.

NYS Route 20A (at Prospect St): As illustrated by the time lapse camera data, this crossing is frequently used by pedestrians throughout multiple seasons. Currently, however, the data showed that only 30% of pedestrians cross NYS Route 20A when vehicles stop to let them go, signifying the need for enhancements to increase driver awareness of the crosswalk. These enhancements can include back-to-back signage, reflective posts, LS Markings, and the installation of a Rapid Rectangular Flashing Beacon. *Note: If a roundabout is built at the nearby Temple Hill, NYS Route 20A, Crossett, and Groveland intersection, the need for this enhanced crossing will need to be revisited, as pedestrians will be able to safely cross at the intersection.*

Court St (Throughout): Enhancing the existing crosswalks on Court Street will improve the safety of pedestrians in the area near SUNY Geneseo. These enhancements can include back-to-back signage, reflective posts, lighting, L Markings, and potential in-street signs.

Avon Rd (at Westview Crescent): Enhancements to this crossing will improve the safety of students and other residents who access the pathway along the west side of Avon Road between Westview Crescent and the School complex. Recommended enhancements include back-to-back signage, reflective posts, and LS Markings. A Rapid Rectangular Flashing Beacon may be implemented, but consideration should be given to the fact that RRFBs do not require vehicles to stop for pedestrians in the crosswalks. If an RRFB is implemented at this location, it should be accompanied by extensive educational outreach to children about the proper behaviors for utilizing crosswalks. Additional information about this crossing is included in section 8.6.

NEW CROSSWALKS

Avon Rd (at Geneseo School District driveway) The installation of this crosswalk would be coupled with sidewalk installation along the east side of Avon Road between Cavalry Rd and the School driveway. This crosswalk would both enhance pedestrian safety and satisfy a requirement for the potential establishment of a School Speed Limit; this discussion is expanded upon in Section 8.6. Appropriate treatments at this crosswalk would include back-to-back signage, reflective posts, crosswalk warning signs, and LS pavement markings.

Country Lane / NYS Route 20A: The installation of a crosswalk here would serve the residents of Country Lane who must cross NYS Route 20A to access the sidewalk and bus stop. While appropriate treatments may include back-to-back signage, LS Markings, and reflective posts, NYSDOT suggested that an entire intersection reconfiguration with typical pedestrian treatments may be a safer long-term solution. Additional information about this location is included in Chapter 11: Follow-On Activities.

Main St: As detailed in Section 7.1: Facility Design Guidance, crosswalks in busier areas can be located as close as 200' apart from each other to allow pedestrians to cross at convenient locations. Using this criteria, the installation of new crosswalks on Main St, specifically at the Chesnut St intersection and across from the Big Tree Inn, would be practical and enhance the walkability of downtown. Appropriate treatments would include curb extensions, reflective posts, in-street signs, back-to-back signage, and LS markings.

MAIN STREET NEAR CENTER STREET INTERSECTION

CROSSWALKS MATRIX

This table provides a quick reference to compare safety issues and relative amounts and expected amount of pedestrian use at each crosswalk. The final column presents recommended improvements and provides a high-level cost estimate for each. The information listed here informs the table in Chapter 9: Implementation Matrix.

E=Enhanced Existing Crossing
N=New Crossing

SAFETY NEEDS

GREATER NEED — LESSER NEED

EXPECTED DEMAND

GREATER DEMAND — LESS DEMAND

ALTERNATIVES & RELATIVE COSTS

ESTIMATED BASED ON TYPES OF IMPROVEMENTS

pavement markings: $
back-to-back signs: $
reflective posts: $
in-street signs: $
RRFBs: $$
curb extensions: $$$

		PEDESTRIAN -RELATED CRASHES *(at/near crosswalk)*	LEVEL OF COMMUNITY SAFETY CONCERN *(based on input from survey, stakeholder and public meetings)*	OVERALL NEED FOR IMPROVED COMFORT & SAFETY *(1=Low; 5=High)*	RECREATIONAL *(parks, trails, exercise routes)*	EDUCATIONAL *(School District, SUNY Geneseo)*	SHOPPING *(retail, grocery stores, community stores)*	RESIDENTIAL *(proximity to dense residential areas)*	PUBLIC TRANSIT *(proximity to RTS bus stops)*	OVERALL EXPECTED LEVELS OF DEMAND *(1=Low; 5=High)*	
E	**Main St (Throughout)**			3						4	*Curb Extensions, Back-to-Back Signage, Reflective Posts, LS Crossings, In Street Signs* $$$
E	**North St (Throughout)**			3						3	*Curb Extensions, Back-to-Back Signage, Reflective Posts, L Crossings, In Street Signs* $$$
E	**NYS Route 20A (at Prospect St)**			3						4	*Back-to-Back Signage, Reflective Posts, LS Crossings, Rapid Rectangular Flashing Beacon* $$
E	**Court St (Throughout)**			3						4	*Back-to-Back Signage, Reflective Posts, L Crossings, In Street Signs* $
E	**Avon Rd (at Westview Crescent)**			3						3	*Back-to-Back Signage, Reflective Posts, LS Crossings* $
N	**NYS Route 20A (at Country Lane)**			2						2	*Back-to-Back Signage, Reflective Posts, LS Crossings* $
N	**Avon Rd (at School District Driveway)**			3						3	*Back-to-Back Signage, Reflective Posts, LS Crossings* $
N	**Main St (at Chestnut St)**			2						4	*Curb Extensions, Back-to-Back Signage, Reflective Posts, LS Crossings, In Street Signs* $$$

ADDITIONAL CONSIDERATION:
'BEAR' FOUNTAIN STATUE ALTERNATIVES

As mentioned in the Needs Assessment, the Bear Fountain at the intersection of Center St and Main St has been struck by vehicles multiple times. The concept designs on the following page present seven potential alternatives centered around protecting the Fountain from further damage by vehicular collisions. The table below highlights the potential positive or negative effects these various schemes may have on vehicular flow and speeds, active transportation experiences, environmental and historical considerations, public space, business access, and other variables. *Concept designs provided by Genesee Transportation Council*

Factors to Evaluate	Vehicular Movement	Truck Traffic	Traffic Calming	Pedestrian Crossings	Parking Spaces	Gathering Spaces	Protection of 'Bear'	Emergency Vehicle Access	Historical Impacts	Bicycle Movement	Drainage	Business Access	Pedestrian visibility
1: Bumpouts	/	-	++	++	/	/	+	/	/	/	/	/	+
2: Bumpouts & Median	--	-	++	++	/	/	++	-	/	/	/	/	+
3: Raised Speed Table	/	--	++	++	/	/	+	-	/	+	-	/	+
4: Extended Median	--	/	+	+	/	/	++	-	/	/	/	/	+
5A: Center St. Plaza	--	+	--	+	++	++	++	--	?	+	?	-	++
5B: Center St. Plaza	--	/	/	/	/	++	/	--	/	+	?	-	+
6: One-Way Center St.	-	+	--	/	+	+	+	-	?	+	?	-	++

++	+	/	-	--	?
Potential Significant Improvement	*Potential Minor Improvement*	*Little Change to Existing Conditions*	*Potential Minor Negative Impact*	*Potential Significant Negative Impact*	*Unknown Potential Impact*

E Existing Conditions

Existing Conditions: 'Bear' often hit by left-turning motorists onto/from Center

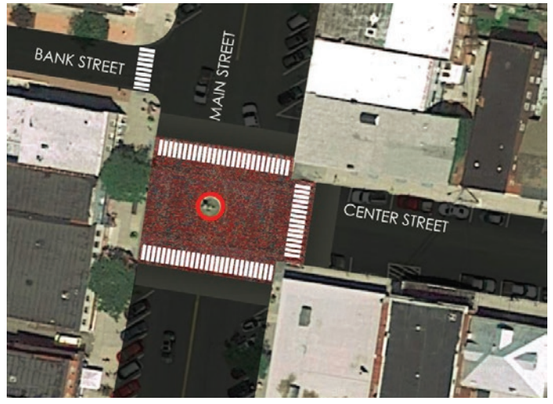
1 Bumpouts

1: Bumpouts enable shorter pedestrian crossings and protects 'bear' with curb

2 Bumpouts & Median

2: Bumpouts & Median enable shorter pedestrian crossings and protect 'bear' by eliminating left-turn movements

3 Raised Speed Table



3: Raised Speed Table creates a 'plaza' feel and improves motorist awareness of pedestrians and 'bear' statue

4 Extended Median

4: Extended Median protects 'bear' through elimination of left turn movements; also enhances pedestrian crossings

5A Center St Plaza (Bear Moves)

5A: Center St. Plaza moves 'bear' to newly-created pedestrian gathering space on Center Street

5B Center St Plaza (Bear Remains)

5B: Center St. Plaza creates pedestrian gathering space, but keeps 'bear' in existing location on Main Street

6 One Way Center St & Plaza

6: One-Way Center St. maintains some traffic flow and moves 'bear' to smaller pedestrian gathering space

8.3 NEW SIDEWALKS

The table on the following page discusses the implementation of sidewalks along segments that currently lack sufficient pedestrian facilities. The following process was used to develop the categories displayed on the table:

Evaluation of Safety & Comfort Needs for Each Segment:

- Pedestrian Level of Service Grade.
- Number of Pedestrian-Related Crashes On Segment since 2009 (please note that crashes at an intersection are applied to all segments that touch that intersection).
- Level of Community Concern, based on number of comments related to each segment at public meetings and in Community Survey responses.
- Presence of Sidewalk on other side of roadway (roadways without any sidewalks are prioritized over roadways with a sidewalk already present on one side of the roadway).

Evaluation of Expected Demand for Use of Each Segment:

- Recreational Demand, with segments near parks, trail connections, or known recreational loops receiving higher 'grades'.
- Educational Demand, with segments near SUNY Geneseo and Geneseo Schools receiving higher 'grades'
- Shopping Demand, with segments near retail along NYS Route 20A and downtown shops receiving higher 'grades'.
- Residential Demand, with segments in more densely populated areas receiving higher 'grades'.
- Public Transit Demand, with segments with more RTS bus stops receiving higher 'grades'.

Evaluation of Expected Cost for Improvement

- Based on length of segment.

Please also note that *Segment M: Avon Road from Westview Crescent to School Drive* is discussed further in the following Section 8.6: Trails.

Segment D: NYS Route 20A, from Center St to Reservoir Road on the south side of the street

SIDEWALK ADDITIONS MATRIX

This table includes all roadway segments without existing sidewalks in areas with known or expected use by pedestrians

SAFETY NEEDS

GREATER NEED — LESSER NEED

EXPECTED DEMAND

GREATER DEMAND — LESS DEMAND

COST

$

ROADWAY	*Section*	Side	PEDESTRIAN LEVEL OF SERVICE	PEDESTRIAN-RELATED CRASHES (*on/near segment*)	LEVEL OF COMMUNITY SAFETY CONCERN	SIDEWALK ON OTHER SIDE OF STREET?	OVERALL NEED FOR IMPROVED COMFORT & SAFETY (*1=Low; 5=High*)	RECREATIONAL (*parks, trails, exercise routes*)	EDUCATIONAL (*School District, SUNY Geneseo*)	SHOPPING (*retail, grocery stores, community stores*)	RESIDENTIAL (*proximity to dense residential areas*)	PUBLIC TRANSIT (*proximity to RTS bus stops*)	OVERALL EXPECTED LEVELS OF DEMAND (*1=Low; 5=High*)	LENGTH (MILES)	ESTIMATED BASED ON LENGTH OF SIDEWALK
TEMPLE HILL ST.	*NYS Route 20A to Center St.*	**East (SB)**	C*			NO	2						3	**.19**	$
CENTER ST.	*NYS Route 20A to Temple Hill St.*	**South (EB)**	C				1						4	**.4**	$$
NYS ROUTE 20A	*Groveland Rd. to Center St.*	**South (EB)**	E	1			3						4	**.45**	$$
NYS ROUTE 20A	*Center St. to Reservoir Rd.*	**South (EB)**	E	1			3						3	**.18**	$$
NYS ROUTE 20A	*Reservoir Rd. to Ryan Dr.*	**South (EB)**	E	1			4						4	**.5**	$$$
NYS ROUTE 20A	*Ryan Dr. to Volunteer Rd.*	**South (EB)**	E	1		NO	5						3	**.15**	$
NYS ROUTE 20A	*Ryan Dr. to Volunteer Rd.*	**North (WB)**	E	1		NO	5						3	**.15**	$
VOLUNTEER RD.	*NYS Route 20A to Veteran Dr.*	**W/S (SB)**	D	1		NO	3						2	**.12**	$
VOLUNTEER RD.	*Veteran Dr. (N) to Lima Rd.*	**W/S (SB)**	D			NO	3						2	**.6**	$$$
LIMA RD.	*Westhampton Dr. to Volunteer Rd.*	**South** *(EB)*	D			NO	4						3	**.2**	$
LIMA RD.	*Island Preserve to Kimberly Dr.*	**North (WB)**	C				2						3	**.27**	$
NYS ROUTE 20A	*Main St. to Crossett Rd.*	**South (EB)**	E				1						3	**.5**	$$$
AVON RD.	*Westview Cr. to School Drive*	**Either (NB/SB)**	D			NO	3						3	**.35**	$$
MARY JEMISON	*SUNY Driveway to Genesee St.*	**North (WB)**	E*			NO	1						3	**.2**	$
RESERVOIR RD.	*Morgan View to NYS Route 20A*	**Either (WB/EB)**	C			NO	2						2	**1.0**	$$$

**PLOS indicates grade for sections of roadway without sidewalks*

8.4 BICYCLE FACILITIES

The tables on the following three pages display recommendations for improved bicycle facilities on all roadways within the project area. These recommendations are based on an inventory of existing roadway conditions, an evaluation of comfort and safety, an inventory of expected demand and use of facilities, and an analysis of the most suitable facility improvements for each segment. Figure 23: Bicycle Facility Improvements follows these tables, and displays the recommendations on the project map. All of the facility improvement types mentioned in these tables are described in detail in 7.1: Facility Design Guidance. Specifically, the following process was used to create these tables:

Inventory of Existing Roadway Conditions (illustrated in Inventory & Analysis), including:

- Amount of space on pavement for bicyclists, presence of sidewalks, curbs, and on-street parking, vehicular speed limit, presence of edge striping, and other metrics.

Evaluation of Safety & Comfort Needs for Each Segment:

- Bicycle Level of Service Grade.
- Number of Bicycle-Related Crashes On Segment since 2009 (please note that crashes at an intersection are applied to all segments that touch that intersection).
- Level of Community Concern, based on number of comments related to each segment at public meetings and in community survey responses.

Evaluation of Expected Demand for Use of Each Segment:

- Recreational Demand, with segments near parks, trail connections, or known recreational loops receiving higher 'grades'.
- Educational Demand, with segments near SUNY Geneseo and Geneseo Schools receiving higher 'grades'
- Shopping Demand, with segments near retail along NYS Route 20A and downtown shops receiving higher 'grades'.
- Residential Demand, with segments in more densely populated areas receiving higher 'grades'.
- Public Transit Demand, with segments with more RTS bus stops receiving higher 'grades'.
- Topography 'Penalty,' with flatter segments receiving higher 'grades' than steeper segments since cyclists typically choose flatter segments when possible.

Evaluation of Preferred Improvements (when possible, facilities are recommended that do not require additional pavement width; in areas with safety concerns and/or high demand and insufficient pavement space for adequate improvements, facilities are recommended that would require widened roadways):

- Bike Lanes are recommended in areas with shoulder width of 5' or greater, sidewalks present, and limited conflicts with on-street parking.
- Buffered Bike Lanes are recommended in areas with shoulder width of 6' or greater, sidewalks present, and limited conflicts with on-street parking.
- Multi-Use Shoulders are recommended in areas with shoulder width of 4' or greater, and no sidewalks present.
- Buffered Multi-Use Shoulders are recommended in areas with shoulder width of 6' or greater, and no sidewalks present.
- Shared Lane Markings are recommended on low-speed roadways without sufficient space for Bike Lanes or edge striping for Multi-Use Shoulders. Shared Lane Markings typically cost $250 per marking.
- Bike Boulevard Candidates are recommended for roadways with low traffic volumes and speeds, with preference for roadways that link key destinations within the Village.

