MULTIMODAL TRANSPORTATION AND PLACE-MAKING IN UPTOWN CANANDAIGUA

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FINGER LAKES INSTITUTE

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Chapter 1
Master Plan for Multimodal Transportation in MUO-1 in the Town of Canandaigua

Executive Summary

The Town of Canandaigua has developed a Mixed Use Overlay zone (MUO-1) in the vicinity of North Road, County Road 28, Fire Hall Road, and State Route 332, immediately north of the City of Canandaigua. A Mixed Use Overlay is intended to allow clustered land uses appropriate for an area experiencing growth in the residential, commercial, and retail sectors. Because this area is slated for substantial residential development in the form of townhouses, apartments, villas, patio homes and condominiums, the density of year-round residents and supporting businesses will increase sharply between 2015 and 2018.

The Town has requested assistance with developing new and improving existing transportation specifically for pedestrians, bicyclists, and wheeled mobility devices in MUO-1. The Town envisions a design plan that is reflective of community needs for enhanced connectivity within the zone and to surrounding areas to make the space a more desirable area for people to live in and visit.

Hobart and William Smith Colleges' ENV351: Sustainable Community Development Methods and Tools class developed a Multimodal Transportation Plan for the MUO-1 portion of the Town of Canandaigua from January to May 2015. This Master Plan recommends that the Town of Canandaigua view MUO-1 as an opportunity to start improving mobility, accessibility and connectivity in its more rapidly developing areas. Approaching development in MUO-1 using the phased implementation approach recommended in the pages that follow will allow the Town to meet the needs of its current and future residents in an innovative and future-oriented way that further reiterates that the Town's commitment to sustainable growth for its communities.

Study Approach

A team of six upper-level undergraduate students, one teaching colleague and one faculty member relied on the class' previous research and analyses, as well as substantial input from Town representatives and several residents, review of precedents developed in similar plans, and observations from many site visits to the area in order to develop their recommendations for enhancing multimodal transportation and quality of life in MUO-1.

Findings

The Multimodal Master Plan provides recommendations in eight areas:

- Community identity and place-making
- Complete streets
- Sidewalks and connectivity
- Crosswalks and intersections
- Biking
- Snowmobiling
- Public transit
- Parks and recreation

Community Identity and Place-Making

The project team determined that the current MUO-1 community is identified by the blend of urban amenities with a nearby rural landscape. The forthcoming development expectations present a very good opportunity to work with residents and businesses in MUO-1 to develop a narrative of what "community" means in the area.

The Town of Canandaigua has already established an identity for MUO-1 by informally designating it as the "Uptown Area." Since early in the 19th Century, the term "uptown" has implied prosperity, mixed with residential living and urban amenities. Although MUO-1 is closely bordered by rural agriculture and residential lands, it is seen as a defined zone for retail, commercial, multi-unit residential, and recreation.

There are many techniques and activities available to the Town of Canandaigua to establish an identity for the MUO-1 area. Each requires the voice of the community to have the greatest effective impact.

Identity and place-making recommendations for MUO-1:

1) Engage the community in a dialogue about what defines its identity. A combination of public focus groups, on-line forums, and social media methods are successful methods for gauging how members of a community define their community. These methods can provide opportunities for residents, workers, and/or business owners within a community to come together and develop a collective identity for their community.

2) Then work with a professional design firm to develop signage, modeled after the City of Geneva's neighborhood identity project.

For more information on our proposals for community identity and place-making in MUO-1, please refer to Chapter 2 in the Multimodal Transportation Master Plan document.

Complete Streets

Complete Streets combine the infrastructure of multimodal transportation with local environmental benefits to build of a sense of community. In 2011, New York State passed the "Complete Streets Act." This act defines Complete Streets as: "roadway[s] planned and designed to consider the safe, convenient access and mobility of all roadway users of all ages and abilities. This includes pedestrians, bicyclists, public transportation riders, and motorists; it includes children, the elderly, and persons with disabilities" (Complete Streets, January 2013).

For the MUO-1 area, Complete Streets will have the benefits of reduced congestion, increased safety, improved aesthetics, and increased overall mobility options.

Complete Streets recommendations for MUO-1:

1) Phased implementation of Complete Streets in the following sequence:
   a. Interior, lower traffic roads like Brahm Road, Cowan Road, Parkside Drive, and Fire Hall Road are transitioned to Complete Streets as soon as possible.
   b. Connection roads like North Road, Aroline Road, and Kepner Road, and portions of County Road 28 in MUO-1 are developed as Complete Streets between 2018 and 2020.

c. The Route 332 corridor from the intersection of North Street to the intersection of Route 332 with Thomas Road and Emerson Road, as well as the along Emerson Road to Risser Road, and completing the loop of Complete Streets along County Road 28 by 2025.

2) Complete Streets should include appropriate placement of key features to make sure they accommodate and integrate multiple types of ground transportation, including walking, biking, and wheelchair use. Such features include:
   - Sidewalks 5 – 6' wide
   - High visibility crosswalks, equipped with flashing lights when pedestrians are crossing
   - Marked driving lanes where streets lack striping, including centerline marks and roadside marks
   - Paved bike lanes designated for bicycle traffic
   - Speed feedback displays for drivers
   - Bike racks, bike maps, and public transit bicycle racks
   - Public transit shelters
   - Street and sidewalk lighting

Further details on our recommendations regarding Complete Streets in the MUO-1 area can be found in Chapter 3 of the Multimodal Transportation Master Plan document.

Sidewalks and Connectivity

Sidewalks are the defining element to enhance the pedestrian experience in MUO-1; without fully-accessible sidewalks, the vision of the Town of Canandaigua for connectivity and community will not be realized.

Sidewalk development recommendations for MUO-1:

1) All sidewalks constructed in the MUO-1 area should comply with the Americans with Disabilities Act (ADA) with 6' standard widths, level, smooth surface with grades less than 5%, and curb ramps that are perpendicular to the street.

2) Precede future sidewalk installations with curb ramps that are flush with the road surface at each end of each crosswalk that have a ramp grade of less than 10%.

3) Phased implementation of sidewalks in the following sequence:
   a. In order to make MUO-1 more accessible for its future residents, add sidewalks along the interior roads of Brahm Road (both sides), Cowan Road (both sides), Parkside Drive (both sides), County Road 28 (west side, from State Route 332 to Cowan Road) and Fire Hall Road (east side) by 2017, at the latest. Notably, time sidewalk installation along Fire Hall Road to occur simultaneously to the placement of a new sewage pipe along this interior roadway.
   b. Coordinate with the City of Canandaigua to install new sidewalks along the south side of North Road and west side of North Road East Street (to Canandaigua Academy). Consider a shared services agreement in which the Town installs and maintains the sidewalks if the City permits this infrastructure to be built within its limits.

c. Between 2017 and 2020, begin adding sidewalks along additional interior roads like Thomas Road, Kepner Road, and Aroline Road to better connect residents living on both sides of State Route 332 to amenities and services in the area. Extend the existing sidewalk along the west side State Route 332 northward to Campus Drive in order to provide employees at the Smart Systems Technology & Commercialization Center a safe route to businesses and recreational features in MUO-1.

d. By 2025, construct sidewalks along Emerson Road to Risser Road, and completing the loop of sidewalks along County Road 28.

For further information on our proposals for sidewalks and connectivity in MUO-1, please refer to Chapter 4 in the Multimodal Transportation Master Plan document.

Crosswalks and Intersections

One of the best ways to further enhance walkability in a residential area like MUO-1 is to improve pedestrian safety at intersections. The addition or upgrading of crosswalks will therefore play a key role in creating a more sustainable community in MUO-1 by encouraging greater walkability and connectivity in the area.

Crosswalks with high-visibility markings help ensure safe passage for pedestrians and wheeled mobility devices, even where traffic volumes and speeds may be expected to remain relatively low. In the MUO-1 area, there is a wide variety of roadway crossing scenarios, and each requires a crosswalk tailored to the needs of each particular intersections.

Crosswalk development recommendations for MUO-1:

1) Phased implementation of crosswalks in the following sequence:

a. Immediately enhance existing crosswalks along State Route 332 at its intersections with Parkside Drive and North Road. Current roadway markings for these crosswalks are showing wear and tear and therefore should be repainted using a high-visibility pattern and supplemented by "yield to pedestrians" signage and/or or roadway markings.

b. Install new crosswalks along Parkside Drive at its intersection with Fire Hall Road and County Road 28 in anticipation of imminent residential development in the area. Consider using a high-visibility pattern at the intersection of Parkside Drive and County Road 28 because speed limits are higher than in the interior of MUO-1. Place appropriate signage to draw motorists' attention to the presence of non-motorized roadway users in the area.

c. Work with the City of Canandaigua to increase pedestrian safety in the area surrounding Canandaigua Academy. At minimum, install a new crosswalk at the intersection of North Road and East Street that uses a high-visibility pattern to alert the faster-moving vehicles using this connector road in the Town.

d. Between 2018 and 2020, repaint the fading crosswalk at the intersection of State Route 332 and Airport/Aroline Road with a high-visibility pattern and install new crosswalks on Aroline Road opposite of Fire Hall Road and County Road 28 opposite of Cowan Road. Use a transverse crosswalk pattern on Fire Hall Road where the speed limit is 30 mph, while providing a higher-visibility pattern on County Road 28 where vehicles move at a higher speed.

e. By 2025, upgrading existing and add new crosswalks along State Route 332 between Airport/Aroline Road and Thomas/Emerson Road. At minimum, install a high-visibility crosswalk at the intersection of State Route 332 and Kepner Road in order to decrease pedestrian crossing times along 332. Explore the possibility of creating a midblock crosswalk between Airport/Aroline Road and Parkside Drive to further enhance walkability and connectivity to amenities and services in the area. Consider coordinating with the

NYSDOT and other relevant state and federal agencies to reconfigure the superstreet intersection present where State Route 332 and Thomas/Emerson Road met with diagonal crosswalks and crossing signal devices so that pedestrians in the northern portion of MUO-1 have safer access to the amenities and services located in the southern portion of the area.

These recommendations are described in more detail in Chapter 5 of the Multimodal Transportation Master Plan document.

Biking

The Canandaigua community will benefit from becoming even more bike-friendly as cycling is recognized as a more efficient transformation form and a healthier alternative to automobiles. Having the option to bike to and from local destinations can reduce air pollution and emissions within the Town, increase recreational activities, inspire healthier lifestyles for residents, and possibly reduce expenses related to automobile use and maintenance. To provide all these benefits, cyclists must feel safe and willing to utilize the biking paths provided.

Bicycle transportation development recommendations for MUO-1:

1) Phased implementation of bike lanes in the following sequence:
   a. Add bike lanes along interior roadways like Parkside Drive, Cowan Road, Brahm Road, and Fire Hall Road by 2017. Further increase the safety of cyclists in these new bike lanes by roadway markings indicating the legal travel direction for bikes in the area, as well as supplemental signage reminding motorists there may be bikes in the area.
   b. By 2020, install bike lanes (with roadway markings and signage) along County Road 28 and North Road that will supplement other proposed multimodal transportation developments in the MUO-1 area.
   c. Within the next ten years, renovate State Route 332 in order to add bike lanes on this commercial corridor in order to increase access for those roadway users not moving through the area in motor vehicles. Also add bike lanes to connected interior roads like Aroline Road and Kepner Road.

For more information on our proposals for biking in MUO-1, please refer to Chapter 6 in the Multimodal Transportation Master Plan document.

Snowmobiling

Although MUO-1 is a suburban location, snowmobile trails maintained privately by the Finger Lakes Snowmobile Club and Lehigh Valley Snow Riders cross through the area, connecting MUO-1 to more than 20 miles of recreational snowmobile trails. Trails are 12-foot groomed paths that cross private land, utility easements, and public highways.

Businesses catering to snowmobile riders, such as stores and restaurants can benefit from extended trails into MUO-1. There are presently opportunities to increase winter season commerce from snowmobile operators from many areas of Upstate New York.

Snowmobile trail recommendations for MUO-1:

1) Develop a new groomed snowmobile trail spur extending south from the intersection of Aroline Road and Fire Hall Road to County Road 28.

2) Restrict snowmobile traffic from Blue Heron Park with signage, while providing a by-pass trail to allow direct access to businesses in MUO-1.

3) Place standard snowmobile signage along snowmobile paths in the MUO-1 area.

4) In cooperation with the Finger Lakes Snowmobile Club and Lehigh Valley Snow Riders, develop a snowmobile trail grooming maintenance plan that relies on a shared services agreement.

Further details on our snowmobiling recommendations for MUO-1 can be found in Chapter 7 of the Multimodal Transportation Master Plan document.

Public Transit

Public transportation options decrease traffic congestion and allow for a wider range of mobility options for residents of an area. With a reliable schedule and intermodal amenities like well-placed shelters and bike racks on public buses, the Town can maximize the benefits of public transportation in the MUO-1 area.

Public transportation recommendations for MUO-1:

1) Work with RTS to solidify a more regular bus schedule for residents and visitors to the MUO-1 area.

2) Create a new RTS bus stop with a bus shelter and bike rack at the corner of Parkside Drive and County Road 28 within the next three years. The site is already used informally as a bus stop and will benefit from a shelter to protect riders from inclement weather and stationary bicycle racks for intermodal transportation.

3) Advocate for the placement of bike racks on all RTS buses so that within the next three years, all RTS buses serving the Town of Canandaigua will have bus bike racks.

For additional information on our public transit recommendations for MUO-1, please refer to Chapter 8 in the Multimodal Transportation Master Plan document.

Parks and Recreation

Implicit in the Master Plan for Multimodal Transportation in MUO-1 is the intent for increased access to recreational opportunities in the area. Park features provide a destination for residents and visitors alike, and extend the health and sustainability benefits of a thoughtful multimodal transportation system. Parks are considered public spaces and should be openly accessible for all community members and visitors. Optimally, they should have a wide range of amenities designed to enhance the quality of life and community development potential of a site.

In MUO-1, Blue Heron Park is the dominant recreational area and, as such, presents the Town with some excellent opportunities for recreational and amenity enhancement in northern part of the municipality.

Parks and recreation recommendations for MUO-1:

1) Construct garden sites along the northeast edge of Blue Heron Park that serve as demonstration areas to attract pollinators, display edible plants, promote stormwater infiltration, and encourage proper composting methods.

2) Install well-defined wildflower gardens at the intersections of walking paths in Blue Heron Park to highlight the range of native wildflowers that attract birds and insects, as well as enhance the aesthetics of the Park.

3) Install a bocce ball court and horseshoe pits, two activities that allow for a wide range of age and physical impairment participants, near the existing pavilion on the western side of Blue Heron Park.

4) Provide an access point to the future Auburn Trail extension from within Blue Heron Park, taking advantage of existing parking, neighborhood identity, and recreational amenities.

More detailed recommendations regarding parks and recreation in MUO-1 are described in more detail in Chapter 9 of the Multimodal Transportation Master Plan document.

Conclusions

Through approaching development in the MUO-1 area using a phased approach attentive to the wide array of possible users, the Town of Canandaigua will further reiterate its commitment to its residents and the sustainability of its communities.

Introduction

Overview

The Town of Canandaigua requested assistance with the development of a multimodal transportation plan for mixed-use overview zone 1 (MUO-1; also known as the Uptown Area). The Town envisions a comprehensive plan for the Uptown Area that is both reflective of community needs and based on the most up-to-date sustainable community development practices. The Town anticipates that enhanced multimodal transportation within and around MUO-1 will make the area a more desirable place for people to live and work.

The Town of Canandaigua continues to seek innovative ways to plan for future residential and commercial development. In the Uptown Area in particular, the Town favors a future-oriented planning approach that "considers various modes (walking, cycling, automobile, public transit, etc. and connections among [these] modes [of transportation]" (Litman, 2014:1). More widely known as multimodal transportation planning, this approach focuses on the development of long-term transportation planning that identifies "current and future transport problems and needs, and various projects and strategies to address those needs" (Litman, 2014:1).

Multimodal transportation planning has several advantages over other approaches in that it allows for clear prioritization of potential improvement projects through a thorough analysis of current transportation conditions in an area and does so with all modes of transportation in mind (Litman, 2014). Moreover, in New York State specifically, multimodal transportation planning can be an important first step toward meeting the 2011 Complete Streets Act, which "require[s] state, county and local agencies to consider the convenience and mobility of all users when developing transportation projects that receive state and federal funding" ("Complete Streets," 2013:np).

In implementing a Complete Street model to multimodal transportation planning in the Uptown Area, the Town of Canandaigua will further demonstrate its commitment to meeting the needs of all residents, regardless of age or ability, in an inclusive, community-focused manner.

Project Objectives

The goals of this project are two-fold:

1) To develop a comprehensive multimodal transportation plan for MUO-1; and,
2) To suggest an appropriate timeline for the implementation of recommended changes in the Uptown Area

Project Team

This project was completed as a service-learning project incorporated into Hobart and William Smith Colleges' spring 2015 ENV351: Sustainable Community Development Methods and Tools class. The student project team included:

Emma Anderson	Stacey Davis
Kate Boeding	Benoit Gamache
Simon Corson	Megan Mohney

The team was mentored by Robin A. Lewis (Assistant Professor of Environmental Studies and Chair of the Sustainable Community Development Program) and Jordan Mueller (Teaching Assistant) with on-going support and assistance from Jim Ochterski (Finger Lakes Community Development Center Program Manager) and Zachary Reed (Teaching Assistant), as well as Michael Conte, Timothy Dirgins, Ryan Kertanis, Will Mosto, Haley Norrgard, Rebecca Siegel and Alexandra Vitulano (ENV351 Students).