Evaluation of Expected Cost for Improvements

- Because the cost of implementing bicycle facilities can depend more on the facility type than the length of implementation, the costs are developed based on facility type. Widening roadways is the most expensive practice, while implementing on-pavement markings or lanes requires far less funding.

BICYCLE FACILITIES
(PAGE 1 OF 3)

SAFETY NEEDS
GREATER NEED — LESSER NEED

EXPECTED DEMAND
GREATER DEMAND — LESS DEMAND

PREFERRED IMPROVEMENT

COST

This table includes all roadway segments that were analyzed for this project. In most cases, both directions of travel are evaluated in the same row; however, when bicycle facility conditions differ significantly between travel directions, each travel direction has been analyzed separately.

ROADWAY	*Section*	**Side**	BICYCLE LEVEL OF SERVICE	BICYCLE-RELATED CRASHES *(on/near segment)*	LEVEL OF COMMUNITY SAFETY CONCERN	OVERALL NEED FOR IMPROVED COMFORT & SAFETY *(1=Low; 5=High)*	RECREATIONAL *(parks, trails, exercise routes)*	EDUCATIONAL *(School District, SUNY Geneseo)*	SHOPPING *(retail, grocery stores, community stores)*	RESIDENTIAL *(proximity to dense residential areas)*	PUBLIC TRANSIT *(proximity to RTS bus stops)*	TOPOGRAPHY *(cyclists often prefer to ride flat roads)*	OVERALL EXPECTED LEVELS OF DEMAND *(1=Low; 5=High)*	*Based on inventory of existing conditions and demand levels, these improvements have been determined as the most suitable and achievable recommendations for each roadway segment. Recommendations that require significant construction are only included when more minor improvements have not been deemed possible or sufficient in relation to safety and expected demand.*	HIGH-LEVEL ESTIMATE OF IMPROVEMENT *(Based on typical costs of each type of facility improvement)*
Avon Rd.	*North St. to Westview Cr.*	**Both**	A			2							4	Maintain Existing Multi-Use Shoulder	$$
Avon Rd.	*Westview Cr. to GCSD Driveway*	**Both**	A			2							4	Maintain Existing Multi-Use Shoulder	$$
Avon Rd.	*GCSD Driveway to Country Club Rd.*	**Both**	A	1		2							4	Bike Lane (in conjunction with formalized School Trail)	$$
Center St.	*Main St. to Second St.*	**Both**	A			1							5	Shared Lane Markings; painted striping to delineate parking	$
Center St.	*Second St. to Highland Rd.*	**Both**	D			3							4	Shared Lane Markings	$
Center St.	*Highland Rd. to NYS Route 20A*	**Both**	C			2							4	Shared Lane Markings;	$
Court St.	*Genesee St. to Riverside Dr.*	**Both**	C			3							4	Shared Lane Markings	$
Court St.	*Riverside Dr. to Main St.*	**Both**	D	2		4							3	Shared Lane Markings	$
Crossett Rd.	*Project Boundary to Cemetery Driveway*	**Both**	C			3							1	Maintain Existing Multi-Use Shoulder	$$$
Crossett Rd.	*Cemetery Driveway to NYS Route 20A*	**Both**	B			2							3	Shared Lane Markings	$
Cuylerville Rd.	*Project Boundary to Bridge*	**Both**	A	1		1							3	Buffered Multi-Use Shoulders	$$
Cuylerville Rd.	*Bridge to Mt. Morris Rd.*	**Both**	C			3							2	Buffered Multi-Use Shoulders	$$
Genesee St.	*Mt Morris Rd. to Mary Jemison Dr.*	**Both**	F			5							2	Widened Roadway for Buffered Multi-Use Shoulders	$$$
Genesee St.	*Mary Jemison Dr. to Court St.*	**Both**	F			5							3	Widened Roadway for Buffered Multi-Use Shoulders	$$$
Genesee St.	*Court St. to Chandler Rd.*	**Both**	F			5							3	Widened Roadway for Buffered Multi-Use Shoulders	$$$
Groveland Rd.	*Long Point Rd. to Tuscarora Rd.*	**Both**	A			2							3	Keep Existing Conditions as Multi Use Shoulders	N
Groveland Rd.	*Tuscarora Rd. to NYS Route 20A*	**Both**	B	1		3							4	Shared Lane Markings	$$$

BICYCLE FACILITIES
(PAGE 2 OF 3)

SAFETY NEEDS

GREATER NEED — LESSER NEED

EXPECTED DEMAND

GREATER DEMAND — LESS DEMAND

PREFERRED IMPROVEMENT

COST

This table includes all roadway segments that were analyzed for this project. In most cases, both directions of travel are evaluated in the same row; however, when bicycle facility conditions differ significantly between travel directions, each travel direction has been analyzed separately.

ROADWAY	*Section*	**Side**	BICYCLE LEVEL OF SERVICE	BICYCLE-RELATED CRASHES *(on/near segment)*	LEVEL OF COMMUNITY SAFETY CONCERN	OVERALL NEED FOR IMPROVED COMFORT & SAFETY *(1=Low; 5=High)*	RECREATIONAL *(parks, trails, exercise routes)*	EDUCATIONAL *(School District, SUNY Geneseo)*	SHOPPING *(retail, grocery stores, community stores)*	RESIDENTIAL *(proximity to dense residential areas)*	PUBLIC TRANSIT *(proximity to RTS bus stops)*	TOPOGRAPHY *(cyclists often prefer to ride flat roads)*	OVERALL EXPECTED LEVELS OF DEMAND *(1=Low; 5=High)*	*Based on inventory of existing conditions and demand levels, these improvements have been determined as the most suitable and achievable recommendations for each roadway segment. Recommendations that require significant construction are only included when more minor improvements have not been deemed possible or sufficient in relation to safety and expected demand.*	HIGH-LEVEL ESTIMATE OF IMPROVEMENT *(Based on typical costs of each type of facility improvement)*
Highland Rd.	*Center St. to North St.*	**Both**	B	1		2	■	■	■	■	■	■	5	Shared Lane Markings; Bike Boulevard Candidate	$
NYS Rt 20A	*Reservoir Rd. to Ryan Dr.*	**Both**	A			2	■	■	■	■		■	4	Bike Lane; Buffered Treatment Where Possible	$$
NYS Rt 20A	*Ryan Dr. to Country Club Rd.*	**EB**	D			4	■	■	■	■	■	■	4	Widened Roadway for Bike Lane (along with sidewalk installation)	$$$
NYS Rt 20A	*Country Club Rd. to Ryan Dr.*	**WB**	C			3	■	■	■	■	■	■	4	Bike Lane; Buffered Treatment Where Possible	$$
Lima Rd.	*North St. to Westhampton Dr.*	**Both**	C			4	■	■	■	■	■	■	3	Widened Roadway for Multi-Use Shoulders	$$$
Lima Rd.	*Westhampton Dr. to Country Club Rd.*	**Both**	C			4	■	■	■	■		■	3	Widened Roadway for Multi-Use Shoulders	$$$
Main St.	*NYS Route 20A to Chesnut St.*	**Both**	A			1	■	■	■	■	■	■	5	Bike Lanes with Edge Striping; Adjustment of Centerline	$$
Main St.	*Chesnut St. to Center St.*	**Both**	A			2	■	■	■	■	■	■	4	Shared Lane Markings	$
Main St.	*Center St. to Ward St.*	**Both**	A			2	■	■	■	■	■	■	4	Shared Lane Markings	$
Main St.	*Ward St. to Court St.*	**Both**	C			3	■	■	■	■		■	4	Bike Lanes; Roadway reconfiguration to eliminate parking on 1 side	$$
Mary Jemison	*Genesee St. to Mt Morris Rd.*	**Both**	A			1	■	■	■	■	■	■	4	Bike Lanes (along with sidewalk installation)	$$
Mt Morris Rd.	*Project Boundary to Cuylerville Rd.*	**NB**	C			3	■	■	■	■		■	1	Keep Existing Conditions as Multi-Use Shoulder	N
Mt Morris Rd.	*Cuylerville Rd. to Project Boundary*	**SB**	B			2	■	■	■	■		■	1	Keep Existing Conditions as Multi-Use Shoulder	N
Mt Morris Rd.	*Cuylerville Rd. to Genesee St.*	**NB**	D			4	■	■	■	■		■	2	Widened Roadway for Multi-Use Shoulder	$$$
Mt Morris Rd.	*Genesee St. to Cuylerville Rd.*	**SB**	A			2	■	■	■	■		■	2	Maintain Existing Multi-Use Shoulder	N
Mt Morris Rd.	*Genesee St. to NYS Route 20A*	**NB**	B			3	■	■	■	■		■	3	Widened Roadway for Multi-Use Shoulder	$$$
Mt Morris Rd.	*NYS Route 20A to Genesee St.*	**SB**	A			2	■	■	■	■		■	3	Maintain Existing Multi-Use Shoulder	N

BICYCLE FACILITIES
(PAGE 3 OF 3)

SAFETY NEEDS

GREATER NEED — LESSER NEED

EXPECTED DEMAND

GREATER DEMAND — LESS DEMAND

PREFERRED IMPROVEMENT

COST

This table includes all roadway segments that were analyzed for this project. In most cases, both directions of travel are evaluated in the same row; however, when bicycle facility conditions differ significantly between travel directions, each travel direction has been analyzed separately.

ROADWAY	*Section*	**Side**	BICYCLE LEVEL OF SERVICE	BICYCLE-RELATED CRASHES *(on/near segment)*	LEVEL OF COMMUNITY SAFETY CONCERN	OVERALL NEED FOR IMPROVED COMFORT & SAFETY *(1=Low; 5=High)*	RECREATIONAL *(parks, trails, exercise routes)*	EDUCATIONAL *(School District, SUNY Geneseo)*	SHOPPING *(retail, grocery stores, community stores)*	RESIDENTIAL *(proximity to dense residential areas)*	PUBLIC TRANSIT *(proximity to RTS bus stops)*	TOPOGRAPHY *(cyclists often prefer to ride flat roads)*	OVERALL EXPECTED LEVELS OF DEMAND *(1=Low; 5=High)*	*Based on inventory of existing conditions and demand levels, these improvements have been determined as the most suitable and achievable recommendations for each roadway segment. Recommendations that require significant construction are only included when more minor improvements have not been deemed possible or sufficient in relation to safety and expected demand.*	HIGH-LEVEL ESTIMATE OF IMPROVEMENT *(Based on typical costs of each type of facility improvement)*
North St.	*NYS Route 20A to Second St.*	**Both**	A	1		1							4	Bike Lanes with Curbs & Marked Parking on One Side of Street	$$
North St.	*Second St. to Lima Rd.*	**Both**	A	1		1							4	Bike Lanes with Curbs & Marked Parking on One Side of Street	$$
Reservoir Rd.	*NYS Route 20A to Morgan View Rd.*	**Both**	B			2							2	Widened Roadway for Multi-Use Shoulders	$$$
Second St.	*NYS Route 20A to Center St.*	**NB**	D			3							3	Shared Lane Markings	$
Second St.	*Center St. to NYS Route 20A*	**SB**	B			2							3	Shared Lane Markings;	$
Second St.	*Center St. to North St.*	**NB**	C	1		3							4	Shared Lane Markings;	$
Second St.	*North St. to Center St.*	**SB**	B	1		2							4	Shared Lane Markings;	$
NYS Rt 20A	*Mt. Morris Rd. to Main St.*	**EB**	D			3							3	Widened Roadway for Multi-Use Shoulder	$
NYS Rt 20A	*Main St. to Mt Morris Rd.*	**WB**	B			3							3	Bike Lane; Buffered Treatment Where Possible	$$$
NYS Rt 20A	*Main St. to Second St.*	**EB**	A			1							3	Bike Lane; Buffered Treatment Where Possible	$$
NYS Rt 20A	*Second St. to Main St.*	**WB**	B			3							3	Bike Lane; Buffered Treatment Where Possible	$$
NYS Rt 20A	*Second St. to Crossett Rd.*	**EB**	A	1		2							3	Bike Lane; Buffered Treatment Where Possible	$$
NYS Rt 20A	*Crossett Rd. to Second St.*	**WB**	C	1		3							3	Bike Lane; Buffered Treatment Where Possible	$$
NYS Rt 20A	*Crossett Rd. to Center St.*	**Both**	B	1		3							3	Bike Lane; Buffered Treatment Where Possible	$$$
NYS Rt 20A	*Center St. to Reservoir Rd.*	**Both**	A			2							3	Bike Lane; Buffered Treatment Where Possible	$$$
Temple Hill	*NYS Route 20A to Center St.*	**Both**	A	1		1							3	Shared Lane Markings;	$
Volunteer Rd.	*NYS Route 20A to Lima Rd.*	**Both**	B			2							3	Mixed Use Shoulder	$$

ADDITIONAL BICYCLE-RELATED IMPROVEMENTS

BICYCLE BOULEVARD

Recommendation: Designate Rorbach Lane as a Bicycle Boulevard, from the intersection with Lima Rd, North St, and Highland Rd until the gate connection to Jacqueline Way. This improvement provides a safer active transportation route to access NYS Route 20A from the Village. This recommendation is also discussed in Section 8.6: Additional Trails.

RUMBLE STRIPS (SHARDS)

Recommendation: Implement rumble strips in shoulders along select roadways with posted speeds of 50 MPH or greater and shoulders at least six feet in width to encourage motorists to stay out of the shoulder. Additionally, by providing breaks in the SHARDs every 50-100 feet, cyclists are able to move between the roadway and the shoulder when needed to avoid debris or vehicles.

BIKE SHARE PROGRAM

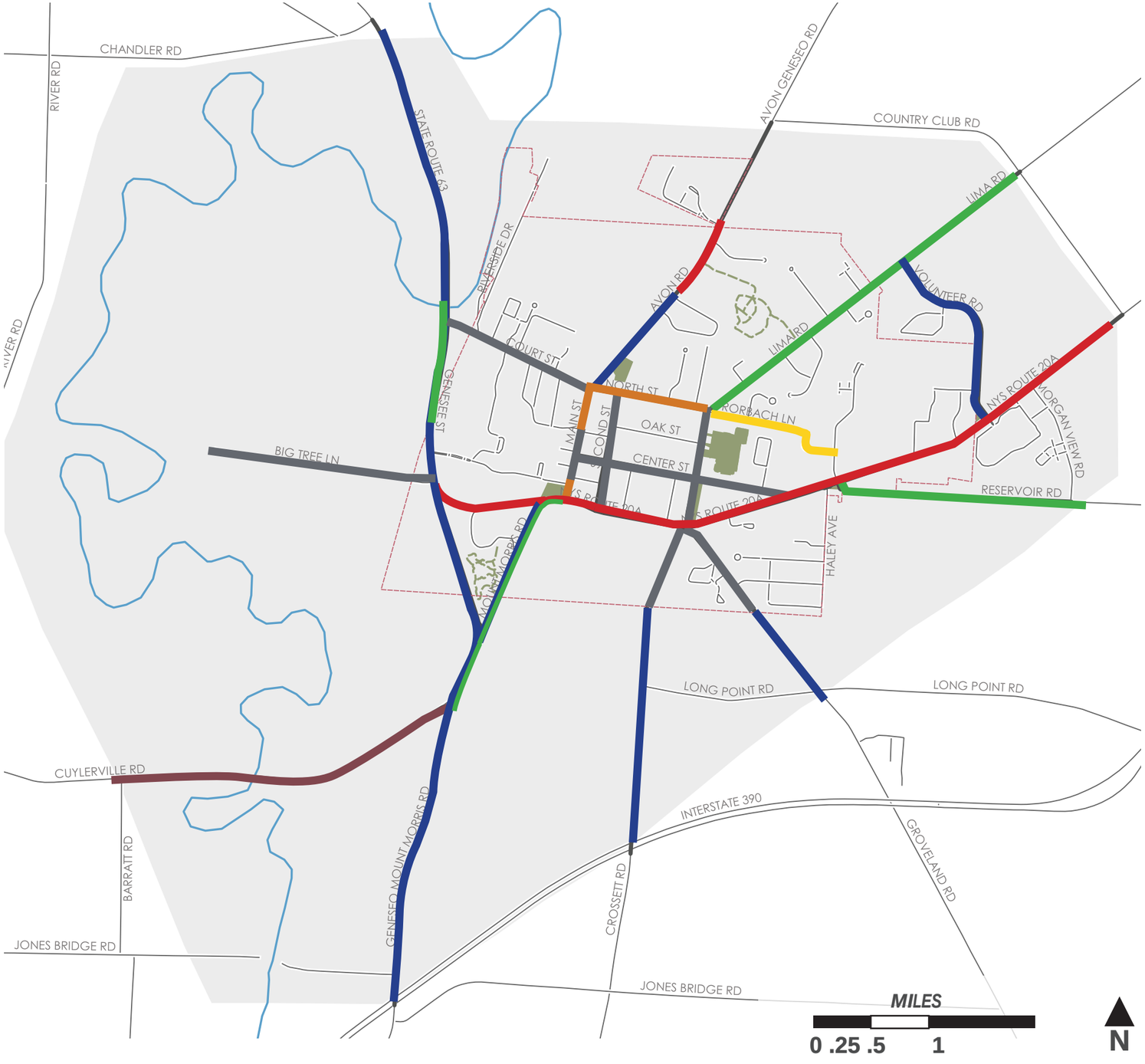
Recommendation: Renew efforts to implement a pilot program to fully gauge community interest in Bike Share program. Public support through the survey and Project Open Houses indicated a baseline level of interest in this program, particularly if implemented as a partnership with SUNY Geneseo. This program is also discussed in Section 8.8: Program Recommendations.

BIKE PARKING

Recommendation: Continue incentivizing Bike Parking for businesses and seek to provide bicycle racks at all major destinations. Additionally, this can be an opportunity to engage with local artists and/or students to create distinctive bike parking racks. This program is also discussed in Section 8.8: Program Recommendations.

FIGURE 23

BICYCLE FACILITY IMPROVEMENTS

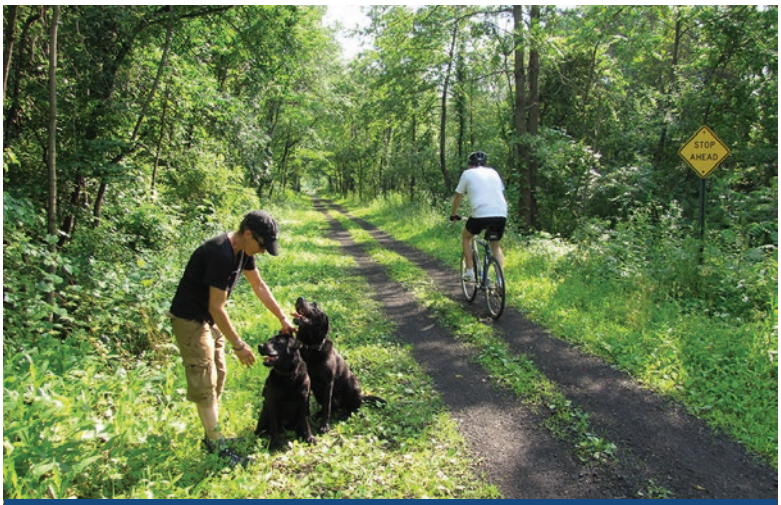


- ***Modify Striping to Accommodate Bike Lane On Existing Roadway***
- ***Reallocate Existing Space on Pavement for Bike Lane***
- ***Implement Buffered Treatment along Multi-Use Shoulder***
- ***Explore Widened Roadway Pavement for Multi-Use Shoulder***
- ***Maintain Existing Multi-Use Shoulders***
- ***Install Shared Lane Markings***
- ***Designate as 'Bike Boulevard' and Add Appropriate Signage***

Please note that the NYSDOT does not currently support the installation of bike lanes along NYS Route 20A. Wide shoulders 6' or greater are the recommended bicycle accommodations along NYSDOT roadways.

8.5 GENESEE VALLEY GREENWAY CONNECTION

As indicated in Chapter 6: Needs Assessment, five routes connecting the Village of Geneseo with the Genesee Valley Greenway have been evaluated as part of this plan. The table below displays potential benefits and drawbacks of each connection.



(C) FRIENDS OF THE GENESEE VALLEY GREENWAY

	+ PROS	- CONS
Village of Geneseo River Access Park	Connection located close to Village	Riverside Drive is narrow and may be uncomfortable for some cyclists
	Could leverage attraction with Public River Access Park	Topography of Riverside Drive and Court Street may be deterrent to cyclists
	Within existing Right of Way on East Side of River	Significant distance to Greenway on West Side of River (1.8 Miles)
	On existing low-volume street	Connection on West Side of River would need to cross private farm fields or run adjacent to high-speed roadway
		New bridge would need to be constructed
Route 63/ Genesee St Highway Bridge	Connection located close to Village	Would need to construct bicycle/ pedestrian facilities underneath new bridge; significant cost
	Vehicular traffic will be slowed with new roundabout	Significant distance to Greenway on West Side of River
	Entire Route within Existing Right of Way	Topography on Court St may be deterrent to cyclists

	+	-
Big Tree Lane	Connection located close to Village	New bridge would need to be constructed behind Warplane Museum
	Could leverage attraction with the Warplane Museum	Pavement condition of Big Tree Lane may be deterrent to cyclists
	Shortest distance to Greenway on West Side of River	Requires coordination with numerous stakeholders
	Could tie-in to sidewalk extension on Mary Jemison Drive	Would need to provide infrastructure to help pedestrians cross Rt. 63 to access Big Tree Lane
	Route located on low-volume roadway	Topographical challenges at east end of Big Tree Lane & Mary Jemison
	Potential Parking lot at Warplane Museum to access Greenway	
	Emergency Access to Greenway	
	Potential kayak launch	
	Potential trailhead/visitor center	

Cuylerville Road Highway Bridge	Could make use of existing bridge	Significant distance from Village on East Side (1.7 miles)
	Wide shoulders on Cuylerville Road and Mt. Morris Road are conducive to cycling	Significant distance to Greenway on West Side of River (1.5 Miles)
	Entire Route located in Right of Way	Topographical challenges in area remote from village
		Majority of route along high-speed roadway

Indian Fort Nature Preserve	West Side Connection & Part of East Side Connection along low-volume roadway	Significant Distance from Village on East Side (2.5 Miles)
	Could leverage attraction with Nature Preserve	Significant Distance to Greenway on West Side of River (1.7 Miles)
	Entire Route may be within Right-of-Way	Topographical challenges in area remote from village
		Significant portion of East Side connection along high speed, high volume, high truck usage corridor
		Requires construction of a bridge

GREENWAY CONNECTIONS MATRIX

+ *POSITIVE ASSET*

/ *LITTLE / NO ASSET*

– *NEGATIVE ASSET*

	DISTANCE FROM VILLAGE TO RIVER CROSSING	DISTANCE FROM GREENWAY TO RIVER CROSSING	LEVEL OF TOPOGRAPHICAL CHALLENGE	LEVEL OF DANGER ALONG CONNECTING ROADWAYS	NEED FOR CONSTRUCTING NEW/ADDING TO EXISTING BRIDGE	OPPORTUNITY TO PROMOTE CULTURAL/NATURE SITE IN CONJUNCTION WITH TRAIL	AMOUNT OF CONNECTION WITHIN PUBLIC R.O.W.	HIGH-LEVEL COST ESTIMATE (in 1000s)*
River Access Park	+	–	–	+	–	+	/	$1,300
Rt 63 Bridge	+	–	–	–	–	/	+	$260
Big Tree Lane	/	+	/	/	–	+	–	$1,650
Cuylerville Rd	–	–	–	–	+	/	+	$10
Indian Fort	–	–	–	/	–	+	/	$550

**please refer to Appendix H for a more detailed summary of high-level cost estimates for each alternative*

Based on this preliminary comparison as well as overwhelming community and stakeholder input, Alternative 3: Big Tree Lane was identified as a priority connection between Geneseo and the Genesee Valley Greenway. This connection is the shortest distance, requires the least amount of travel along high-speed roads, offers an opportunity to co-promote the Warplane Museum, and provides the potential for a parking lot, enabling visitors to drive before accessing the Greenway. After this preliminary prioritization, a meeting was held with stakeholders related to this potential connection, including property owners, government officials, the Genesee Valley Greenway State Park manager, and the owners of the Warplane Museum. During this meeting, all stakeholders provided preliminary support for this potential connection, citing a long term interest in connecting to the Greenway; please refer to Appendix C: Stakeholder Meetings for a more detailed summary of the discussion at this meeting.

After this meeting, a more detailed evaluation of the Big Tree Lane connection was performed, including preliminary alignment alternatives, partnerships, and cost estimates. The following pages detail this potential connection, which has been broken down into five ‘zones’ with individual action plans, cost estimates, relevant stakeholders, and potential connection routes.

BIG TREE LANE GREENWAY CONNECTION

ZONE A — *Multimodal Connections to Geneseo*

ZONE B — *Big Tree Lane Pavement Improvements*

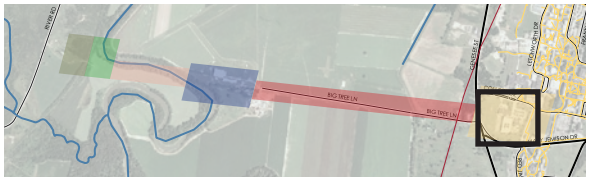
ZONE C — *Warplane Museum*

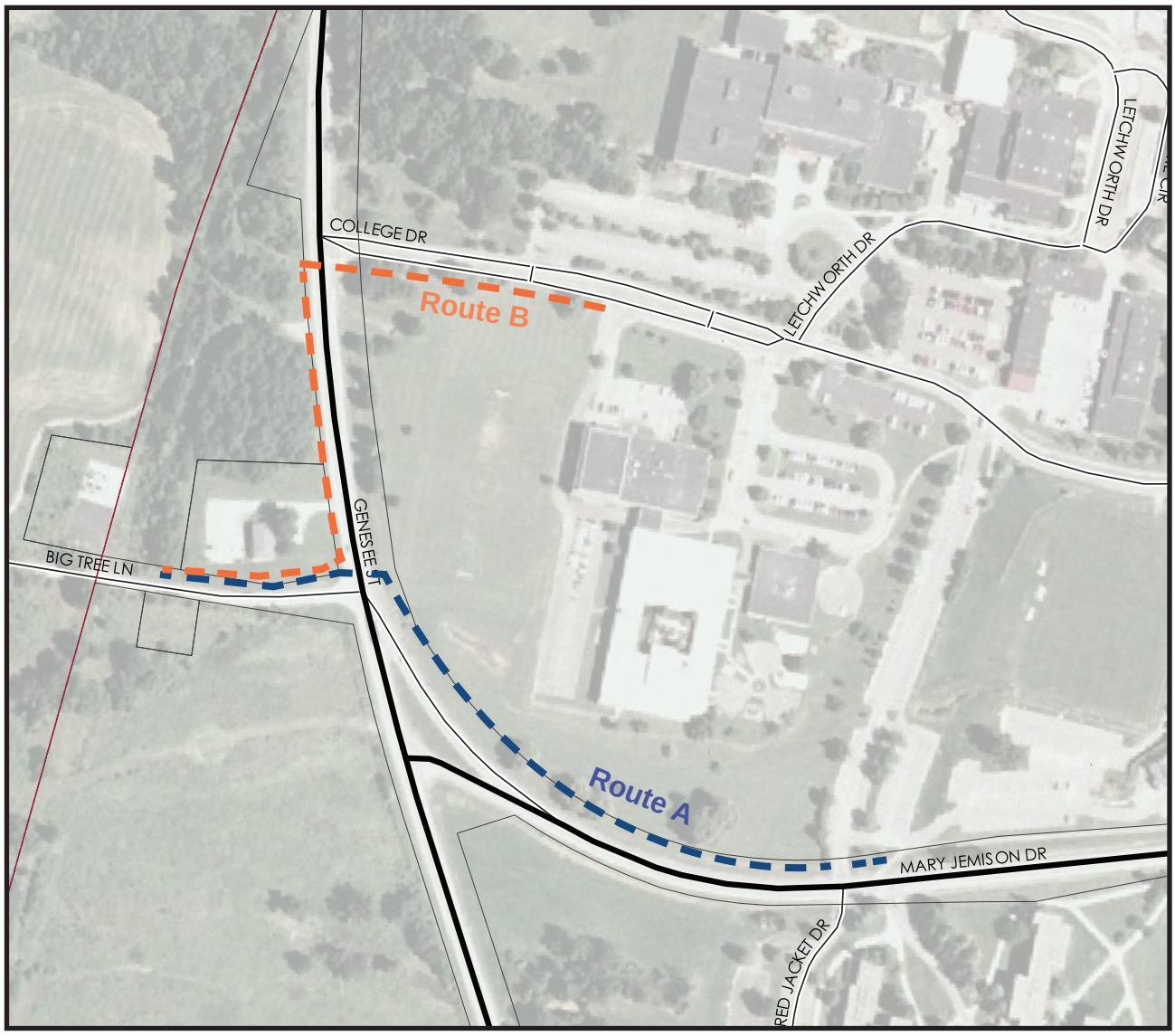
ZONE D — *Connector Trail(s) to Bridge*

ZONE E — *Genesee River Bridge & Connection to Greenway*

ZONE
A

Multimodal Connections to Geneseo





Stakeholders:

- NYSDOT
- Village of Geneseo
- SUNY Geneseo

Action Item:

Determine preferred route for connection to Big Tree Lane

- Route 'A' is more direct, but crossing of Route 63 is more complex
- Route 'B' goes through SUNY Geneseo, but has simpler crossing

Preliminary Cost Estimates

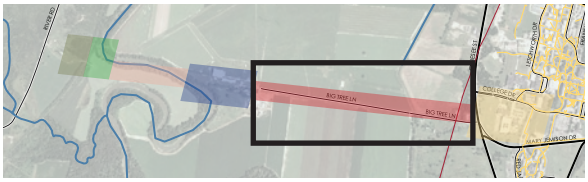
Crossing Total	$25,000
Rectangular Rapid Flashing Beacon	*$22,500*
Crossing Treatment	*$1,000*
Advance Signage	*$1,500*

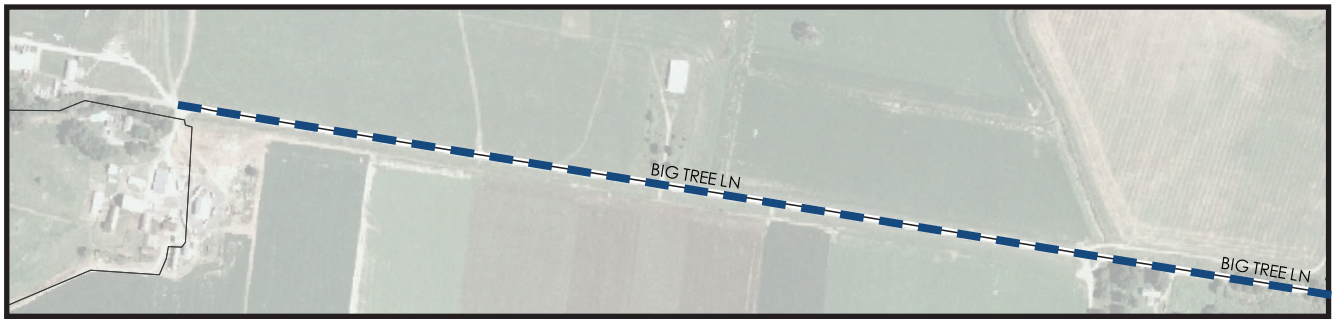
Sidewalk A	Linear Ft.	Estimate	Total
	1100	*$35/LF*	**$38,500**