Project Timeline

Time frame	Focus/Activity
January – March 2015	• Orientation to the Town and its proposed projects • Background research on existing conditions in the Town • Site visits & meetings with Town officials • Midterm presentation to & Q&A with the Town
March – April 2015	• Walkability audits • Survey/questionnaire development & administration • Informal interviews with residents and Town officials • Precedent analysis • Development of draft multimodal transportation master plan & supplemental visuals
May 2015	• Submission of revised multimodal transportation master plan & supplemental visuals to Professors Lewis & Ochterski • Final presentation to and Q&A with the Town
May – August 2015	• Compilation and revision of the final multimodal transportation master plan & supplemental visuals

Project Recommendations

The multimodal transportation master plan that follows provides recommendations in the following eight areas:

- Community identity and place-making
- Complete streets
- Sidewalks and connectivity
- Crosswalks and intersections
- Biking
- Snowmobiling
- Public transit
- Parks and recreation

Works Cited

Complete Streets. (2013, January 4). Retrieved from https://www.dot.ny.gov/programs/completestreets

Litman, T. (2014). *Introduction to Multi-Modal Transportation Planning: Principles and Practices*. Victoria Transport Policy Institute. Retrieved from http://www.vtpi.org/multimodal_ planning.pdf

Chapter 2
Community Identity & Place-Making

Introduction

Having a defined and consistent identity (or identities) within a community is important for the people who live in an area and those who visit that area. "Each community has its own community ideology that planning professionals should be conscious of" (Hibbard and Davis, 1986). When considering the Town of Canandaigua's Comprehensive Plan, there are several aspects to keep in mind when analyzing the identity of the future Uptown community. Specific aspects include the history of the area, natural features within the area, cultural habits and practices, and potential sources of community pride (South Lake Union, 2007). From our various site visits to the Uptown Area and conversations with several members from the Town of Canandaigua's Citizen's Implementation Committee (CIC), the Uptown community will be defined by its unique mix of urban development and adjacent rural features. Therefore, the Town must effectively showcase Uptown's area to both residents and visitors.

Figure 2-1. *"Uniquely Urban" signage in Downtown Geneva, NY (Source: Stacey Davis)*

Best Practices

Place-Making & Signage

Community identity defines a place and can be achieved through the development of a community master plan, as well as the implementation of features like signage. Signs, in particular, are critical elements for highlighting various aspects of community that make up the identity of a community. Signage within a community can provide both residents and visitors with important information about a community, such as the location of businesses and public amenities. Signs that include area maps can also provide a sense of place and local pride within a community (Project for Public Spaces, n.d.). The Uptown Area could benefit from the implementation of signs to highlight the identity of the community within the area, as well as provide a guide for residents and visitors.

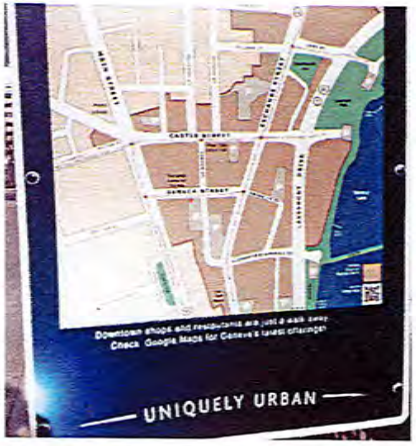

Figure 2-2. *"Uniquely Urban" signage in Downtown Geneva, NY (Source: Stacey Davis)*

Community Engagement

In order for municipal officials to gain a better understanding of the identity of a particular community in their jurisdiction, they must actively engage with members of that community. Public focus groups and/or forums are successful methods in gauging how members of a community define their community. These methods can provide opportunities for residents, workers, and/or business owners within a community to come together and develop a collective identity for their community (Project for Public Spaces, n.d.). They could be used for planners

to gain a better understanding of the history, the cultural aspects, popular public amenities, and natural features of a place in order to design signage that is placed along public routes throughout the community and reflects the identity of the community.

Detailed Recommendations

Signage throughout the Uptown area could be installed in order to more effectively showcase the identity of the community and the amenities that exist within it. Our first recommendation is to implement several signs throughout the community with the designation "Uptown" on them so that residents and visitors can reminded of the unique part of the Town in which they live or area visiting (Figure 2-5). These signs could be placed along Route 332, and most especially along Parkside Drive and Fire Hall Road, as they will be the main streets within the Uptown area in the future (Figure 2-6). These signs could provide residents and visitors with a sense of place. Additional signs could be implemented along State Route 332, Fire Hall Road, and Parkside Drive that include with a map of the

Case Study: Geneva, NY

The City of Geneva, New York has implemented signs in neighborhood communities that highlight and brand particular areas of the community (Figure 2-1; Figure 2-2; Figure 2-3). Members of the Geneva Neighborhood Resource Center held focus groups with residents of the city where the phrase "uniquely urban" was invented to describe the city and the design of signs was discussed. Throughout downtown Geneva, there are several signs that provide an aerial map of the downtown area and highlight several businesses and public amenities that exist within it. The GNRC also held separate focus groups where members of the community developed "identities" and signs for various neighborhoods in Geneva (Figure 2-4).

Figure 2-3. *Place signage in Geneva, NY (Source: Stacey Davis)*

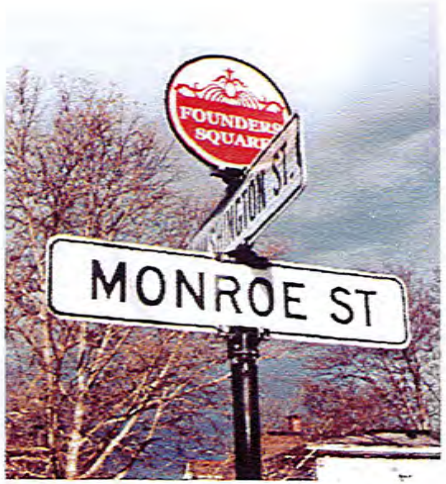

Figure 2-4. *Neighborhood signage in Geneva, NY (Source: Stacey Davis)*

Figure 2-5. *Proposed community identity signage for the Uptown Area*

Uptown area, its roads, public amenities and services, businesses, bus stops, sidewalks, bicycle routes, snowmobile trails, the Auburn Trail, and so on (Figure 2-6). A park entrance sign for Blue Heron Park, located at the corner of Fire Hall Road and Parkside Drive, could also enhance the visual appeal of the park and encourage people to visit the park (Figure 2-7).

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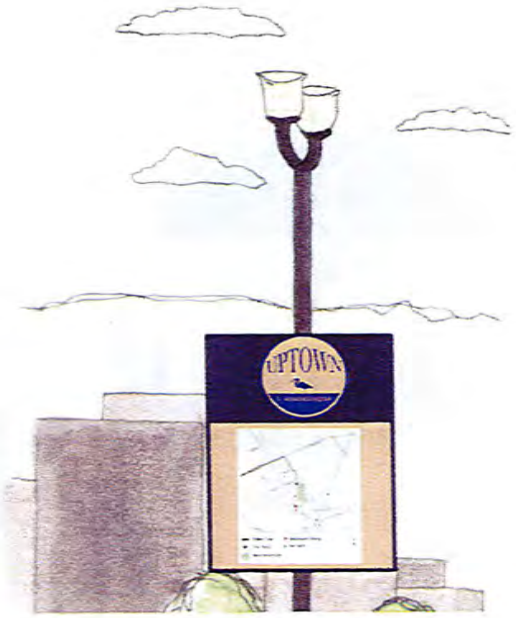

Figure 2-6. *Vignette showing how additional signage could be installed in the Uptown Area*

Figure 2-7. *Example park signage (Source: www.tripadvisor.com)*

Chapter 3
Complete Streets

Introduction

The Town of Canandaigua has a keen interest in improving the safety of its residents along the roadways in MUO-1 (pers. comm., 02 Apr 2015). In order to ensure that the Town is able to meet this goal, we propose the implementation of a Compete Streets approach to making the Uptown Area a more sustainable community.

In 2011, New York State passed the "Complete Streets Act." This Act defines a Complete Street as:

- a roadway planned and designed to consider the safe, convenient access and mobility of all roadway users of all ages and abilities. This includes pedestrians, bicyclists, public transportation riders, and motorists; it includes children, the elderly, and persons with disabilities ("Complete Streets," January 2013).

Not only does the implementation of Complete Streets plan in an area create jobs, increase property values, and encourages people to engage in healthy behaviors but these factors combine to increase the quality of life in the area ("Complete Streets Stimulate Local Economy," 2015; Table 3-1).

Best Practices

The creation of Complete Streets is growing more popular in the United States more than 700 towns, cities, and municipalities now having adopted some form of a Complete Streets policy (Smart Growth America, 2015). The section that follows outlines the best practices for implementing Complete Streets. While transitioning toward a Complete

RECOMMENDATIONS IN BRIEF

- Phased implementation of Complete Streets throughout the Uptown Area over the next ten years

Potential Benefits:

- Increased mobility for pedestrians and bicyclists;
- Increased transportation options;
- Less dependence on motorized vehicles;
- Less traffic congestion and fewer accidents;
- Safer street crossings;
- Reduced greenhouse gas emissions;
- Cost-effective transportation alternatives;
- Job creation;
- Increased aesthetic qualities;
- Community health benefits;
- Safer options for children especially when traveling to and from school;
- Accommodates and provides access to older generations; and,
- Funding opportunities;

Potential drawbacks:

- Cost of street re-configuration;
- Cost of signage and pavement markings;
- Motorist unfamiliarity; and,
- New pedestrian/vehicle rules.

Streets model, it is important for Town departments, leaders and residents to continue working together to truly utilize a community-focused planning approach that places inclusive decision-making at its center.

Clear User Designations & Signage

The Complete Streets approach offers users clearly designated areas in which to drive, walk, bike, and wait for public transportation (Litman, 2014). Such clear, demarcated areas of roads for each type of user increases overall safety in the area. Specific recommendations for each type of user of a Complete Street include:

Case Study: San Diego, Calif.