Sidewalk B	Linear Ft.	Estimate	Total
	900	*$35/LF*	**$31,500**

ZONE
B

Big Tree Lane





Stakeholders:
- Town of Geneseo
- Property Owners
- Warplane Museum

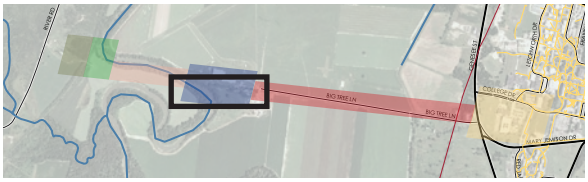
Action Items:
- Explore and secure funding sources for paving Big Tree Lane

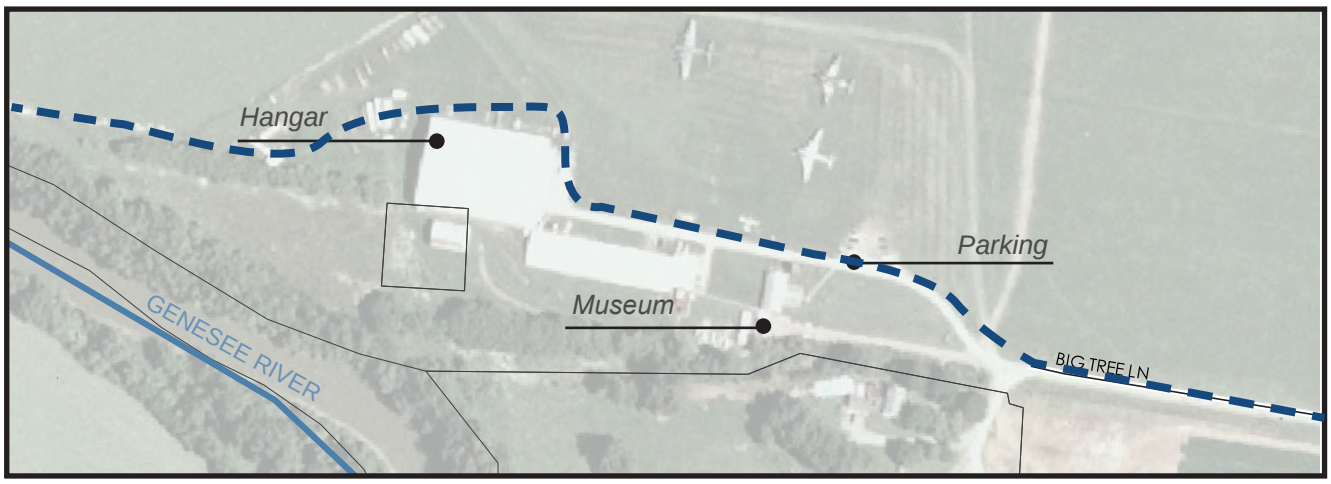
Preliminary Cost Estimates

Paved Big Tree Lane	Linear Ft.	Width (Ft.)	Square Ft.	Estimate	Total
	4,600	*30*	*138,000*	*$7/SF*	**$966,000**

ZONE
C

Warplane Museum



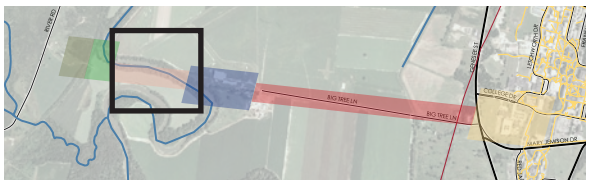


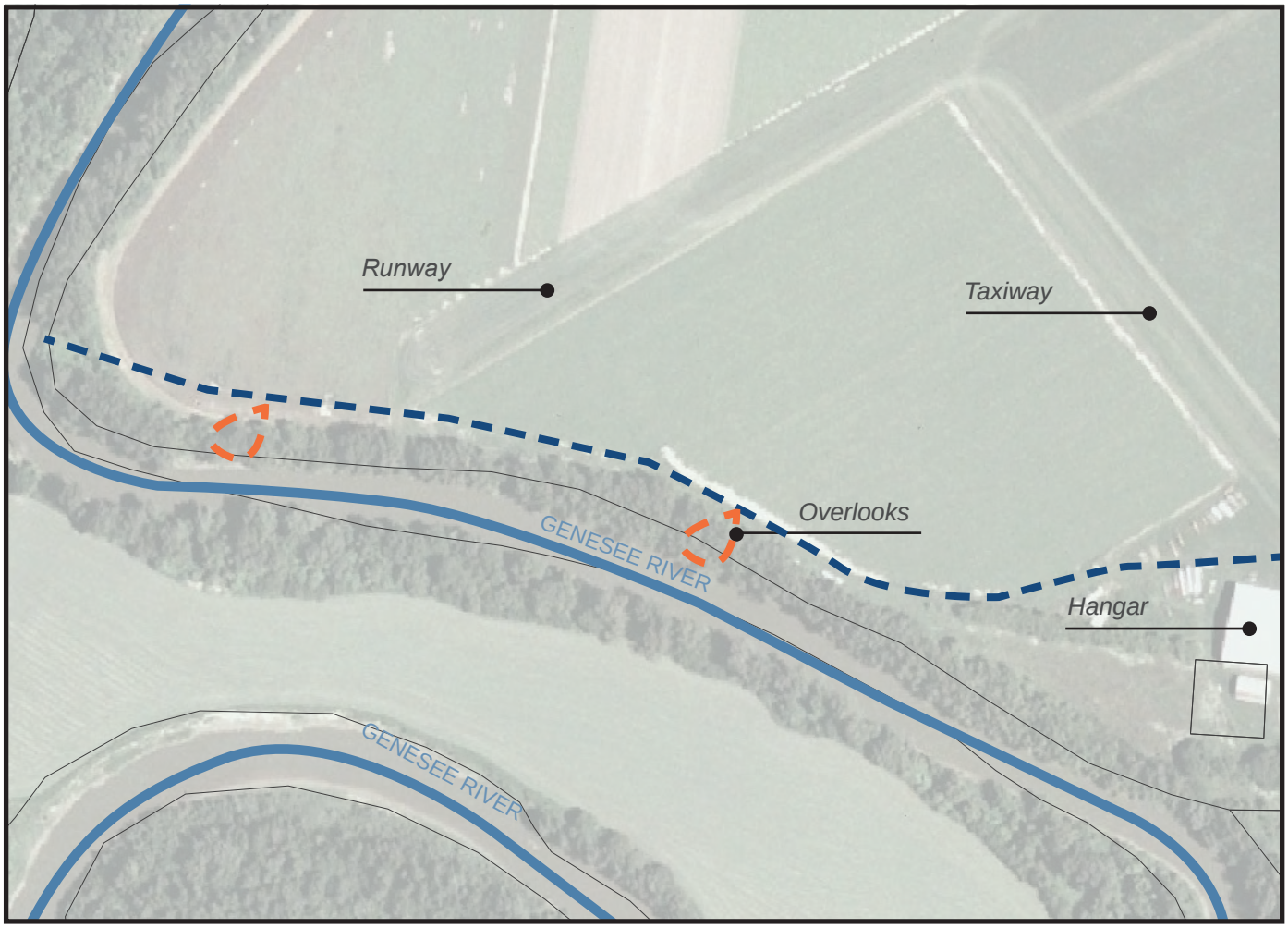
Stakeholders:
- Town of Geneseo
- Property Owners
- Warplane Museum

Action Items:
- Collaborate with Warplane Museum during development of Master Plan in 2020
- Explore future interest in shared parking and/or restrooms

ZONE
D

Connector Trail(s) to Bridge





Stakeholders:

- Town of Geneseo
- Property Owners
- Warplane Museum
- NYSEG
- NYSDEC

Action Items:

- Design and construct 10’ wide ADA multi-use accessible stone dust trail between Warplane Museum and future bridge site
- Develop system to close trail during airplane takeoffs & landings based on Greenway System
- Study potential locations for 2-3 Genesee River overlooks
- Develop informative and interactive wayfinding network with historical signage discussing ‘Big Tree’

Preliminary Cost Estimates

Stone Dust Pathway	Linear Ft.	Estimate	Total
	2,400	*$20/LF*	**$48,000**

Paths to Overlooks	Linear Ft.	Estimate	Total
2 Overlooks Total	*500*	*$30/LF*	**$1,500**

ZONE

E

Genesee River Bridge & Greenway Connection

Stakeholders:

- Genesee Valley Greenway
- Warplane Museum
- Town of Geneseo
- Town of Leicester
- Property Owners
- NYSDEC
- USACE
- Emergency Responders

Action Items:

- Establish connection with property owner on west side of River and coordinate right-of-way easements and/or acquisitions
- Conduct site survey with topography and mapping
- Perform hydraulic analysis to determine flood elevations and velocities
- Conduct subsurface investigations with soil borings
- Perform environmental review and permitting with Department of Environmental Conservation (NYSDEC) and United States Army Corps of Engineers (USACE)
- Determine precise location and construction method for bridge
- Coordinate with emergency response personnel to determine best path for accessing Greenway
- Coordinate with Genesee Valley Greenway to continue discussion of potential visitor center
- Discuss potential for kayak launch on Genesee River

Preliminary Cost Estimates

Pedestrian Bridge	Est. Span	Delivery	Piles	Add. Work	Total
Prefabricated Truss	*~100'*	*~$250,000*	*~$50,000*	*~$200,000*	**$500,000**

A prefabricated truss bridge is used here for cost estimating, as it is one of the most commonly-used type of multi-use bridges that can accommodate pedestrian, bicycle, and equestrian use. The above cost estimate includes the prefabricated truss superstructure, a driven steel pile foundation, concrete substructures, and stone fill scour protection. The images below represent similar pedestrian-style prefabricated truss bridges in the northeastern United States. With proper engineering studies, these bridges support emergency vehicle access.

SUMMARY: BIG TREE LANE POTENTIAL GREENWAY CONNECTION

This connection has overwhelmingly been identified as the preferred alternative by community members and project stakeholders. While it is, in all probability, the most expensive of the five connections, it is also the most direct and safest for active transportation modes, and enables increased emergency vehicle access. Implementing this recommendation will require ongoing collaboration and coordination with all of the stakeholders listed on previous pages, and funding from multiple sources. Additional information about funding can be found in Chapter 10.

View from Greenway in area of potential bridge. Courtesy: Kristine Uribe

8.6 ADDITIONAL TRAILS & NETWORKS

WALMART - LIMA ROAD - VOLUNTEER ROAD CONNECTIONS

Currently, according to data gathered from the community survey, Walmart and Wegmans are the two key destinations within Geneseo that the fewest citizens regularly walk or bike to, due to the high volume of traffic and lack of pedestrian and bicycle facilities along NYS Route 20A .

Recommendation: Continue engaging property owners regarding feasibility of creating multi-use cut-through paths between Lima Road, Volunteer Road, and NYS Route 20A.

RORBACH LANE - JACQUELINE WAY - MEGAN DRIVE CONNECTION

This route along low-volume, low-speed roadways enables bicyclists and pedestrians to safely move between the Village and NYS Route 20A.

Recommendation: The implementation of bicycle facilities such as Shared Lane Markings and a Bike Boulevard designation along these routes would further encourage active transportation use.

Recommendation The construction of a new gate on Rorbach Lane that would still prohibit vehicular traffic but would allow pedestrians and cyclists to pass through without leaving the paved roadway would make this route more attractive to active transportation users.

FORMALIZED GENESEO SCHOOL ZONE PATHWAY

As noted in Chapter 6: Needs & Opportunities Assessment, there are a suite of potential improvements surrounding the Geneseo Central Schools on Avon Road.

Recommendation: Formalizing the informal path along the west side of Avon Road between Westview Crescent and the School would complement all of these other improvements, and - as detailed in the Sidewalk Gap section - provide pedestrian facilities in one of the priority Sidewalk Gap roadway segments. This path should be constructed using stone dust or another similar material to provide facilities for pedestrians, joggers, and equestrian users, and should also be ADA-accessible. The property owners whose land abuts the path have expressed preliminary support for a formalized pathway as long as key legal and surface treatment conditions are met. Please see the following pages for additional information about school area improvements.

RAILS TO TRAILS PATHWAYS

These trails along the west side of the project area were not examined in-depth as part of this study, and were not mentioned by community members in the survey or at Public Meetings. The potential areas for these trails appear to be generally overgrown, and would need significant effort to establish a trail.

GENESEO VALLEY CONSERVANCY LOOP PATH

Though this ‘loop’ was not comprehensively analyzed as part of this study, there are ongoing efforts to link trails through the John Chandler Preserve, Highland Road, NYS Route 20A, the Arboretum, River Road, SUNY Geneseo Campus, and Avon Road. The County and Town are currently coordinating potential trail access on County properties.

JAYCOX CREEK PATHWAYS

These potential trails were not examined in-depth as part of this study, though one survey respondent indicated a significant interest in creating public access trails along the creek.

WAYFINDING

Wayfinding consists of a combination of signage, mapping, and environmental cues that help people navigate. When applied to active transportation, wayfinding can guide cyclists or pedestrians onto safer, lower traffic routes that access key destinations. The recommendations from the ongoing Livingston County Wayfinding Plan should be tailored to specific active transportation routes within Geneseo, particularly on more bike- and pedestrian-friendly roadways.

SPOTLIGHT: GENESEO CENTRAL SCHOOL AREA

As discussed in the Needs Assessment, the area around the Geneseo Central School presents an opportunity to incorporate several types of active transportation-related improvements, The enhancements discussed on the following pages are intended to improve the safety of pedestrians and cyclists, and potentially increase the amount of students who walk or bicycle to school. Figure 24 illustrates potential infrastructural and physical improvements for the school area, while Figures 25 and 26 detail two alternative signage and policy schemes. The images below represent a potential 'before and after' view from the school path if many of these improvements were implemented.

LEFT: **EXISTING CONDITIONS**

BELOW: **PROPOSED CONDITIONS**

Accessible multi-use stone dust path suitable for pedestrian, jogger, and equestrian use, along with green infrastructure rain gardens, additional street trees, and bike lane installation on Avon Rd. Rendering not to scale.

FIGURE 24

SCHOOL ZONE IMPROVEMENTS

#	TYPE	SPECIFIC IMPROVEMENT	DETAILS
1	**Crossing**	Enhanced Crossing across Avon Rd at Westview Crescent	Add side stripes to create 'LS' crosswalk Add reflective strips on existing sign posts Create 'back-to-back' crossing signage
2	**Crossing**	New Crossing across Avon Rd at School Driveway	Place crossing here to shift potential School speed limit north *(see row 9)* Stripe as 'LS' Crosswalk Add reflective strips on existing sign posts Create 'back-to-back' crossing signage
3	**Crossing**	New Crosswalk across Cavalry Rd	Stripe as 'S' Crosswalk Connect existing sidewalk to proposed sidewalk
4	**Sidewalk**	New Sidewalk along East side of Avon Rd between Cavalry Rd and School District	Connect Cavalry Rd to new school crossing; requires fill with current roadside drainage ditch
5	**Bicycle Facility**	Marked bike lanes between School District driveway and Westview Crescent	Mark as bike lanes only if multi-use path is constructed for pedestrians and joggers
6	**Off-Road Trail**	Multi-Use, formalized School Path along West side of Avon Rd between Westview Crescent and School District driveway	Design as 10' stone dust pathway suitable for pedestrian, jogger, and equestrian use Create slopes to be ADA accessible
7	**Environ-mental**	Street trees along West side of Avon Rd near School Path	Serve as traffic calming elements Provide habitat value, carbon reduction, and air quality enhancements
8	**Environ-mental**	Rain Gardens along West side of Avon Rd near School Path	Resolve drainage issues and ponding through green infrastructure measures with 'community elements' and signage
9	**Policy & Signage**	Potential School Speed Limit establishment and corresponding signage enhancements *(Please refer to following pages for two potential alternatives for improvement; one with a School Speed Zone established, and one without)*	According to the 2011 New York State supplement to the Manual on Uniform Traffic Control Devices, six conditions must be met to establish a School Speed Limit. If all above recommendations are implemented, this area will satisfy five of those requirements; if the School hires a crossing guard, all six conditions would be met. If established, a School Speed Limit area may be no longer than 1320', and must begin 200' before the initial crosswalk. As shown on the following pages, placing the crosswalk at the School Driveway enables the majority of the school property to be included within the School Speed Limit.