After San Diego, California implemented a version of Complete Streets, they have noticed significant benefits. For example, on La Jolla Boulevard in the Bird Rock business district, they installed new roundabouts and made extensive improvements to the streetscape improving the safety for all users. Ninety-five businesses along this corridor had a 20 percent increase in sales (McCann & Seskin, 2013).

Motorized vehicles – Driving lanes for motorized vehicles should be 9 to 12 feet wide with marked with center line(s) and a solid outside line. Speed displays should also be installed to make vehicles more aware of their speed

Pedestrians – Sidewalks and high-visibility crosswalks should be installed. The addition of street lights should also be considered to provide more light during evening hours. Pedestrian crossings should be demarcated with, at minimum, "yield here to pedestrians" signage and, more favorably, flashing LED pedestrian crossing signs.

Bicyclists – Bike lanes (4- to 5-feet in width) should be installed on both sides of the road and demarcated by painted lines or a colored path (Figure 3-1a,b). "Share the road" and intersection guidance signs should be displayed along the roadway to help bicyclists safely and efficiently move through the area. Installation of bike racks and shelters, located at popular destinations like parks, transit stops, and businesses, are also recommended to increase the bikeability of an area.

Public transit -- For public transportation, all bus stops should be clearly marked with signs. Also, bus stops should include bus shelters to protect transit users from inclement weather.

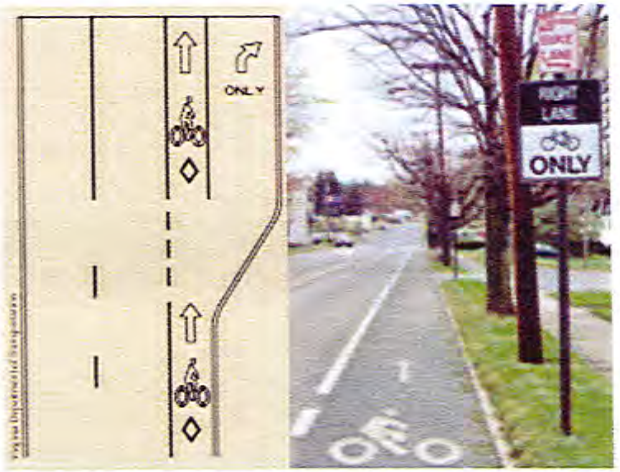

Figure 3-1. *(a) Virginia Department of Transportation rendering of what a complete vehicle and bicycle lane will look like (b) Roanoke, Virginia's idea of Complete Streets with designated lanes for motorized vehicles and bikes, as well as a tree lawn as a safety buffer for pedestrians using the sidewalks (Source: McCann and Ryanne, 2010)*

Attention to Multiple Types of Users

A related component of the Complete Streets model is its attentiveness to the various types of users anticipated to move through the area. Specific recommendations for accommodating special user groups with the Complete Streets model include:

Children – Complete Streets would provide a safer means for youth to commute to school without the use of a car. Moreover, research suggests that when children have the ability to walk or bike to school, traffic congestion near the school area is reduced and the physical health of the students is improved (Smith, Reed, Baker, 2010). Specific recommendations for Complete Streets in school areas include more clearly marked sidewalks and bike lanes and upgraded crosswalks with "yield to (or stop for) pedestrians" signage and/or pavement markings ("Change Travel Patterns," 2015) as well as reduced traffic speeds in school areas ("National Complete Streets Coalition," 2015).

Differently-abled individuals – For those with disabilities, best practices include, "attention to details at intersections, such as installing curb ramps, audible or tactile signals for blind pedestrians, and/or providing longer crossing times; along pedestrian routes by providing smooth sidewalks free of obstacles, with usable benches; and at transit stops with ample space to approach, wait, and board safely" ("Complete Streets Help People With Disabilities," 2015).

Aging populations – For the elderly, Complete Streets offer slower traffic flows, greater navigability, and improved visibility ("Complete Streets Improve Mobility for Older Americans," 2015), Specifically, improvements for aging populations emerge from adding more time to crossing signals, adding median refuges to multilane roads, adding curb ramps at intersections with crosswalks, increasing public transportation offerings, placing shelters at bus stops, and installing seating along sidewalks ("Complete Streets Improve Mobility for Older Americans," 2015).

Case Study: Lousville, KY

In Louisville, Kentucky, Derik Gowin, the administrator of Public Works, focused the Complete Street's design around safety. For example, US 42, Brownsboro Road (a four-lane commuter route beside a cliff), leaves no room for a sidewalk on the north side of the road. Gowin stated, "residents of the adjacent Clifton and Clifton Heights neighborhoods needed to be able to walk to stores, restaurants, apartments, and the Kentucky School for the Blind" (McCann & Seskin, 2013:49). Gowin then analyzed all the crashes on the corridor and classified them as to which ones would have been prevented through the use of safety countermeasures recommended by the Federal Highway Administration. Gowin found up to 60% of the recent crashes, including those that involved pedestrian deaths, could have been prevented. The Public Works Department created a Complete Streets design, which reduced four car lanes to two and added one center turn lane. The conversion was completed in August of 2012 and is reported to be working well so far. Gowin is tracking the safety record of the segment and will use it to advocate for additional road conversions. (McCann & Seskin, 2013)

Detailed Recommendations

The Citizens Implementation Committee (CIC) of the Town of Canandaigua has expressed explicit interest in Complete Streets, as this planning approach will allow the Town to better accommodate all users/modes of transportation and "can provide substantial aesthetic improvements over traditional roadway design" (edr Companies, 2011:41). Overall, the application of the Complete Streets model in the Uptown Area will improve quality of life, resident retention rates, and provide a sense of community ("Complete Streets," 2013; "Livable Communities," 2015).

Our recommendation is to implement Complete Streets in the Uptown Area in a phased approach that focuses on the anticipated needs of users in the immediate (1 to 3 years), near-term (3 to 5 years), and longer-term (5 to 10 years) future (Figure 3-2). Specifically, we are recommending the following sequence of Complete Streets installations in the Uptown Area:

Immediate future

Due to the vast majority of new housing developments being planned along Parkside Drive, Brahm Road, Cowan Road, and Firehall Road, we recommend initially focusing the Town's Complete Streets implementation on this residential development triangle Complete Streets in this area will offer connections and safer access to Tops Market and businesses on State Route 332, and connect the residents to public transportation options.

Near-term future

Within the next five years, we recommend installing a Complete Street along State Route 332 from the intersection of Thomas and Emerson Road northward to the Smart System Technology and Commercialization Center (STC). This will better connect STC workers with the businesses and restaurants along State Route 332. We also recommend implementing Complete Streets onto County Road 28, North Road, Aroline Road, and Kepner Road within the next five years. Installing Complete Streets on North Road in particular will provide residents and their children the option of walking or biking to
Nearby Canandaigua Academy and allow for decreased traffic congestion in the school area.

Long-term future

Within ten years, we recommend installing Complete Streets up State Route 332 from the intersection of North Street to the intersection of State Route 332 with Thomas Road and Emerson Road. This connects businesses and residents with destinations such as Tops, Tim Horton's, and the City of Canandaigua. Complete Streets should also be installed on Macedon Road from the Parkside Drive intersection to the Risser Road intersection. Complete Streets should continue up Risser Road and then to the West down Emerson Road. This will connect all the housing developments in the North East side of the Uptown area to Blue Heron Park, public transportation stops and desirable destinations.

Please refer to the Complete Streets Implementation Table for Uptown located in Appendix A to see what Complete Streets for the Town of Canandaigua should include. Appendix B, by comparison, includes further recommendations for additional Complete Streets amenities that could be used in the Uptown Area in the future.

Further Information

Due to the rise in interest in developing alternative forms of mobility, there are now a number of movements toward making alternative forms of mobility possible; there are now many funding opportunities for municipalities to apply for. The Federal Programs that provide funding opportunities for design and construction of Complete Streets are:

- Surface Transportation Program
- The National Highway System
- Highway Bridge Program

(Smith, Reed, Baker, 2010)