ALTERNATIVE 1: ESTABLISHED SCHOOL SPEED LIMIT

The 2011 New York State Supplement to the Federal Manual on Uniform Traffic Control Devices (MUTCD) generally requires six conditions for the implementation of a school speed limit: 1) the facility is a school; 2) some of the children walk or bicycle to school; 3) the facility and its jurisdiction provide written support for a school speed limit; 4) the school speed limit area contains a marked crosswalk; 5) the crosswalk is supervised by an adult crossing guard; and 6) there are no nearby signals, overpasses, or underpasses for pedestrians. Currently, the Geneseo School area satisfies conditions 1, 2, and 6, and the district has indicated a willingness to satisfy condition 3; additionally, the proposed crosswalk adjacent to the School Driveway will meet condition 4. If the School District decides to hire a crossing guard, thereby satisfying condition 5, NYSDOT has indicated that a school speed limit may be established. The diagram on this page illustrates the potential signage that, along with regulatory updates, would enable this change to occur.

PROPOSED SIGNAGE

SCHOOL AREA or SCHOOL CROSSING AHEAD

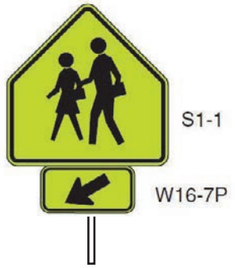
S1-1

W16-9P

S1-1
MUTCD
pp. 734-736

W16-9P
MUTCD
pp. 734-736

SCHOOL CROSSING



S1-1

W16-7P

S1-1
MUTCD
pp. 735, 741

W16-7P
MUTCD
pp. 735, 741

SCHOOL SPEED LIMIT

S4-3P

R2-1

NYR7-13P

S4-3P
MUTCD
pp. 735, 742

R2-1
MUTCD
p. 57

NYR7-13P
NYSS
p. 205

END SCHOOL SPEED LIMIT

S5-3

S5-3
MUTCD
pp. 735, 742

MUTCD *refers to 2012 updated version of the federal Manual on Uniform Traffic Control Devices; NYSS refers to 2011 New York State Supplement to the MUTCD. Sections of both documents are in Appendix G of this report.*

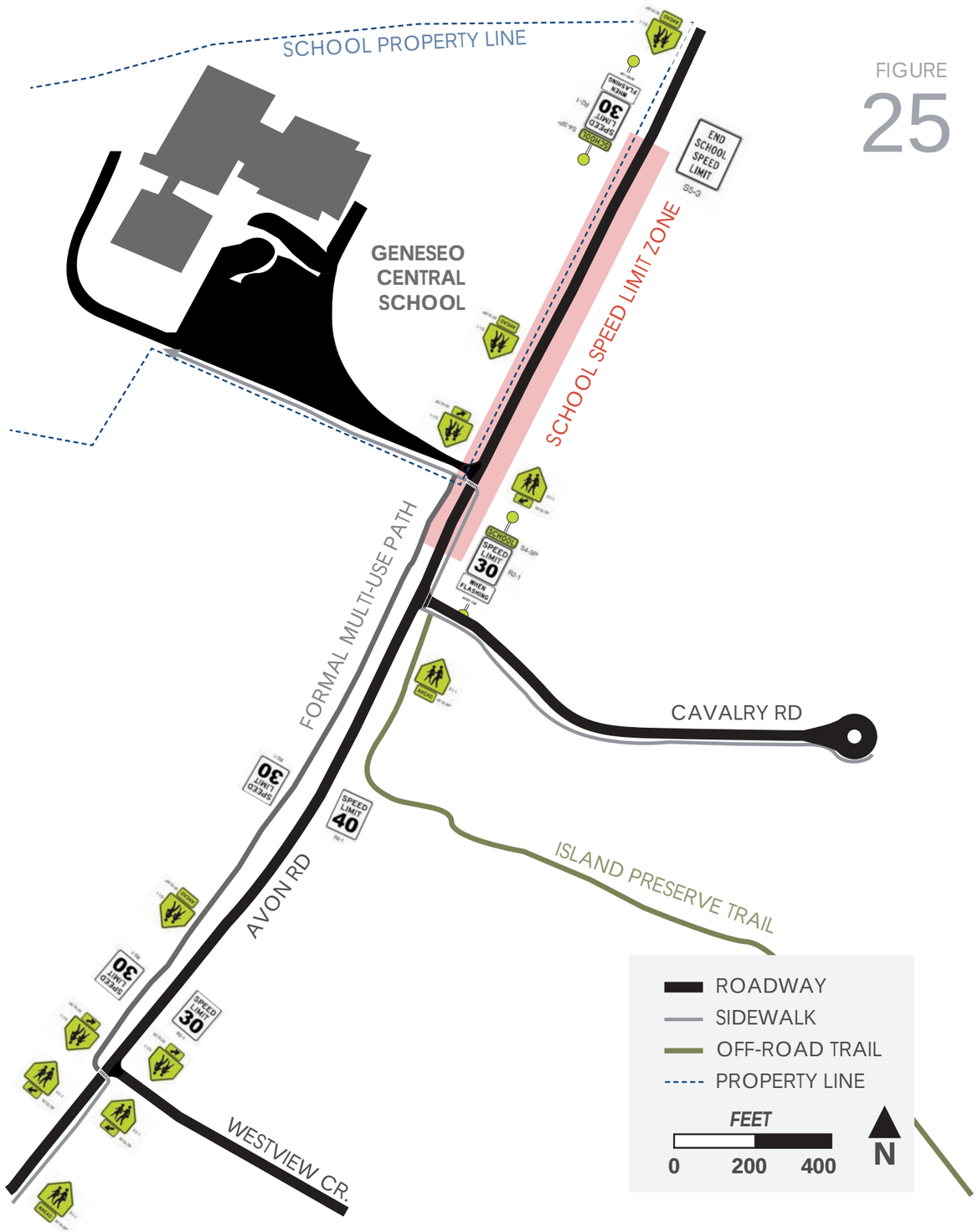


FIGURE
25

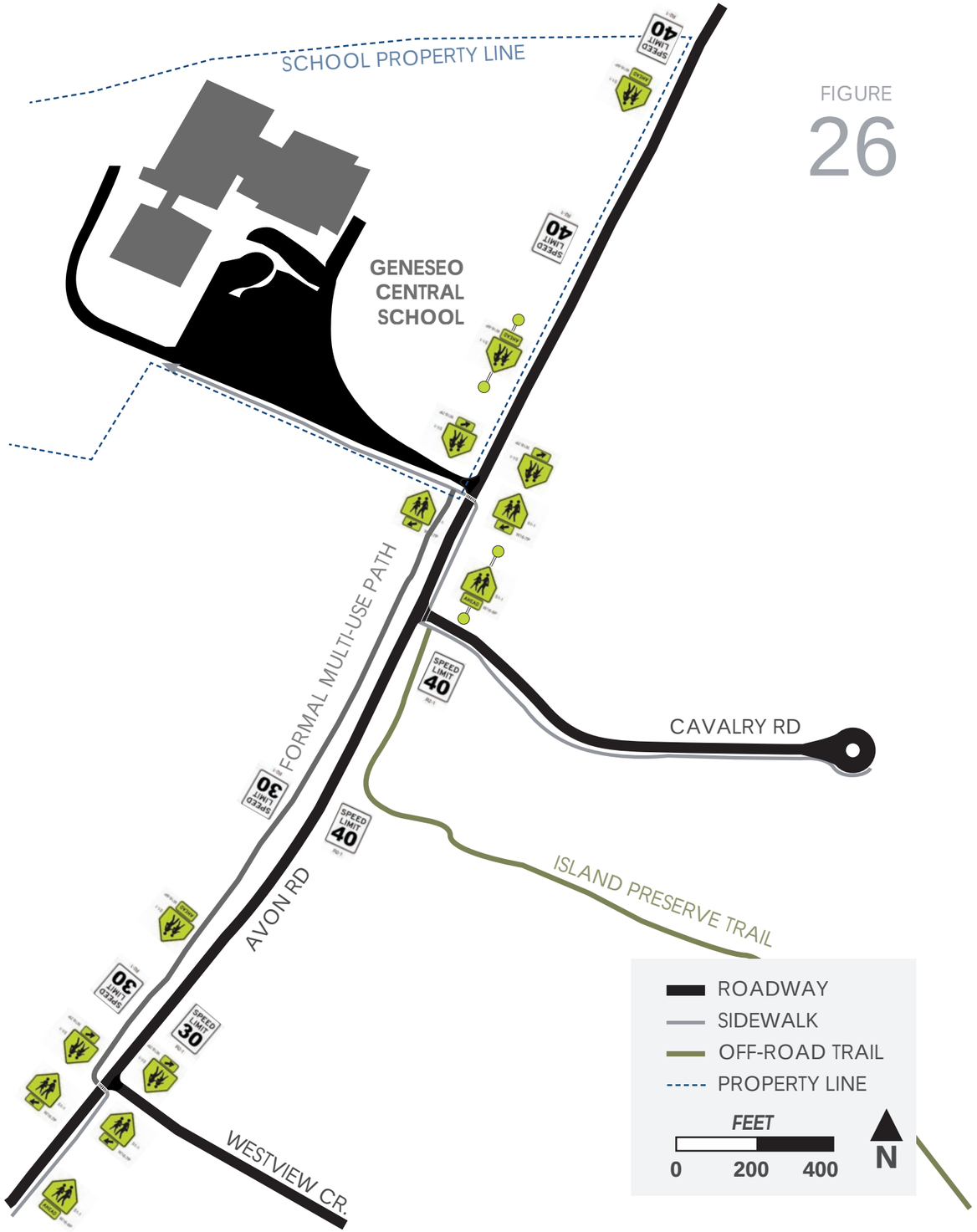


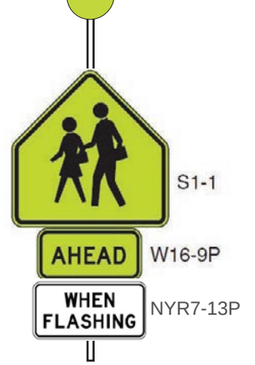
FIGURE
26

ALTERNATIVE 2: NO SCHOOL SPEED LIMIT

If the Geneseo School District does not determine that hiring a crossing guard is feasible, NYSDOT has indicated that a school speed limit may not be established in this area. This diagram details proposed signage that would still enhance awareness of the school and potential pedestrians to oncoming drivers.

PROPOSED SIGNAGE

SCHOOL AREA or SCHOOL CROSSING AHEAD



S1-1
MUTCD
pp. 734-736

W16-9P
MUTCD
pp. 734-736

NYR7-13P
NYSS
p. 205

SCHOOL CROSSING

S1-1
MUTCD
pp. 735, 741

W16-7P
MUTCD
pp. 735, 741

MUTCD *refers to 2012 updated version of the federal Manual on Uniform Traffic Control Devices; NYSS refers to 2011 New York State Supplement to the MUTCD. Sections of both documents are in Appendix G of this report.*

8.7 REGULATORY RECOMMENDATIONS

The regulatory recommendations contained herein are intended to achieve the following objectives:

- Identify areas where enhancement or transformation of character is desired to improve the pedestrian and bicyclist experience;
- Ensure zoning districts reflect desired development character and permit the appropriate density and mix of uses;
- Reduce impacts of auto-oriented uses and site design practices;
- Adjust development and design standards to suit differing character areas of the Town and Village;
- Ensure all development applications, including redevelopment and minor site improvement efforts, trigger site plan review to foster incremental change over time;
- Provide stronger and more prescriptive multi-modal building and site design considerations; and
- Provide flexibility, alternatives, and increased opportunities for economic development.

LAND USE REGULATIONS & COMMUNITY CHARACTER

A community's development regulations and zoning code directly shape the environment in which residents live, work, travel, and recreate. Over the last six decades, towns and villages have adapted their codes to accommodate cars and vehicular travel, often to the detriment of community character and at the expense of pedestrians and bicyclists.

How would you rate the pedestrian experience in these two images? In which environment would you feel more comfortable walking?

Although both sites shown above are in conformance with the Village's MU-2 District, it is clear that certain development patterns are more accommodating and welcoming to pedestrians and bicyclists. Below is a list of basic building and site design guidelines appropriate for encouraging active transportation within the Town and Village of Geneseo.

- Sidewalks extending not only from site to site, but also from the street to building entrance(s);
- Parking lots located to the side or rear of a structure;
- Buildings with a height of at least 35 feet (or 1.5 to 2 stories); and
- Buildings with reduced setbacks (under 40 or 50 feet) that help frame the street.

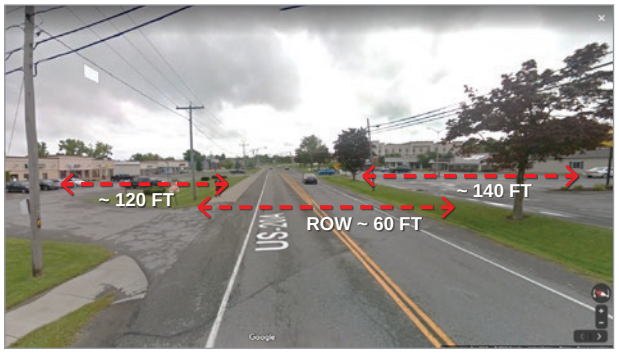
The Town and Village regulations applicable to the Route 20A corridor, while generally permissive of the preferred development character, is one of the areas where additional regulatory tools are needed to ensure future investment is consistent with the goals of this Plan.

The Town's sidewalks tend to end at the street, forcing pedestrians to walk in vehicle dominated spaces to reach their destination.

For example, the minimum setback requirement for the Town's General Commercial District is 40 feet. However, actual development may result in a much larger setback (see images above). Additionally, there are minimal requirements for the connection of sidewalks from the street to development entrances, leaving pedestrians to navigate vehicular access drives and parking lots.

STREETSCAPE DESIGN & THE "STREET WALL"

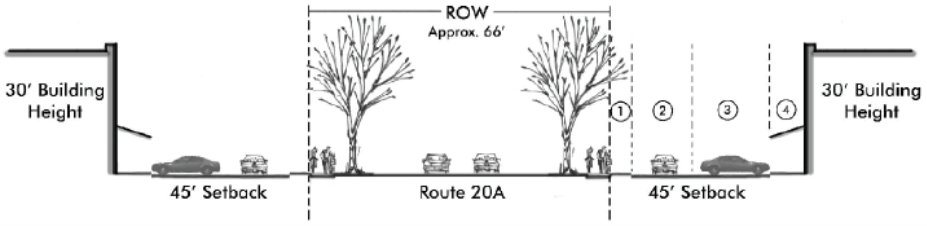
One symptom of auto-oriented zoning codes and development regulations is the creation of streetscapes that lack a "sense of place." This often results in roadways that encourage high speeds of vehicular travel through a community, rather than visiting or spending time within it. By reducing building setbacks and increasing building heights all modes of travel begin to perceive a "street wall," narrowing the focus of drivers, contributing to reduced speeds and traffic calming, and providing a more comfortable environment for pedestrians.



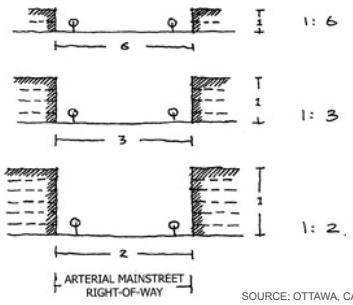
Pedestrians begin to perceive enclosure & definition of place at a 1:4 ratio.

The optimal building height to road width ratio is 1:3. Currently the Town and Village's zoning codes require a minimum 1:5 ratio (see Village Zoning Code excerpt below).