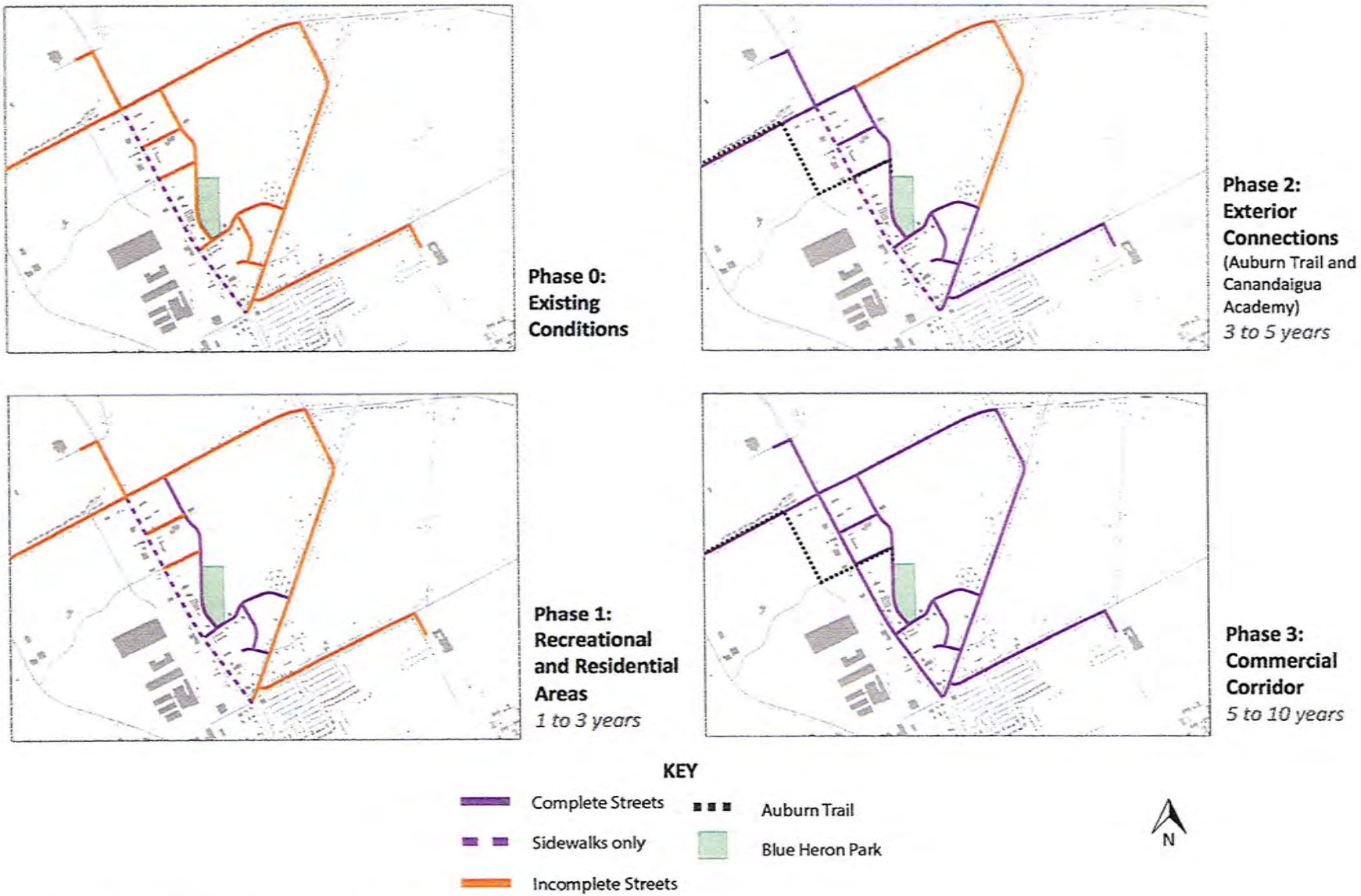

Figure 3-2. *Complete Streets phasing plan for the Uptown Area (Source: Megan Mohney & Robin Lewis)*

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Chapter 4
Sidewalks & connectivity

Introduction

This section of the report addresses sidewalk construction for the Town of Canandaigua's MUO-1/Uptown Area. According to Randrup, McPherson, and Costello (2001), a sidewalk is defined, "as a paved strip, running along one or both sides of a road, for pedestrian use" (p.211). This definition is in line with the *Town of Canandaigua, NY Design Guidelines*, which adds the purpose of pedestrian sidewalks and trails is, "to assist circulation or provide access to community facilities" (n.p.). As Evans-Cowley (2006) argues, "a transportation system that encourages walking can reduce traffic congestion and improve the safety of motorists and the quality of life" (p.71). The inclusion of sidewalks makes an area with vehicle roadways substantially safer. Furthermore, as the Federal Highway Program (2009) explains, "sidewalks provide many benefits including safety, mobility, and healthier communities" (p.4). Moreover, the DOT also highlights the fact that, "sidewalks reduce other pedestrian crashes. Roadways without sidewalks are more than twice as likely to have pedestrian crashes as sites with sidewalks on both sides of the street" (p.4). Thus, it is clear that there are critical advantages to constructing sidewalks in the Uptown Area.

RECOMMENDATIONS IN BRIEF

- Construct sidewalks along most roadways in the Uptown Area in phased approach
- Construct curb cuts on select roadways to allow immediate and future sidewalk construction
- Develop and implement a comprehensive maintenance plan for sidewalks in the Town

According to Sandt et al. (2015), "people need and want communities where streets are safe, accessible, and comfortable for all users, including those traveling by car, foot, bike, or mass transit"(n.p.). The report continues, "streets that are pedestrian and bicycle friendly have many benefits, including:

- Safer environments, where you are less likely to be in a traffic collision or get injured.
- Better access to more destinations, providing more choices in how you can get where you want to go without relying on a car.
- More opportunities to be physically active, which can improve your health and overall quality of life.
- Opportunities for everyone, which includes people with disabilities" (Sandt et al., 2015:n.p.).

As Evans-Cowley (2006) reminds us, "the growing demand for adequate pedestrian access requires comprehensive long-range planning, as well as the implementation of sidewalk policies" (p.71). The integration of 'long-range planning' and 'sidewalk policies' are consistent with other elements of the Multimodal Transportation Master Plan we are proposing for the Town. Research shows that it is more common to plan and develop routes that connect people to desirable destinations like schools and parks (Untermann, 1984; Evans-Cowley, 2006). The project team realizes that due to the Uptown Area's projected growth in the next ten years, the phased construction of a comprehensive network of sidewalks is paramount for making the area's future residents feel connected to their new community.

Best Practices

Sidewalk construction components that ensure pedestrian safety are width, subgrade, slope, surface material, and maintenance plans.

Width

The Americans with Disabilities Act (ADA) specifies that sidewalks should measure a minimum of six feet in width in order to accommodate all forms of mobility. The width is important to make sure every person has the necessary amount of space to navigate the sidewalk. "A minimum of 2.285 m (90 in) should be allocated if at least 760 mm (30 in) of open space is available between the property line and the sidewalk corridor" (Kirschbaum et al., 2001:n.p.).

Subgrade

According to Rajani (2010), the first component of a sidewalk is the subgrade. The subgrade is native that is spread evenly and compacted so the sidewalk is level. The next layer is the sub-base, which is made out granular material (usually 150 mm), and put on top of the subgrade. The sub-base supports the subgrade's original alignment. The concrete layer follows the sub-base. The concrete layer functions as the wearing surface, which affects the top 6mm of the sidewalk. Expansion joints should also be included because they allow the sidewalk to shift slightly without occurring damage. Rajani (2010) explains, "expansion joints consists of [0.5 in] of compressible material should be placed at [50 ft] intervals along the sidewalk and wherever the sidewalk abuts another rigid structure. These expansion joints allow the sidewalk to move independently without occurring damage to the concrete layer" (p.3).

Slope

According to Kirschbaum et al. (2001) "sidewalk grades ideally should not exceed 5.0 percent, and the most gradual possible slope should be used at all times" (n.p.). The slopes of sidewalks must increase incrementally and should be level when possible. This is important to ensure that people can walk safely from place to place. Minimal slopes are especially important when considering people who use electric power chairs to move through an area.

Surface Material

"Sidewalks surfaces generally consist of concrete or asphalt; however, tile, stone, and brick are also common. Most common sidewalk materials are firm, stable, and slip resistant when dry" (Kirschbaum et al., 2001:n.p.). The indicators of sidewalk surface usability are surface material; firmness, stability, and slip resistance; changes in level; and, dimensions of gaps, grates, and openings (Kirschbaum et al., 2001:n.p.).

Maintenance Plans

Maintenance of sidewalk networks is critically important for a municipality to ensure that its residents can safely and efficiently transverse the area. The project team recommends that the Town of Canandaigua continue to complete regular condition inspections so that the repair and replacement can be made. According Rajani (2010), cracks as small as 0.30 inches in width "will entrap stroller wheels, roller blades, pointed shoe heels, and walking canes. A fault height of [three-quarters of an inch to an inch] is a tripping hazard that can expose pedestrians to serious injury" (p.5).

While sidewalk construction makes for safer communities, if they are not properly maintained sidewalks can become a hazard for pedestrians. We believe the Town's Highway & Water Department is well-equipped to handle the upkeep and snow removal required to make sidewalks safe to use.

Detailed Recommendations

The project team recommends implementing sidewalks using a phased approach (Figure 4-1). Our recommendations are provided with rationale below and briefly summarized again for quick reference in Table 4-1.

Immediate future

According to the Town of Canandaigua, residential development is imminent in the vicinity of Parkside Drive, Brahm Road, Cowan Road, and County Route 28 (pers. comm., 23 Jan 2015). We therefore recommend that the Town of Canandaigua initially focus its sidewalk development efforts in area for the next 1 to 3 years. Given that Town Code §174-23 allows for sidewalks to be placed on one or both sides of the road (Town of Canandaigua, 2015), we propose that sidewalks be placed along both sides of Parkside Drive and Brahm Road and on the west side of County Route 28 and north side of Cowan Road. The sidewalk on County Route 28 should be continued southwestward until it reaches the corner of State Route 332. Extending the sidewalk this length of County Route 28 will allow residents, such as those living in the Candlewood Apartments and the nearby mobile home park, to more safely access nearby jobs and local amenities like the grocery store and restaurants. This particular sidewalk will also allow for residents to better utilize other forms of multimodal transportation in the Uptown Area as it will pass by the proposed formal bus stop at the corner of Parkside Drive and County Route 28. In addition, we recommend that the Town install sidewalks along the east side of Firehall Road in the next year to three years. The timeline for sidewalk construction can be coordinated with the Town's efforts to construct a new sewer line along this road (pers. comm., 25 Feb 2015), therefore minimizing disruption in the area due to simultaneous construction of the sewer line and sidewalks along Firehall Road.