Figure 4



Cross Section of 20A Showing Convenience Parking



SOURCE: OTTAWA, CA

TOWN/VILLAGE GENERAL COMMERCIAL DISTRICT RECOMMENDATIONS

Consider feasibility to:

- Implement a max front setback of 30 - 50 ft along major commercial corridors, such as Route 20A
- Increase max building height to 45 ft (3-4 stories)
- Implement min building height of 35 ft
- Maintain MU-1 District standards in Village to preserve the character of Main Street
- Apply Village's Access Management Overlay District (§130-42) along Town corridors
- Ensure districts permit the mixing of uses to create vibrant activity centers

TOWN/VILLAGE GENERAL DEVELOPMENT STANDARD RECOMMENDATIONS

Consider feasibility to:

- Prohibit front yard parking (even convenience parking)
- Reduce parking requirements in size and number (Size: 8' x 18' min; Number: 3 per 1,000 sf min)
- Require designated pedestrian walkways from street and parking areas to building entrances
- Utilize Town's recently implemented site design, streetscape, and architectural standards in future development applications

UNIFIED DEVELOPMENT ORDINANCE

Between the Town and Village, there are 8 separate chapters of local code that regulate development within Geneseo. This includes the zoning codes, subdivision regulations, design and construction standards, streets and sidewalks provisions, and vehicle and traffic laws. While the regulations of each are only applicable within their municipal borders, the decisions impact the collective character and quality of life. Additionally, the duplication of regulation may cause points of conflict and inefficiency in development review.

One potential solution is for the Town and Village to consider a joint UDO. A UDO essentially incorporates subdivision, zoning, and construction standards all into one local law or policy. This helps to simplify and streamline the code for all users, including property owners, decision-makers, developers, and enforcement officers. The benefits and components of a UDO are listed below.

UDO BENEFITS

- Ensures consistent application of standards
- Provides for better collaboration along shared boundaries
- Simplifies development review process (investment friendly)
- Reinforces concepts of smart growth (preserving agricultural/open space while identifying growth areas)

UDO COMPONENTS

- "Spectrum" of Zoning Districts (Denser Village Core to Rural Town Environment)
- Streamlined subdivision and site plan review procedures
- Joint streetscape and design requirements for continuity (where applicable)
- Town and Village specific goals and regulations
- Potential for joint or coordinated Planning Boards

VILLAGE CODE RECOMMENDATIONS

CHAPTER		SECTION		DESCRIPTION
130	**Zoning & Subdivision of Land**			
		34-36	Mixed Use Districts	These districts would most benefit from multi-modal transportation considerations for access to historical, neighborhood, and natural resources.
		39	Community Resources District	Consider requiring sidewalk and bicycle connections to neighborhoods, nearby trails, and internal ADA accessible paths.
		40	Open Space Overlay District	Consider reference to American Disabilities Act standards to encourage walkable trails for all ages and abilities to enjoy. Include pathways with multiple uses for foot traffic as well as bicyclist traffic.
		41	Planned Residential Development District	Consider additional construction of bicyclist infrastructure, whether that be racks, shared-use roadways, or lanes, especially to access open space areas. Encourage architectural design of these facilities to build upon the character of the development and the community.
		42	Access Management Overlay District	- Consider implementing minimum sidewalk width of 10' for certain development, which pushes the standard of 5' minimum sidewalks. - Consider additional language that would improve sidewalk and bicycle gaps include, "Provide bicycle and pedestrian connectivity through bicycle and pedestrian facilities that are both integrated into roadway design and provided as standalone facilities," to increase sidewalk connections along driveways and curb cuts. Facilities are also mandatory as appropriate. - Apply concept of cluster development, which encourages access to open space and compact land use patterns that support increased walking and bicycling. - Consider amending the radius minimum standards for traffic calming purposes and to accommodate multi-modal transportation.
		97	Blocks	Encouraging 6' to 8' wide sidewalks for new development would also better accommodate two way pedestrian traffic in consideration of wheelchairs and other mobility devices, as seen on Main Street.
135A	**Land Development Regulations & Public Works Requirements**			
III	Development Requirements	A-15	Street Layout	Consider language to strongly encourage the provision and/or maintenance of connectivity for bicycling and walking, even where motorist through traffic is discouraged or severed.
		A-18	Blocks	Consider strengthening language to encourage application of standard.
IV	Site Improvements	A-28	Site Improvements	- Consider referencing the full sidewalk design requirement contained in Article VII from this location or Article XIII Subdivision of Land Design Standards. - Consider stipulating that all sidewalks shall be provide maximum accessibility for all users, and at a minimum, comply with current US Access Board design guidelines in compliance with the Americans with Disabilities Act. Emphasize that accessible sidewalks include providing compliant curb ramps at intersections and maintaining pedestrian routes where sidewalks intersect driveways. - Consider adopting the Access Board's Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way as preferred practice for projects in Geneseo. - Consider language to encourage maximizing separation of the sidewalk from the roadway while complying with all mandatory accessibility criteria.
		A-34	Street Lighting	Consider strengthening the expectation for sidewalk lighting to promote required lighting levels, individual security, and thus comfort, and safety near conflict points, in any area with sidewalks. Guidelines should promote visibility of the sidewalk area in proximity to intersections and crosswalks.
		A-37	Parking Areas	Consider adding language to specify the expectation that driveway crossings of sidewalks will not diminish the accessibility of the sidewalk, as defined in current ADA-derived guidelines. Update language to require concrete sidewalk along driveways preferred; marked crossing with maintenance plan for re-painting as needed at minimum.
VII	Design Criteria	A-56	General Road Design Criteria	Consider adding language to specify that visibility of separated bicycle facilities and sidewalks is explicitly to be considered in roadway design. Consider a collector cross section that includes AASHTO-compliant bike lanes next to travel lanes of no less than 10 feet.
		A-59	Sidewalks	Consider specifying additional accessibility criteria or refer to adopted external ADA guidelines as operative in Geneseo.
IX	Installation of Improvements	A-85	Concrete Gutters and Sidewalks	Consider changing the sidewalk cross slope standard to a clearly stated maximum 2% and recommend a lesser value such as 1.5% to allow for a construction tolerance
	Appendices	S, T, U	Typical Road Cross Sections	Update these cross sections to indicate at least minimum sidewalk width and a desirable separation from the roadway; also consider a wider minimum for sidewalks immediately adjacent to roadway. AASHTO recommends a 6-ft sidewalk if the sidewalk is at back of curb.
		X	Sidewalk Detail	Update cross slope specification to be clearly stated 2% maximum to comply with current ADA-derived guidelines; consider wider sidewalks if placed at back of curb. Consider note referencing assumed compliance with current ADA guidelines or more stringent policy, such as draft Guidelines for Facilities in Public Rights of Way.
105	**Streets & Sidewalks**			
		11.1	Sidewalk Permits	Consider referencing the American Disabilities Act and Peer Communities for guidance on accessible sidewalk regulations.
		5	Riding on Sidewalks	This code should be amended to allow children of a certain age (10 and under) accompanied by a parent to be permitted to ride on the sidewalk. This will benefit the Village and roadway traffic so that youth can learn the rules of the road and become experienced before participating in on-road traffic. Supplementing this gap, the Access Management Overlay District provides more guidelines on accommodating bicycle traffic and facilities.
123	**Vehicles & Traffic**			
		51	Speed Limits	Continue to partner with NYSDOT to determine the feasibility of applying the school speed limit designation to a .25 mile stretch of Avon Rd adjacent to the Geneseo Central School district. This improvement will supplement other facility improvements near the school and help promote walking and bicycling to school.

TOWN CODE RECOMMENDATIONS

CHAPTER	SECTION		DESCRIPTION
93	**Subdivision of Land**		
	6	Definitions	Add bicyclist circulation to street definition and introduce that the street is meant to facilitate and accommodate multiple modes of transportation.
	8	General Standards Applicable to All Types of Development	While sidewalks must be present for blocks over 1,000' in length according to code, a walkable block measures much smaller scale, at about 250' to 300' in length. Encouraging 6' to 8' wide sidewalks for new development would also better accommodate two way pedestrian traffic in consideration of wheelchairs and other mobility devices, as seen on Main Street. Consider requirement for adding street trees, spaced at 30 to 40 foot intervals along street frontages. Consider street lighting requirements where desirable with future investment.
	13	Street Pavement, Curbs, and Sidewalks	To improve these minimum requirements, the Town could recommend a setback for sidewalks off the street based on classification, maximum cross slope, as well as set the minimum standard width at 5'. Require sidewalks to be provided on both sides of the street.
106	**Zoning**		
	23.3	Mixed Use Districts: Objectives	Reference minimum width table from Town Subdivision of Land or require paved, ADA compliant routes at least 5' wide and AASHTO for bicycling minimum requirements.
	41.3	Off-Street Parking & Loading Regulations: General Requirements	Reference minimum width table from Town Subdivision of Land or require paved, ADA compliant routes at least 5' wide.
	41.7	Off Street Parking & Loading Regulations: Minimum Parking Space Requirements	Reference Village zoning district required bicycling parking to expand storage facilities in commercial districts, and potentially industrial districts, to accommodate multiple modes of travel. Consider overlay near Village where bicycling may be more prevalent.
	44.3	Design Standards & Guidelines: Objectives	Add bicycle-friendly language to objectives.
	44.4	Design Standards & Guidelines: Site Planning Standards	Add ADA compliance to list of required features for pedestrian walkways. Ensure that regulations require sidewalks to connect directly from parking areas and existing sidewalks (where applicable) to building entrances.
	44.7	Design Standards & Guidelines: Listing of Figures	Reference parking requirements for baseline facilities for bicyclists in each zoning district as in Article 41. Illustrate appropriate measures for bicycle access within circulation diagrams.

8.8 PROGRAMS

This section includes recommendations for Education & Outreach Strategies, Partnerships, and Maintenance Procedures to complement the facility improvements discussed in previous sections.

MAINTENANCE RECOMMENDATIONS

The importance of maintaining clean shoulders, sidewalks, and trails is paramount for active transportation safety. Currently, the Village of Geneseo annually paints all shoulder and crosswalk markings, and cleans shoulders during spring, summer, and fall seasons. There may also be opportunities for partnering with local businesses or community groups to sponsor clean-up days.

Maintenance of active transportation facilities is particularly important during the winter season, when snow can pile up on sidewalks and shoulders. In addition, ice can accumulate on certain areas of sidewalks, creating dangerous situations for pedestrians. According to Village of Geneseo Code, the responsibility for keeping sidewalks clean falls on residents, as Section 105-6 states that ”no owner, occupant, tenant or other person owning or occupying any lot or premises in the Village, shall permit any snow, ice or other substance to collect or remain on any sidewalk.” Further enforcement of these existing laws that call for owners, residents, or tenants to keep sidewalks adjacent to their buildings clean is key for ensuring that active transportation is safe and convenient during all seasons in both the Town and Village of Geneseo.

EDUCATION, OUTREACH, AND PARTNERSHIP RECOMMENDATIONS

Educating all roadway users about proper behavior for motorists, pedestrians, and bicyclists is a key component of creating a safer active transportation network. The recommendations in this section aim to supplement the facility recommendations described in previous sections. While these recommendations are relevant to all user groups, they particularly address young bicyclists and pedestrians, senior pedestrians and bicyclists, and young motorists. It is also important to communicate these recommendations with age-appropriate language and various languages, as appropriate. Overall, these recommendations include a combination of state-wide and national programs, campaigns, and resources as well as suggestions tailored particularly to Geneseo.

It is particularly important to focus on education and outreach in light of the growing number of distracted pedestrians, drivers, and bicyclists. While the issues of distracted driving are widely-recognized, the dangers of distracted walking are also becoming well-publicized; for instance, a recent survey by Liberty Mutual insurance suggests that 60% of pedestrians routinely utilize their cell phones while walking. This trend may be related to the findings from a recent National Highway Traffic Safety Administration report, which noted that crash-related pedestrian injuries rose by 19% from 2009 to 2010, while pedestrian fatalities rose by 4.2%. Similarly, a 2010 US Consumer Product Safety Commission report stated that twice as many pedestrians were treated in emergency rooms after being injured while using a cellphone or electronic device as compared to 2009. In addition, researchers believe that the number of injured pedestrians is actually higher than these results suggest, since many pedestrian-related crashes and injuries are not reported to police or officially logged.

Local Programs & Partnerships

- Partner with the Geneseo Central School District to provide education on the benefits of active transportation to students. The Student Council, as well as the cross-country and track teams, have been identified as potential collaborators within the district. In general, these educational programs should focus on both communicating the environmental, physical, and mental benefits of active transportation, as well as the proper behaviors on the road to promote safety for bicyclists and pedestrians. Additionally, the School District could adopt creative incentives to encourage students to walk or bike to school, such as 'punch-cards' that give students a reward after walking or biking a certain amount of times.
- Collaborate with local driving schools and driver education programs to emphasize the importance of respecting pedestrian and bicycle rights on the roadway.
- Partner with SUNY Geneseo to further develop a Bike Share program. As part of this project, the College indicated an interest in working with the Village of Geneseo to establish a partner program that would allow both students and community members to better access community amenities. While public input has not identified this as a key priority, several community members have indicated that a bike share would make them more likely to bicycle, signifying that a small-scale bike share would help improve accessibility within Geneseo.
- Partner with RTS Livingston to identify potential locations for enhanced Public Transit waiting area infrastructure. Particularly in colder climates like Geneseo, having protected areas to wait for the bus significantly enhances the experience of using public transit, a sentiment that was reinforced by a significant amount of survey respondents.
- Partner with local artists or SUNY Geneseo to create artistic bicycle parking along Main St and throughout the Village and Town. The establishment of artistic bike racks and parking areas not only encourages bicycle riding but also creates public art elements that can improve the aesthetics of the community.
- Partner with the Livingston County Traffic Safety Board and the Safety Program at Livingston County Cornell Cooperative Extension (CCE) to continue encouraging safe pedestrian and bicycle behaviors. The CCE offers programs for a wide variety of age groups and organizations, including parents, students, schools, and community groups.
- Continue collaborating with the Livingston County Sheriff's Office and the Geneseo Police Department to emphasize the importance of safe behavior from motorists, bicyclists, and pedestrians.

National Programs, Partnerships, & Events

- *Bike Light Campaign:* As daylight decreases, Fall is a good time of year to remind cyclists that proper equipment is required when riding at night. A bike light campaign also offers the opportunity to introduce cyclists to Cyclepath bicycle shop on Main St. The program could also offer discounts on bicycle headlights and read red reflectors and lights.
- *Bicycle Ambassadors:* A team of two ambassadors encourages an increase in bicycling by engaging the general public to answer questions about bicycle, and teach bicycle skills and rules of the road. Ambassadors attend community-based events throughout the peak cycling season to offer helmet fits, route planning, and commuting workshops. Community members also may request an appearance by a team of ambassadors at businesses, schools, and selected locations along the bikeway system.
- *National Bike Month:* May is National Bike Month, and can be used to recognize those who

commute by bike, and encourage people to increase the amount of commutes they make on a bicycle. This program features a month-long calendar of events with organized rides for different ages and abilities, bike handling skills, maintenance workshops, and a Bike to Work Day Commuter Challenge. This program tends to be most successful when led by a community-based organization with financial support from local municipalities and businesses.

- *Bicycle-Friendly Community Designation:* The League of American Bicyclists created this program to recognize communities with significant achievements towards supporting bicycling for both transportation and recreation. Their standards also offer benchmarks to identify additional potential improvements to the bicycle network.
- *League of American Bicyclists Certified Instructors (LCIs):* The League of American Bicyclists offers certification courses to train those interested in teaching others to ride their bike safely and legally as a form of transportation. LCI training courses require a two and a half day commitment, after which instructors can offer their own course offerings in the community.
- *Walk-Friendly Communities:* This nationally-recognized program encourages municipalities to establish or re-commit to a high priority for supporting safer walking environments. This program specifically recognizes communities that are working to improve a wide range of conditions related to walking, including safety, mobility, access, and comfort.
- *NYSDEC School Seedling Program* The School Seedling Program provides free trees and shrubs for schools to educate children about ecosystems and the valuable roles that trees play. With links between active transportation and environmental health becoming increasingly clear, this program can help educate youth about the connections between transit and resiliency. Within this plan, these trees could be utilized near the proposed off-road path near the Geneseo Central Schools.

Enforcement & Awareness of Laws

Law enforcement departments can take a leading role in improving public awareness of existing traffic laws and ordinances for motorists and pedestrians.

Motorist-Related: For motorists, these laws include obeying speed limits, yielding to pedestrians while turning, complying with traffic signals, and obeying drunk-driving and distracted-driving laws.

Pedestrian-Related: For pedestrians, relevant laws include crossing the street at legal crossings and obeying pedestrian signals. This increased level of enforcement will complement the implementation of recommendations in this plan by encouraging pedestrians to utilize new pedestrian facilities.

Bicyclist-Related: A campaign should be designed to increase connections between the local bicycling community and law enforcement, a concept that the Village of Geneseo police indicated support for throughout this project. In general, increased enforcement of illegal bicycle behaviors by police officers can help promote bicycle safety throughout the community. In particular, the following illegal behaviors should be targeted consistently, as they are particularly commonplace and hazardous:

- Riding at night without lights
- Violating traffic signals
- Riding on sidewalks
- Riding against traffic on the roadway

In addition, training for law enforcement may also help officers understand issues particularly relevant to bicycle safety and shared use of roadways for bicycles and motorists, including:

- When it is appropriate for bicyclists to ‘claim the lane’
- Why riding against traffic is so dangerous
- Appropriate roadway widths for shared use

8.9 PUBLIC TRANSIT

Public transit plays a key role in facilitating active transportation, as people typically either bicycle or walk to stations or bus stops. As discussed in Chapter 5: Inventory & Analysis, Geneseo currently has a robust public transit system that serves both residents and SUNY Geneseo students. However, data from the community survey indicated that relatively few Geneseo residents use public transit, suggesting opportunities for further improving the accessibility, comfort, and awareness of the system in coordination with RTS Livingston. Potential recommendations include:

- Additional awareness campaigns centered around residents, with maps and schedules attached
- Enhanced all-weather accommodations at bus stops to further incentivize ridership in the winter
- ADA Accessible bus stops to ensure all community members can utilize services
- Seating at all sheltered and non-sheltered bus stops
- Bike parking at select bus stops to further incentivize mode shift to active transportation
- Green infrastructure and planting areas for environmental health and aesthetic enhancements

Example covered bus stop with green infrastructure in Brighton, NY

9 | IMPLEMENTATION MATRIX

This chapter primarily consists of a reference table that applies various metrics to all of the proposed facility recommendations discussed in Chapter 8 in an effort to recognize the highest priority projects. Each recommendation is 'ranked' from Priority (most significant benefit) to Recommended (significant benefit) to Possible (minor or potential benefit). These metrics have been determined through engagement with the project steering committee, and the community reception category is based on feedback from the Community Survey and Public Meetings #1 and #2; for additional information and key takeaways on each of these, please refer to Appendices A, B, and D.

- ***Anticipated Impact on Connectivity***
- ***Anticipated impact on Sustainability***
- ***Anticipated Improvement to Active Transportation Safety*** (based on information from Matrices in Chapter 8)
- ***Community Reception*** (based on community survey, public meetings, and stakeholder feedback)
- ***Expected Amount of Use*** (based on Demand information from Matrices in Chapter 8)
- ***High-Level Cost*** (based on Cost information from Matrices in Chapter 8)

KEY	++	+	/	-	- -	N
	significantly positive	*slightly positive*	*mixed or none*	*slightly negative*	*significantly negative*	*not applicable*

Improvement Type	Location(s)	Details	Expected Benefits			Public Input	Expected Use	Cost	Implementation	Jurisdiction(s)	Notes & Next Steps
			Connectivity	Environmental	Safety						
Intersections	Temple Hill St., NYS Route 20A, Crossett Rd., Groveland Rd.	Alternative 1A: T-Intersections of Crossett & Temple Hill	+	/	/	/	+	$$	Possible	NYSDOT, Village	Only implement if Roundabout alternative is not feasible
		Alternative 1B: Roundabout with ~140' Diameter	++	-	++	+++	+	$$$$	Priority	NYSDOT, Village, Library	Most supported improvement of plan; coordination for property Right of Way acquisition at Village Park
	NYS Route 20A, Center St., Medical Center	Sidewalks, Removed Slip Lane, Crossing	+	/	+	++	/	$$	Recommended	NYSDOT, Village	Determine feasibility of removing slip lane
	NYS Route 20A, Megan Dr., Reservoir Rd.	Crossings, Sidewalks, Bike Lane where Possible	+	/	/	+	/	$	Possible	NYSDOT, Village	Consider potential pavement widening for bicycle accommodation in future
	NYS Route 20A, Volunteer Rd., Genesee Valley Shopping Center	Crossings, Sidewalks, Bike Lane where Possible	+	/	+	++	/	$	Priority	NYSDOT, Town	Coordinate with developer of Mixed Use project on north side of intersection
	Rorbach Ln., Lima Rd., North St., Highland Rd.	Crossings, Curb Extensions, Bike Lane	+	/	+	/	+	$	Recommended	Village	
	North St., Avon Rd., Court St., Main St.	Curb Extensions, Through-Movement Striping	+	/	+	/	++	$$	Recommended	NYSDOT, Village	
	Main St., NYS Route 20A	Crossings, Sidewalks, Pedestrian Refuge Island	+	/	+	/	/	$$	Recommended	NYSDOT, Village	Maintain plantings to ensure visibility of pedestrians on refuge island
Crossings (Mid-Block and Minor Intersections)	Main St. (Throughout)	Enhanced Crossing	++	/	+	/	++	$$$	Recommended	NYSDOT, Village	NYSDOT currently looking into uncontrolled Touring Route crosswalks as part of PSAP program; Discuss potential loss of parking with implementation of curb extensions
	North St. (Throughout)	Enhanced Crossing(s)	+	/	+	/	+	$$$	Possible	Village	Consider lighting
	NYS Route 20A (at Prospect St.)	Enhanced Crossing	+	+	+	+	++	$$	Priority	NYSDOT, Village	Determine exact feasibility of RRFB; reconsider implementing crosswalk if Roundabout is installed at nearby intersection with Groveland, Temple Hill, & Crossett
	Court St. (Throughout)	Enhanced Crossing(s)	+	/	+	/	++	$	Recommended	Village	Outreach to SUNY Geneseo for specific insights into crossing patterns; consider lighting
	Avon Rd. (Westview Cr)	Enhanced Crossing(s)	+	/	+	/	+	$	Recommended	NYSDOT, Village, Geneseo Schools	
	Main St. (Throughout)	New Crosswalk(s)	+	/	/	/	/	$	Possible	NYSDOT, Village	NYSDOT currently looking into uncontrolled Touring Route crosswalks as part of PSAP program; consider lighting
	NYS Route 20A (at Country Lane)	New Crosswalk	+	+	+	/	+	$	Recommended	NYSDOT, Village	Consider traditional intersection treatments such as curb ramps and crosswalks
	Avon Rd. (at School Driveway)	New Crosswalk	+	+	++	+	++	$$$	Priority	NYSDOT, Village, Geneseo Schools	

Improvement Type	Location(s)	Details	Expected Benefits			Public Input	Expected Use	Cost	Implementation	Jurisdiction(s)	Notes & Next Steps
			Connectivity	Environmental	Safety						
Bicycle Facilities	Avon Rd.	Bike Lane	++	+	+	+	++	$$	Priority	NYSDOT	
	NYS Route 20A	Bike Lane	+	+	+	+	++	$$	Recommended	NYSDOT	Continue discussions with NYSDOT; Bike lane not currently a preferred treatment
	North St.	Bike Lane	++	+	+	+	++	$$	Priority	Village	
	Main St. (north of Ward; south of Chestnut)	Bike Lane with Striping Reconfiguration	+	+	+	/	++	$$	Recommended	NYSDOT, Village	
	Lima Rd.	Widened Shoulder	++	+	+	++	++	$$$	Priority	Village, Town	Determine feasibility of expanding pavement
	Mt. Morris Rd. & NYS Rt 20A (east side from Cuylerville Rd. to Main St.)	Widened Shoulder	+	+	+	/	+	$$$	Possible	NYSDOT	
	Reservoir Rd.	Widened Shoulder	+	+	+	+	/	$$$	Possible	Village, Town	Determine feasibility of expanding pavement
	Center St.	Shared Lane Marking	/	+	/	/	+	$	Possible	Village	Stripe around existing parking spaces
	Crossett Rd.	Shared Lane Marking	/	+	/	/	/	$	Possible	Village	
	Groveland Rd.	Shared Lane Marking	/	+	/	/	+	$	Possible	Village	
	Second St.	Shared Lane Marking	/	+	/	/	+	$	Possible	Village	
	Highland Rd.	Shared Lane Marking	/	+	/	/	+	$	Possible	Village	
	Main St. (between Ward & Chestnut)	Shared Lane Marking	/	+	/	/	++	$	Possible	NYSDOT, Village	
	Court St.	Shared Lane Marking	+	+	/	/	+	$	Possible	Village	
	Big Tree Lane (Future)	Shared Lane Marking	++	+	/	++	++	$	Recommended	Town, Property Owners	Coordinate with Warplane Museum
	Rorbach Lane	Bicycle Boulevard	++	+	++	+	+	$	**Priority**	Village	Establish in conjunction with gate (see 'Other' Improvement category for additional detail)
	High Speed Roadways	Rumble Strips (SHARDS)	+	/	+	+	+	$	**Possible**	NYSDOT, Town	Only implement in high-volume, high-speed, high-crash areas
	Key Destinations	Bicycle Parking	+	+	/	+	+	$	**Priority**	Village, Town, Private Entities	Coordinate with business owners, agencies, and restaurants

Improvement Type	Location(s)	Details	Expected Benefits			Public Input	Expected Use	Cost	Implementation	Jurisdiction(s)	Notes & Next Steps
			Connectivity	Environmental	Safety						
Sidewalks	Temple Hill (East Side)	Center St. to NYS 20A	/	+	/	/	+	$	Possible	Village	
	Center St. (South Side)	Temple Hill Rd. to NYS20A	/	+	/	/	+	$$	Possible	Village	
	NYS Route 20A (South Side)	Groveland Rd. to Center St.	+	+	+	/	+	$$	Recommended	Village, NYSDOT	
	NYS Route 20A (South Side)	Center St. to Reservoir Rd.	+	+	+	/	+	$$	Recommended	Village, NYSDOT	
	NYS Route 20A (South Side)	Reservoir Rd. to Ryan Dr.	+	+	+	+	+	$$$	Priority	Village, NYSDOT	
	NYS Route 20A (South Side)	Ryan Dr. to Volunteer Rd.	++	+	++	+	+	$	Priority	Village, NYSDOT	
	NYS Route 20A (North Side)	Ryan Dr. to Volunteer Rd.	++	+	++	+	+	$	Priority	Village, NYSDOT	
	Volunteer Rd. (West Side)	NYS Route 20A to Veteran Dr.	+	+	+	++	+	$	Priority	Village, Town	
	Volunteer Rd. (West Side)	Veteran Dr. to Lima Rd.	+	+	+	++	+	$$$	Recommended	Village, Town	
	Lima Rd. (South Side)	Volunteer Rd. to Village Line	+	+	++	+	+	$	Recommended	Village, Town	Establish feasibility of sidewalk
	Lima Rd. (North Side)	Volunteer Rd. to Kimberly Dr.	+	+	++	/	+	$	Recommended	Village	Establish feasibility of sidewalk
	NYS Route 20A (South Side)	Main St. to Crossett Rd.	/	+	/	+	+	$	Possible	Village	Coordinate with Wadsworth Homestead
	Mary Jemison Dr. (North Side)	SUNY Crossing to Rt 63	++	+	+	/	+	$	Recommended	NYSDOT	Coordinate with Big Tree Lane Greenway Connection stakeholders
School Area* *refer to crossing and sidewalk categories for respective school area improvements	Formalized Multi Use Pathway	10' wide Stone Dust trail for equestrian, pedestrian, joggers	++	+	+	++	++	$$	Priority	Property Owners	Continue coordination with property owners
	Street Trees	Traffic Calming & environmental assets	/	++	+	/	/	$	Recommended	NYSDOT, Village, Property Owners	
	Rain Gardens	Stormwater treatment & green infrastructure	/	++	/	/	/	$	Recommended	NYSDOT, Village, Property Owners	
	School Speed Limit Reduction	Possible with new crossing and a hired crossing guard	+	/	++	++	+	$	Priority	NYSDOT, Geneseo Schools	Dependent on school decision on whether or not to hire a school crossing guard;
	Appropriate Signage	As drawn in Alternatives Chapter	+	/	++	+	+	$	Priority	NYSDOT, Geneseo Schools	Signage dependent on whether or not school speed limit is implemented

Improvement Type	Location(s)	Details	Expected Benefits			Public Input	Expected Use	Cost	Implementation	Jurisdiction(s)	Notes & Next Steps
			Connectivity	Environmental	Safety						
Additional Improvements	Throughout Town & Village	Wayfinding signage along active transportation-friendly corridors	+	/	+	+	+	$	Recommended	Village, Town, County	Coordinate with county-wide wayfinding plan
	Rorbach Lane	Install new gate that enables pedestrians and bicyclists to pass through without leaving the pavement	++	+	+	+	++	$	Priority	Village	Coordinate with Department of Public Works; Collaborate with nearby property owners
	At Public Transit Stops	Install seating and, when possible, covered waiting areas	+	+	+	+	+	$$	Recommended	Village, Town, RTS Livingston	Coordinate with RTS Livingston, the Town & Village of Geneseo, and Livingston County
	Megan Drive - Lima Rd - Volunteer Rd - Walmart Area	Further pursue establishment of off-road trail network	++	/	+	+	+	$$	Recommended	Private	Coordination with Property Owners, Village, Town, WalMart, & Other Developers
	Additional Trails	Determine feasibility of off-road Rails to Trails, Jaycox Creek Pathway(s), and Conservancy Loop Path	+	/	/	/	/	$$	Possible	Various	Coordination with Property Owners, Village, Town, and Livingston County
Greenway Connections	Cuylerville Rd	Installation of signage for short-term greenway connection	+	+	/	/	/	$	Possible (Short-Term)	NYSDOT	Potential interim connection before Big Tree Lane connection completed
	Big Tree Lane	Improvements to all five 'zones'	++	++	++	++	++	$$$$	Priority	Village, Town, NYSDOT	Coordination with all relevant stakeholders
'Bear Strategies'	Center St. & Main St.	Alternative 1: 'Bumpouts	++	/	++	/	N	$$	Possible	NYSDOT, Village	Seek additional public input and coordinate with all of the following stakeholders before determining preferred designs: • NYSDOT • Village of Geneseo • RTS Livingston • Police Department • Fire Department • Local Businesses
		Alternative 2: Bumpouts & Median	++	/	++	/	N	$$	Possible		
		Alternative 3: Raised Speed Table	++	/	+	+	N	$$	Possible		
		Alternative 4: Extended Median	+	/	++	+	N	$	Possible		
		Alternative 5A: Center St. Plaza; Fountain Moved to New Plaza	+	/	+	-	N	$$$	Not Preferred		
		Alternative 5B: Center St. Plaza; Fountain Remains in Current Location	/	/	+	+	N	$$	Possible		
		Alternative 6: One-Way Conversion of Center St.; Fountain Moved to New Plaza	/	/	+	-	N	$$$	Not Preferred		
Maintenance	Throughout	Regularly Restripe Crossings & Maintain Shoulders	+	/	++	+	+	$	Recommended	Village, Town, NYSDOT	
Enforcement	Throughout	Regularly Enforce Motorist Speeding, Pedestrian Crossing Infractions, Bicyclist Infractions	/	/	++	+	/	$	Recommended	Police Departments & Sheriff	

10 | FUNDING OPPORTUNITIES

As detailed in Chapter 9: Implementation Matrix, many of the projects recommended in this plan require significant funding for further study, design, construction, and implementation. This chapter provides an overview of potential federal, state, regional, and private funding sources for these projects that can be used to supplement existing Town, Village, and County resources. The following table includes all of the funding sources that are described subsequently in greater detail.