Another area in which the Town should immediately consider constructing new sidewalks in the next 1 to 3 years is along North Road. This roadway serves an important connector with Canandaigua Academy and is not presently able to safely accommodate foot traffic due to its lack of sidewalk facilities. We recommend that the Town construct a sidewalk along the south side of North Road. We argue that this is the appropriate location for this new sidewalk due to the fact that it would be placed behind the back yards of houses in the adjacent residential neighborhood (rather than in the front yards of those residences on the north side of the road).

Near-term future

In the next three to five years, due to the expressed need for the extension of current sidewalks along State Route 332 to the Smart System Technology & Commercialization (STC) Center on Campus Drive (pers. comm., 02 Apr 15), we propose that a sidewalk be constructed on the west side of State Route 332 from the STC Center south to Emerson Road. From here, pedestrians could walk south along State Route 332 to access local businesses and other amenities.

We also recommend that the Town of Canandaigua continue its sidewalk construction efforts to the area between Firehall Road and State Route 332 because new single-family homes may be constructed near the intersection of Firehall Road and Aroline/Airport Road. Sidewalks should be constructed along the west side of Firehall Road, as well as on both sides of Kepner Road and Aroline/Airport Road. Should the Town wish to delay the construction of these sidewalks until a later date, we recommend that the Town, at minimum, construct curb cuts at the intersections of Kepner Road and Aroline/Airport Road with State Route 332 to allow for foot traffic to more safely move through the area (Figure 4-2).

Long-term future

Within the next five to ten years, we propose that the Town of Canandaigua extend the sidewalk system in MUO-1 toward the intersection of Thomas Road and Risser Road. Based on emerging needs, we therefore recommend that the Town add sidewalks, at minimum, along the south of Emerson Road, west side of Risser Road, and north side of County Route 28. The expansion of the Uptown Area's sidewalks to this area would not only provide safer walking paths for its residents but also increase recreational walking opportunities in this rapidly developing residential area. The Town would need to plan with its residents as to who is responsible for shoveling these new sidewalks during the winter months.

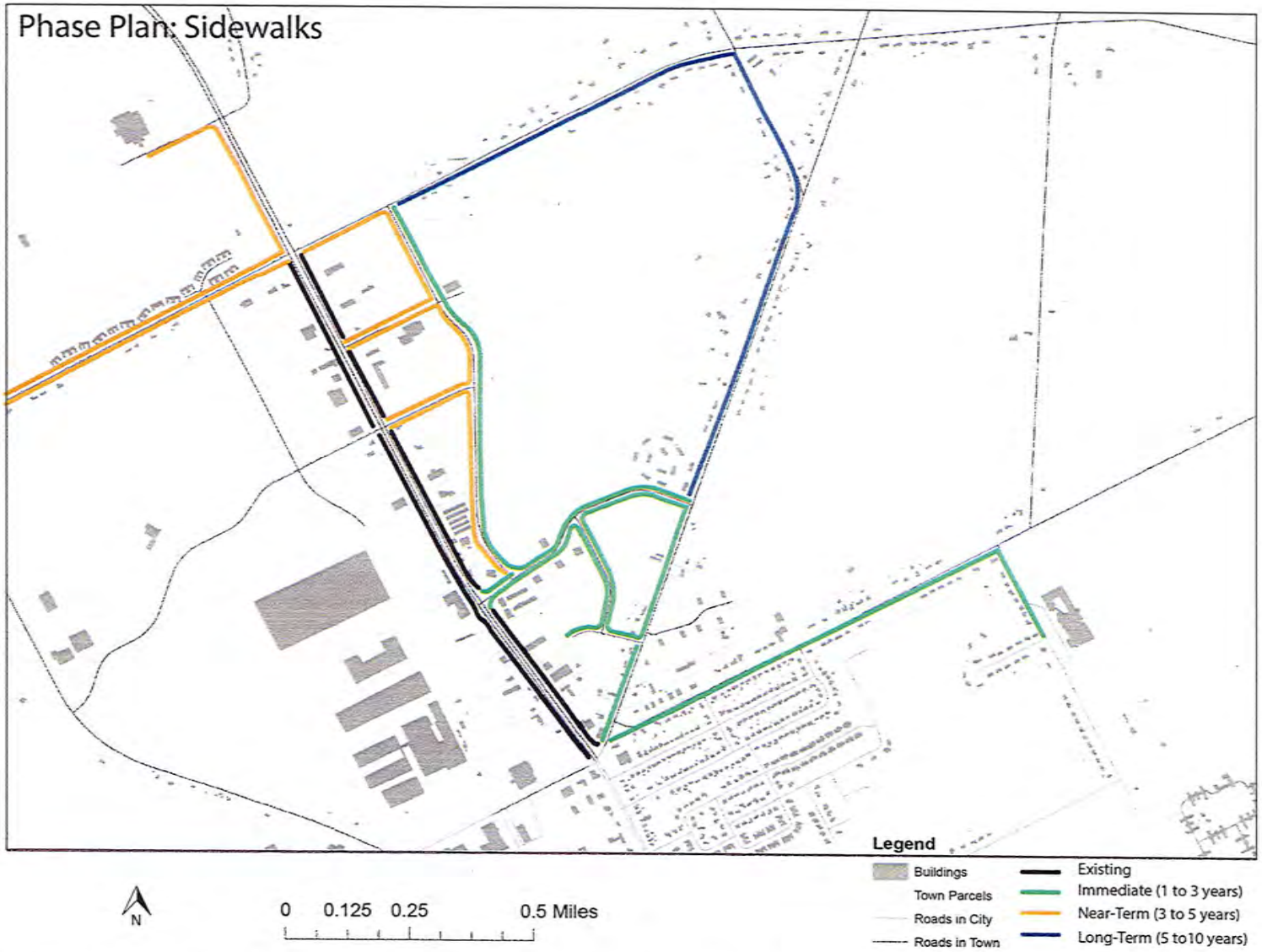

Figure 4-1. *Phasing plan for the installation of sidewalks in the Uptown Area (Source: Megan Money)*

Table 4-1. *Summary of proposed sidewalk additions and upgrades for the Uptown Area of Canandaigua*

Project type	Sidewalk Proposed	Location(s)
	Immediate Future	
New	Parkside Drive from State Route 332 to County Route 28	north & south
New	Brahm Road from Parkside Drive to Cowan Road	east & west
New	Cowan Road from dead end to County Route 28	north
New	County Route 28 from Parkside Drive to State Route 332	north/west
New	Firehall Road from Emerson Road to Parkside Drive	east
	Near-Term Future	
New	Firehall Road from Emerson Road to Parkside Drive	west
New	Emerson Road from Parkside Drive to State Route 332	south
New	Kepner Road from State Route 332 to Firehall Road	north & south
New	Aroline/Airport Road from State Route 332 to Firehall Road	north & south
New	State Route 332 from Campus Drive to Thomas Road	west
New	Emerson Road from Brickyard Road to State Route 332	north & south
	Long-Term Future	
New	Thomas Road from Firehall Road to Risser Road	south
New	Risser Road from Thomas Road to County Route 28	west
New	County Route 28 from Risser Road to Parkside drive	north/west

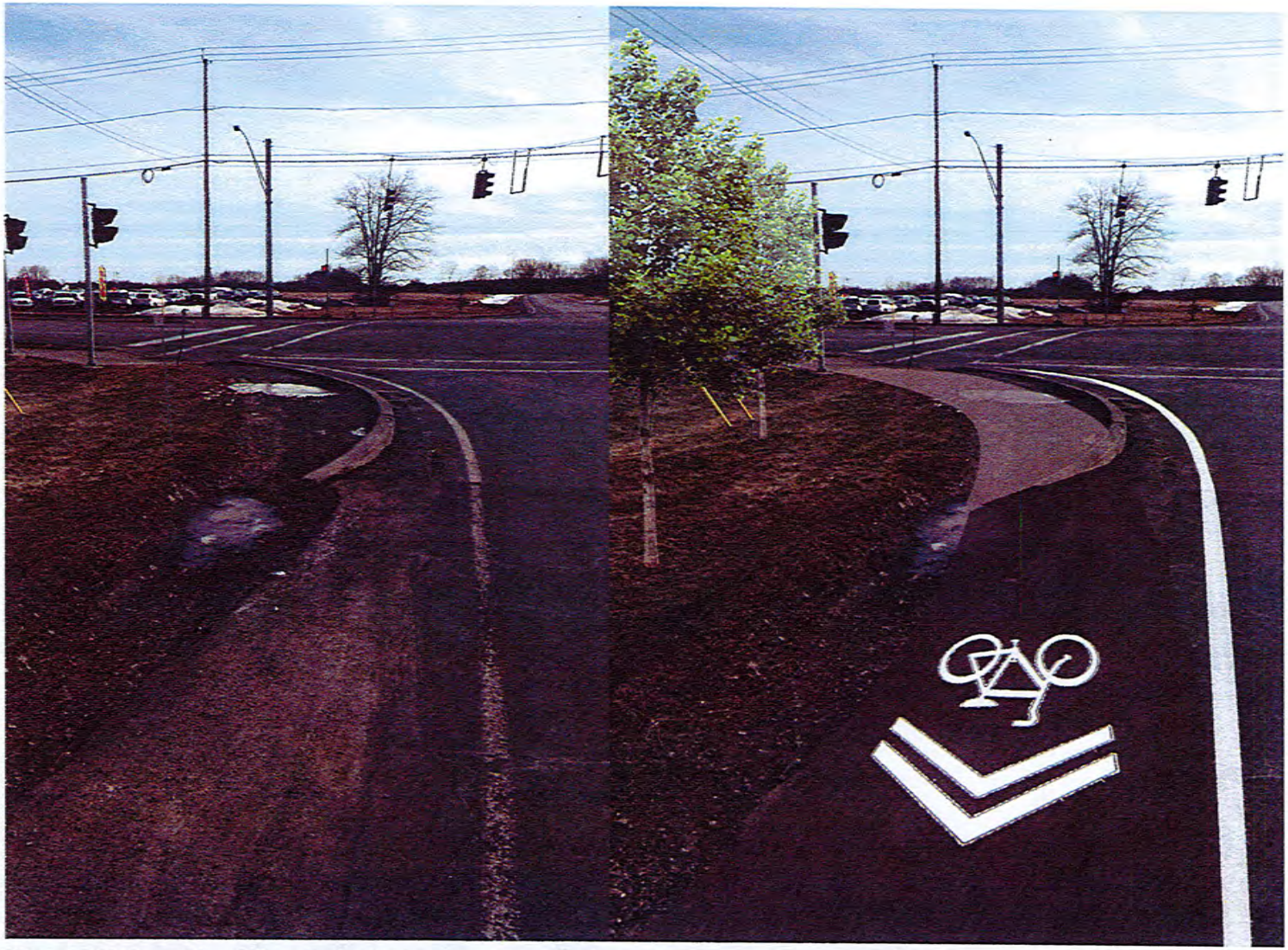

Figure 4-2. *The intersection of Airport/Aroline Roads with State Route 332 showing (a) the southeast corner lacking a curb cut making it difficult for pedestrians to safely reach the existing sidewalk on Route 332 and (b) the proposed addition of a curb cut to allow pedestrians to more safely and more directly reach the sidewalk along Route 332. (Source: Megan Mohney)*

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Chapter 5
Crosswalks & Intersections

Introduction

According to Zeegar et al. (2005), "roads should be designed with the premise that there will be pedestrians, that they must be able to cross the street, and that they must be able to do so safely" (p.1). One of the primary means by which to enhance walkability in a residential area like MUO-1 is to improve pedestrian safety at intersections. The addition or upgrading of crosswalks therefore plays a key role in creating a more accessible community.

Best Practices

In the following section of this report, we review what we consider to be the best practices concerning pedestrian crosswalks and related roadway treatments from around the country. While this analysis should not be considered exhaustive, we do however present a comprehensive picture of what the Town of Canandaigua should do improving crosswalks and intersections in the Uptown Area.

Marked Crosswalks

The area of a roadway that pedestrians use to cross a road, as measured from curb to curb, is known as a crosswalk. Crosswalks are either marked or unmarked. Marked crosswalks are those pedestrian crossings indicated by the presence of roadway markings, signalized pedestrian crossing signals, and/or other treatments.

Recent studies suggest that marked crosswalks that use high-visibility patterns increase safety at intersections by between 37% and 48% (McGrane and Mitman, 2013; Feldman, Mazi & Mitman, 2010; Chen et al. 2013).

High-Visibility Crosswalk Markings

Due to the significant role roadway markings play in ensuring pedestrians' safety, a number of crosswalk marking patterns and stencils are available. Ranging from simple transverse lines more complicated ladder (also known as continental) and diagonal lines, it is important to choose the appropriate type of crosswalk marking for an individual intersection (Figure 5-1). Research indicates high-visibility patterns like the ladder or diagonal lines are "more visible to motorists and lead to an improved yielding rate" (McGrane and Mitman, 2013:14-15), and are therefore becoming the preferred types of crosswalk markings at most controlled intersections.

RECOMMENDATIONS IN BRIEF

- An upgrading of all crosswalks at intersections along State Route 332 and the addition of a new midblock crossing between Airport/Aroline and Parkside
- Installation of new crosswalks at key interior intersections, especially those near Blue Heron Park and adjacent to parcels in which further residential development is imminent
- Installation of a new midblock crossing along State Route 332 between Kepner and Aroline

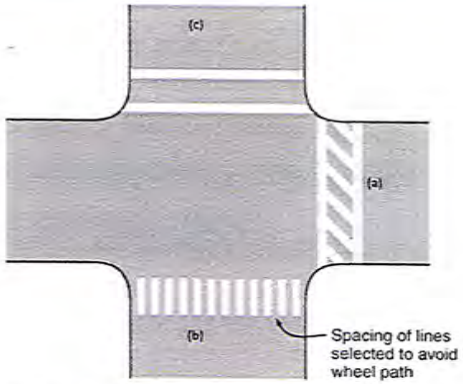

Figure 5-1. *Example crosswalk markings showing (a) a simple transverse pattern, (b) the continental (or ladder) stenciling, and (c) the diagonal pattern (Source: MUTCD, 2009)*

Midblock Crosswalks

A midblock crosswalk is "a crosswalk at location other than an intersection" (American Fork City, n.d.:1). The vast majority of pedestrians "desire to travel from origin to destination in as near a straight line as possible" (America Fork City, n.d.:1), as well as not have to walk great distances to reach a signalized pedestrian crossing. Given these pedestrian inclinations and tendencies, the addition of mid-block crossings should be considered where:

- Sufficient demand exists;
- The nearest signalized crosswalks are 300 or more feet away; and,
- "Provision of a [midblock] crossing would channelize potential jaywalkers to a suitable crossing location" (Sacramento Transportation & Air Quality Collective, 2005:32).

When constructing midblock crosswalks in particular, it is essential to add other elements that make these crossings more visible to motorists and safer for pedestrians using these crossing locations (American Fork City, n.d.; Bolton & Menk, 2014). Recommended countermeasures may include flashing signals, roadway signage, and pavement markings, as well as the development of pedestrian refuge islands in the median of multilane roadways (Figure 5-2; American Fork City, n.d.; Beneficial Designs Inc. et al, 2001; Bolton & Menk, Inc. 2014; MUTCD, 2009).

Figure 5-2. *Example midblock crossing enhancements (Source: City of Canandaigua)*

Super Street Intersections

Super street intersections, also known as restricted crossing U-turn intersections (RCUT), are considered by Hughes et al. (2010) as "a promising solution" (p.111) for locations where minor roads with relatively low traffic volumes cross larger arterials with higher traffic volumes and/or speed limits. Instead of relying on traffic signals to control the flow of traffic at these intersections, RCUT intersections redirect traffic flows from minor roads, restricting the movement of vehicles on these roadways to exclusively right-turns onto the main road. Meanwhile, vehicles traveling along the arterial road are allowed to either turn left at or continue through the intersection. (Hughes et al., 2010)

When constructing super street intersections, research indicates it is essential to consider pedestrian safety in traversing such intersections. While there are several ways to direct pedestrian traffic at unsignalized RCUT intersections, one of the most favored designs involves the implementation of diagonal crosswalks from one corner of the minor roads to a crossing island, also known as a pedestrian or refuge island, located in the center of the intersection (Figure 5-3). These diagonal crosswalks allow "for pedestrian movement across the major road to not conflict with left-turn movements from the major road, minimizing delays" (City of Raleigh, 2012:66).

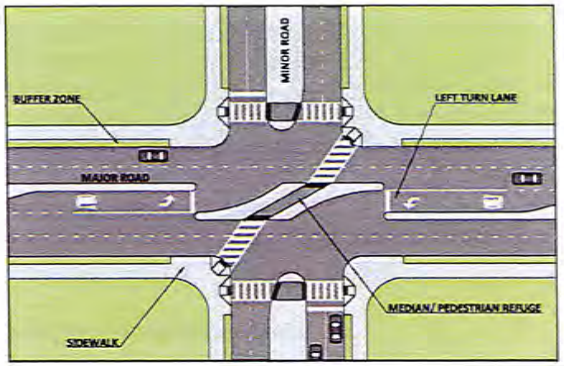

Figure 5-3. *A typical design for crosswalk placement at a super street intersection (Source: City of Raleigh, 2012:66)*

Additional Crosswalk Enhancements.

The Federal Highway Administration (FHWA) argues that pedestrian crosswalks are more effective when supplemented with additional enhancements or countermeasures. For the vast majority of intersections, appropriate crosswalk enhancements include:

Signage & pavement treatments – As noted in Bolton and Menk, Inc. (2014), warning signs and paving treatments are among the lowest cost ways to draw more attention to crosswalks and pedestrians. Not only do these enhancements help more clearly define crosswalk locations, but signage and pavement treatments give motorists advanced notice of the possibility of pedestrians being in the area.

Crossing islands – Typically installed in the median of two- to multilane roads, crossing islands (also known as center islands/pedestrian islands/refuge islands) potentially reduce vehicle speeds while also providing a safe refuge for pedestrians crossing roadways with higher traffic volumes or shorter sight distances (Beneficial Design Inc. et al., 2001). Crossing islands have several advantages include providing higher pedestrian visibility, reducing pedestrian exposure times, and decreasing pedestrian crossing distances (Bolton and Menk, Inc. 2014). The safety of crossing islands themselves can be further enhanced by the installation of concrete pillars along their edges that disallow vehicles to accidentally enter these designated pedestrian areas.