10.1 FEDERAL FUNDING SOURCES - FAST FUNDED PROGRAMS

Funding activities governed by the Fixing America's Surface Transportation (FAST) Act are briefly described in the following funding sources. The FAST Act is the modified edition of the pre-existing Moving Ahead for Progress for the 21st Century program (MAP-21), and intends to make the surface transportation system more streamlined and multimodal through improvements in safety, infrastructure conditions, and efficiency. While currently technically authorized only through the end of 2020, it is expected that it will either be extended or re-authorized in a similar manner in the future. Several of the following resources provide additional information on relevant aspects of the FAST Act:

http://www.fhwa.dot.gov/environment/bicycle_pedestrian/legislation/sec217.cfm

http://www.fhwa.dot.gov/fastact/factsheets/transportationalternativesfs.pdf

http://www.bikeleague.org/content/what-know-about-fast-act

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

The HSIP is primarily focused on pursuing data-driven solutions to enhance safety along public roadways. Funds may be used for bicycle- and pedestrian-related highway safety improvement projects on a public road that are consistent with a State strategic highway safety plan. Example projects include: intersection safety improvements, pavement and shoulder widening; bicycle/pedestrian/disabled person safety improvements; traffic calming; installation of yellow-green signs at pedestrian and bicycle crossings and in school zones; transportation safety planning; road safety audits; improvements consistent with FHWA publication "Highway Design Handbook for Older Drivers and Pedestrians"; and safety improvements for publicly owned bicycle and pedestrian pathway or trails. An average of $2.6 billion is funded nationally through this program.

SURFACE TRANSPORTATION BLOCK GRANT PROGRAM (STBG)

The FAST Act converted the long-standing Surface Transportation Program into to the STBG, which provides funding for the improvement of conditions on any federal-aid highway, public road bridge projects, active transportation facilities, and transit capital projects. An average of $11.7 billion is funded nationally through this program.

» ***Transportation Alternatives (TA)***
Funding for Transportation Alternatives is set aside from the STBG funding amount that is allocated to each state. These set-aside funds include all projects and activities that were previously eligible under the Transportation Alternatives Program under MAP-21, encompassing a variety of smaller-scale transportation projects such as: pedestrian facilities; recreational trails; access to transit; safe routes to school projects; on- and off-road bicycle and pedestrian facilities; overlooks and viewing areas; rails to trails projects, and boulevard construction in previously divided highway right-of-ways. TA is funded through the Federal Highway Administration, and is administered through NYSDOT.

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)

The CMAQ program provides funding sources to state and local governments for transportation projects that meet the requirements of the Clean Air Act. These projects typically include public transit facilities, bicycle and pedestrian infrastructure, and other vehicular transportation alternatives. An average of $2.4 billion is funded nationally through this program.

10.2 OTHER FEDERAL & STATE FUNDED PROGRAMS

The following are federally- and state-funded programs that offer opportunities for enhancing active transportation directly or indirectly. Many of these programs are federally-funded and administered by state agencies.

BETTER UTILIZING INVESTMENTS TO LEVERAGE DEVELOPMENT (BUILD)

Informally referred to as INFRA, the highly competitive BUILD grant program is 2018 the revised version of the Transportation Investment Generating Economic Recovery (TIGER) program that was created in 2009. In both of its iterations, the program has funded numerous multi-modal and multi-jurisdictional projects. This is an annually administered federal discretionary grant program distinct from the FAST Act and typically provides grants to projects difficult to fund through traditional federal programs. Awards focus on capital projects that generate economic development and improve access to reliable, safe and affordable transportation for communities, including rural communities.

NATIONAL PARK SERVICE LAND AND WATER CONSERVATION FUND (LWCF)

This federal funding source was established in 1965 to provide “close-to-home” parks and recreation opportunities to residents throughout the United States. LWCF grants can be used by communities to build a variety of parks and recreation facilities, including trails and greenway alternatives proposed in this Plan. LWCF funds are distributed by the National Park Service to the states annually. Communities must match LWCF grants with 50 percent of the local project costs through in-kind services or cash. All projects funded by LWCF grants must be used exclusively for recreation purposes, in perpetuity. Projects must be in accordance with each State’s Comprehensive Outdoor Recreation Plan.

STATE & MUNICIPAL FACILITIES GRANT PROGRAM (SAM)

SAM grants are available for a wide variety of infrastructural and amenity improvements. The program, created in 2013, can be utilized by municipal corporations (for instance, Towns and Villages), school districts, emergency services, public park conservancies, and several other agencies to fund many components of projects, including engineering services, construction, project management, and right-of-way acquisition. These grants may be applicable for many of the improvements recommended in this plan, including the Genesee Valley Greenway connection.

CONSOLIDATED LOCAL, STATE, AND HIGHWAY IMPROVEMENT PROGRAM (CHIPS)

Through the CHIPS program, Funds are administered by NYSDOT for local infrastructure projects. Relative and eligible project activities include bike lanes and wide curb lanes (highway resurfacing category); sidewalks, shared use paths, and bike paths within highway right-of-way (highway reconstruction category), and traffic calming installations (traffic control devices category). CHIPS funds can be used for TA grant program local match requirements.

TITLE 49 USC PROGRAMS

» ***Enhanced Mobility of Seniors and Individuals with Disabilities Public Transportation Grant Program (5310)***

This program is designed to support access to public transit for particularly vulnerable user groups. While the majority of funding is designated towards vehicular acquisition and maintenance, as well as operations, some funding can be allocated to ADA accessibility enhancements and capital improvement projects. These improvements can include sidewalks and other efforts to exceed ADA requirements.

» ***Public Transportation in Non-Urbanized Areas (5311)***

This program allows the Formula Program for Other than Urbanized Area (Section 5311) transit funds to be used for improving bicycle and pedestrian access to transit facilities and vehicles. Eligible activities include investments in "pedestrian and bicycle access to a mass transportation facility" that establishes or enhances coordination between mass transportation and other transportation, such as those in this Plan.

NEW YORK STATE CONSOLIDATED FUNDING APPLICATION (CFA)

The CFA is a streamlined resource through which applicants can access multiple financial assistance programs made available through various state agencies. The CFA offers the opportunity for local governments (and other eligible applicants) to submit a single grant application to state agencies that may have resources available to help finance a given proposal; grants are typically due in late July. All submitted CFAs are reviewed by the applicant's Regional Economic Development Council, which may elect to endorse the proposal as a regional priority project. The following grant resources have been made available through the CFA that may be appropriate funding opportunities for either direct or indirect implementation of active transportation efforts:

RECREATIONAL TRAILS PROGRAM

The Regional Trails Program (RTP), funded nationally through the TA program, is administered by the NYS Office of Parks, Recreation and Historic Preservation. Funds may be used for all types of recreational trail projects. Of the funds apportioned to a state, 30 percent must be used for motorized trail uses, 30 percent for non-motorized trail uses, and 40 percent for diverse trail uses (any combination). Example projects include: trails for both motorized and non-motorized uses, including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or other off-road motorized vehicles; development of trailhead facilities; purchase/lease of maintenance equipment; and acquisition of easements/property. Between $25,000 - $250,000 is available per project, and requires a 20% local match.

CLIMATE SMART COMMUNITIES

Climate Smart Communities grants offer funding to projects that promote green initiatives and lessen a community's impact on the larger environment. Example projects include: installation of green infrastructure, comprehensive planning, active transportation enhancement projects, and flood risk reduction efforts. Planning projects are eligible for up to $100,000, while design and construction projects can receive up to $2,000,000; however, the grants require a 50% local match.

GREEN INNOVATION GRANT PROGRAM

The Green Innovation Grant Program provides funding towards projects that install green infrastructure within communities. Green Infrastructure refers to practices that enable stormwater to infiltrate into the ground, where it can be naturally treated before flowing into waterbodies. While not directly applicable to active transportation funding, this program can be used to supplement sidewalk, trails, and public transit facility construction through implementing green infrastructure.

COMMUNITY DEVELOPMENT BLOCK GRANTS (CDBG)

Funded through the U.S. Department of Housing and Urban Development (HUD), and administered through the New York State Homes and Community Renewal Office, the CDBG program provides eligible metropolitan cities and urban counties (called “entitlement communities”) with annual direct grants that they can use to revitalize neighborhoods, expand affordable housing and economic opportunities, and/or improve community facilities and services, principally to benefit low- and moderate-income persons. Eligible activities include building public facilities and improvements, such as streets, sidewalks, sewers, water systems, community and senior citizen centers, and recreational facilities. While the focus of CDBG projects must be public infrastructure, funding can also be used to cover streets, sidewalks, recreational facilities, and greenways if they relate to the project purpose. Funding for implementation of improvements can reach up to $750,000 (and $1,000,000 with co-funding).

MAIN STREET PROGRAM

The Main Street Program provides funding for building and facade enhancements along key ‘downtown’ corridors. Similarly to the CDBG, this program cannot be used to directly enhance active transportation, but can be used to improve sidewalks or streetscapes that are adjacent to revitalized buildings.

10.3 PRIVATE FUNDING SOURCES

There are a number of for and non-profit businesses that offer programs that can be used to fund bicycle and pedestrian related programs and projects. Nationally, groups like Bikes Belong fund projects ranging from facilities to safety programs. Locally, Wegmans and Excellus have a strong track record of supporting health-based initiatives and may be resources for partnership or sponsorship.

PEOPLEFORBIKES

The PeopleForBikes Community Grant Program strives to put more people on bicycles more often by funding important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. Most of the grants awarded to government agencies are for trail projects. The program encourages government agencies to team with a local bicycle advocacy group for the application. Applications for accepted bi-annually for grants of up to $10,000 each (with potential local matches).

AMERICAN HIKING SOCIETY NATIONAL TRAILS FUND

The American Hiking Society’s National Trails Fund is the only privately funded national grants program dedicated solely to hiking trails. National Trails Fund grants have been used for land acquisition, constituency building campaigns, and traditional trail work projects. Since the late 1990s, the American Hiking Society has granted nearly $200,000 to 42 different organizations across the US. Applications are accepted annually with a summer deadline. This funding is potentially applicable to Greenway Trail connections.

THE ROBERT WOOD JOHNSON FOUNDATION

The Robert Wood Johnson Foundation seeks to improve the health and health care of all Americans. One of the primary goals of the Foundation is to “promote healthy communities and lifestyles.” Specifically, the Foundation has an ongoing “Active Living by Design” grant program that promotes the principles of active living, including non-motorized transportation. Other related calls for grant proposals are issued as developed, and multiple communities nationwide have received grants related to promotion of trails and other non-motorized facilities.

CONSERVATION ALLIANCE

The Conservation Alliance is a group of outdoor businesses that supports efforts to protect specific wild places for their habitat and recreation values. An example relevant activity in this Plan is funding the protection of lands and surrounding habitat for off-road trail systems in Geneseo. Before applying for funding, an organization must first be nominated by a member company. Members nominate organizations by completing and submitting a nomination form. Each nominated organization is then sent a request for proposal (RFP) instructing them how to submit a full request. Proposals from organizations that are not first nominated will not be accepted. The Conservation Alliance conducts two funding cycles annually. Grant requests should not exceed $35,000 annually.

GREATER ROCHESTER HEALTH FOUNDATION

The Greater Rochester Health Foundation administers a competitive grant program to implement community health and prevention projects in counties within the greater Rochester region, including Livingston County. While grant focus topics and cycles may vary from year to year, bicycle- and pedestrian-related projects and programs may frequently be well suited for these opportunity grants.

GENESEO ROTARY CLUB

The Geneseo Rotary Club offers a grant focused on promoting healthy communities, good citizenship, and environmental stewardship. This grant may be applicable to many recommendations in this project, including wayfinding signage, street trees, educational plaques, trail connections, and environmental enhancements along the Geneseo School Pathway.

11 | FOLLOW-ON ACTIVITIES

This chapter provides 'next steps' guidance both for projects recommended within this plan, and for potential additional projects that could complement the goals of this effort.

11.1 PROJECTS WITHIN THIS PLAN

As a master plan, this report provides a blueprint for enhancing active transportation in Geneseo, but does not identify all of the specifics needed to implement every individual project. For all projects that require infrastructural modifications, at least some of the following steps will need to occur before implementation.

- Additional operational analysis and traffic studies
- Consultation with, and approval from, property and/or facility owners
- Access agreements with appropriate landowners
- Corridor studies (particularly for on-road bicycle facilities)
- Design development & construction documentation
- Regulatory approvals and permitting
- Environmental permitting (particularly for trail projects)

11.2 ADDITIONAL PROJECTS

Throughout the development of this plan, several additional concerns and potential active transportation-related projects emerged that could be beneficial follow-on activities:

Sidewalk Implementation along Haley Avenue
Several survey respondents indicated a need for sidewalks in the Haley Ave neighborhood. These respondents reported that vehicles travel at a high rate of speed, and that the shoulders are far too narrow to walk safely on. These improvements would complement the sidewalk additions proposed on the south side of NYS Route 20A in this document.

Continued Evaluation of Bear Fountain Alternatives
The idea to potentially move the Bear Fountain came up late in the project, and the designs in this report represent first drafts of solutions. Extensive coordination with emergency services, NYSDOT, and downtown business owners will be necessary before moving forward with any potential design.

Jaycox Creek Trail(s)
As discussed in the plan, there is an opportunity to create a walking path along both branches of Jaycox Creek. This pathway did not receive much support through public input as part of this project, but it could serve as a potential nature trail and connection between Lima Rd and NYS Route 20A. Extensive coordination with property owners and an environmental evaluation are recommended before progressing further with plans.

Rails to Trails
Similarly to the Jaycox Creek Trail, the Rails to Trails opportunity along the west side of Geneseo did not receive much support throughout this project; however, it represents an opportunity to further enhance the off-road trail network in Geneseo. Coordination with property owners and a detailed feasibility analysis are recommended before progressing with plans.

Sidewalk Cafe Guidelines
As referenced in the Peer Community Review of this plan, Sidewalk Cafe Guidelines can enhance pedestrian mobility and inclusivity in downtown areas by requiring minimum pedestrian through space and requiring ADA accessible seating areas. While sidewalk cafe guidelines are not a recommendation in this plan due to a general lack of pedestrian/seating conflicts, they may be worth considering for future implementation to ensure a standardized and accessible Main Street. As of the writing of this Plan, Livingston County Economic Development is developing streetscape design guidelines, which will incorporate many best practice sidewalk cafe guidelines.

Country Lane & NYS Route 20A Intersection
This plan calls for the installation of an enhanced crossing over NYS Route 20A to improve the safety of pedestrians moving from Country Lane apartments to the existing sidewalk on the north side of the corridor. However, NYSDOT comments indicated that traditional intersection enhancements, including radius ramps, detectable warnings, and sidewalks, would significantly enhance the pedestrian experience at this intersection. A future conceptual design, coupled with ongoing coordination with NYSDOT, could lead to an eventual redesign of this intersection that would enhance pedestrian facilities significantly.

Bike Share Partnership

As mentioned in this plan, there is an opportunity to pursue a bike share partnership between the Village of Geneseo and SUNY Geneseo. Though public support for this was mixed, those who did support it stated that it would make them more likely to bicycle frequently. Continued coordination with SUNY Geneseo faculty could lead to the development of a pilot program that establishes a bike share for a short period of time to understand the actual demand for it.

NYS Route 20A & Center Street Signal Warrant Study

Though this plan proposes a design for this intersection that maintains the current traffic control patterns, there has been some discussion over the possibility of installing a traffic signal for all four approaches here. This conversation has particularly been driven by resident comments indicating that Center Street is rarely used by eastbound traffic, as the left-turning movement onto NYS Route 20A is too time-consuming. Based on a preliminary review of 2016 data, the Vehicles per Hour (VPH) counts for NYS Route 20A are more than sufficient to warrant a signal; however, it appears that the VPH of the Center Street approach is 10-15 shy of the requirement. Review of 2019 data, however, indicated slightly less traffic on the Center Street approach. If the community at any point decides that pursuing a signalized intersection is the preferred alternative, a follow-up traffic engineering study would be recommended to determine specific traffic movement counts and examine the feasibility of this alternative. Coordination with the nearby Fire Department is also essential before further developing concepts.

Geneseo

ACTIVE TRANSPORTATION PLAN

Prepared for **Livingston County** *and*
Genesee Transportation Council

Prepared by **Barton & Loguidice** *and*
Landis Evans + Partners

FEBRUARY 2020