Detailed Recommendations

Based on the level of residential development anticipated for and our own observations of the Uptown Area, we are recommending both crosswalk upgrades and additions. We offer these recommendations in a phased implementation plan in order to prioritize those areas where crosswalk upgrades or additions are likely to be most warranted in the immediate (1 to 3 years), near-term (3 to 5 years), and long-term (5 to 10 years) future (Figure 5-4). Our detailed recommendations for each phase of crosswalk and intersection upgrades are summarized sequentially in Table 5-1. Visuals for proposed upgrades to two key intersections in the Uptown Area are provided in Figure 5-5, Figure 5-6 and Figure 5-7.

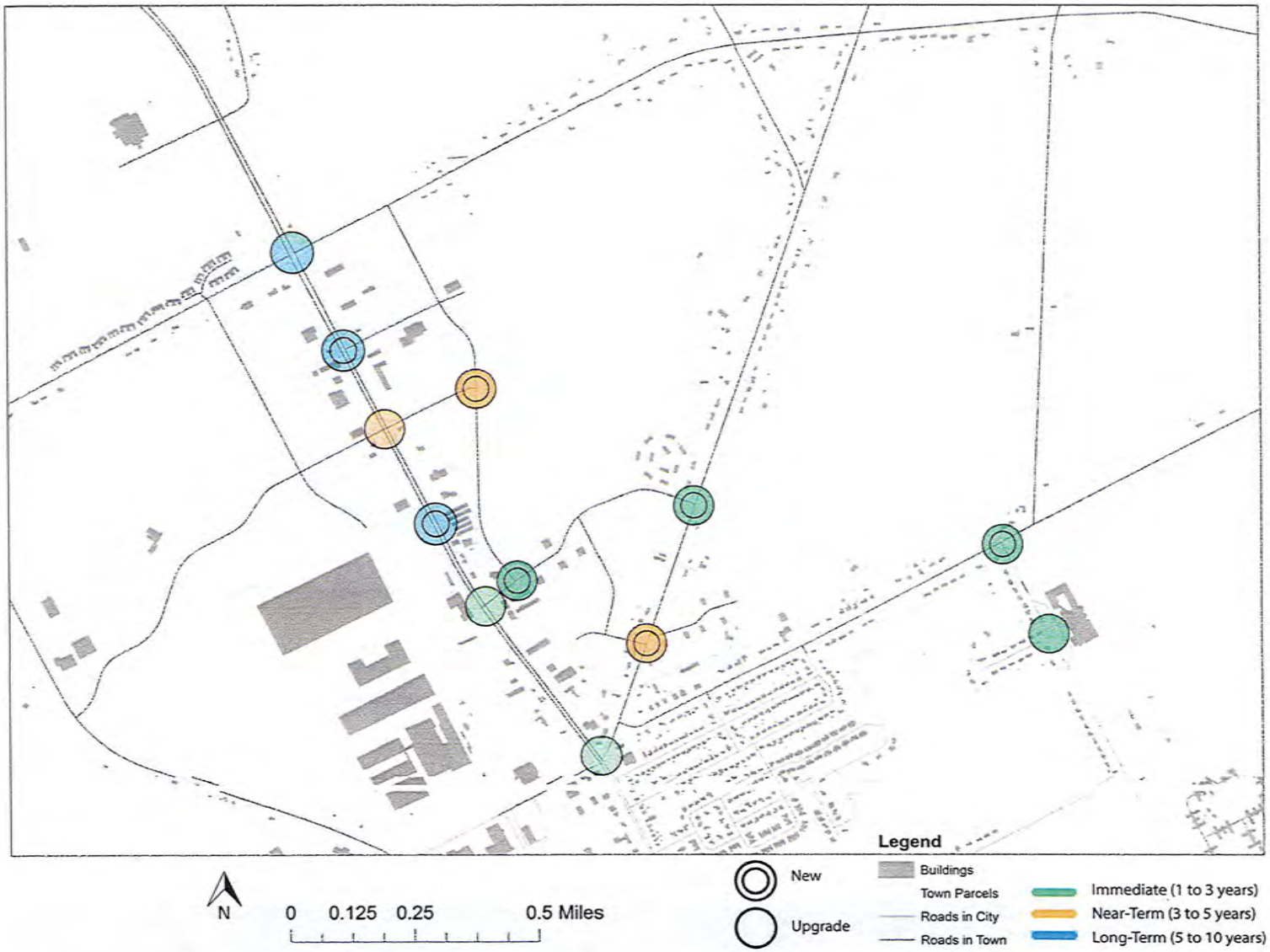

Figure 5-4. *Phasing plan for the installation and upgrading of intersections and crosswalks in the Uptown Area (Source: Megan Mohney)*

Table 5-1. *Summary of proposed crosswalk additions & upgrades in the Uptown Canandaigua Area presented*

Project type	Location & Recommended Actions	Marking Type	Additional Enhancements
	Immediate Future		
Upgrade	**State Route 332 & Parkside Drive** Enhance corner crosswalks at this intersection more clearly delineate the pedestrian right-of-ways and decrease potential for pedestrian-vehicle collisions	Continental	• High-visibility crosswalk markings • "Yield for pedestrians" signage • Painted "yield ahead" road markings
Upgrade	**State Route 332 & North Road** Enhance corner crosswalks at this intersection more clearly delineate the pedestrian right-of-ways and decrease potential for pedestrian-vehicle collisions	Continental	• High-visibility crosswalk markings • "Yield for pedestrians" signage • Painted "yield ahead" road markings
Upgrade	**East Street opposite Tamarack Drive** Construct a new crosswalk across Tamarack Drive and enhance the current crosswalk across East Street to allow students and other pedestrians to more safely cross from the residential area to the west of East Street to Canandaigua Academy	Continental	• High-visibility crosswalk markings • Painted "yield ahead" road markings
New	**Parkside Drive & Fire Hall Road** Construct a marked crosswalk on Parkside Drive opposite Fire Hall Road and then across Fire Hall Road parallel to Parkside Drive. Both of these additions will enable residents to better access Blue Heron Park and its various amenities. (Figure 5-5)	Transverse	• "Yield for pedestrians" signage • Painted "yield ahead" road markings • Traffic calming devices
New	**Parkside Drive opposite County Road 28** Construct a marked crosswalk on Parkside Drive opposite of its intersection with County Road 28 to allow residents from Candlewood and County Road 28 corridor to proceed along County Road 28 and walk through the new residential area toward Blue Heron Park	Transverse	• "Yield for pedestrians" signage • Painted "yield ahead" road markings
New	**North Road & East Street** Install a marked crosswalks at the intersection of North Road and East Street across to allow students who reside in the Uptown Area to more safely walk to and from school	Continental	• High-visibility crosswalk markings

Table 5-1. *cont'd*

Project type	Location & Recommended Actions	Marking Type	Additional Enhancements
	Near-Term Future		
Upgrade	**Airport Road/Aroline Road & 332** Enhance corner crosswalks at this intersection to more clearly delineate the pedestrian right-of-ways and decrease potential for pedestrian-vehicle collisions. Create a crossing island in the center median of 332 to allow pedestrians an area to wait before crossing the other two lanes of traffic. In addition, enhancing this crosswalk will enable users of the Auburn Trail to safely cross 332 in order to reach amenities in MUO-1 like Blue Heron Park.	Continental	• High-visibility crosswalk markings • Crossing island • "Yield for pedestrians" signage
New	**Fire Hall Road & Aroline Road** Construct a marked crosswalk at or near the northern entrance of Blue Heron Park to safely direct pedestrians to park entrance & amenities	Transverse	• "Yield for pedestrians" signage • Painted "yield ahead" road markings • Traffic calming devices
New	**State Road 28 & Cowan Road** Construct a marked crosswalk on Cowan Road opposite of its intersection with County Road 28 to allow residents from the area to proceed along County Route 28 and walk through the new residential area toward Blue Heron Park	Transverse	• High-visibility crosswalk markings • "Yield for pedestrians" signage • Painted "yield ahead" road markings
	Long-Term Future		
Upgrade	**State Route 332 & Thomas Road/Emerson Road** Enhance corner crosswalks at this intersection in order to increase pedestrian safety along Thomas Road and Emerson Road. Construct new crosswalks at a diagonal from the southeast corner of Emerson Road and northwest corner of Thomas Road to the center median along 332 at this intersection. Upgrade the center median to a crossing island with a new walkway for pedestrians crossing Route 332. (Figures 5-6 and 5-7)	Continental & diagonal	• High-visibility crosswalk markings • Crossing islands • "Yield for pedestrians" signage • Pedestrian crossing signal devices
New	**Kepner Road & 332** Enhance corner crosswalks at this intersection more clearly delineate the pedestrian right-of-ways and decrease potential for pedestrian-vehicle collisions. Create a crossing island in the center median of 332 to allow pedestrians an area to wait before crossing the other two lanes of traffic.	Continental	• High-visibility crosswalk markings • Crossing island
New	**State Route 332 between Airport Road/Aroline Road and Parkside Drive** Construct a new midblock crosswalk to shorten walking distances for pedestrians wishing to cross 332 in order to access amenities & services on other wide of the roadway	Diagonal	• High-visibility crosswalk markings • Yield for pedestrian signage and road markings

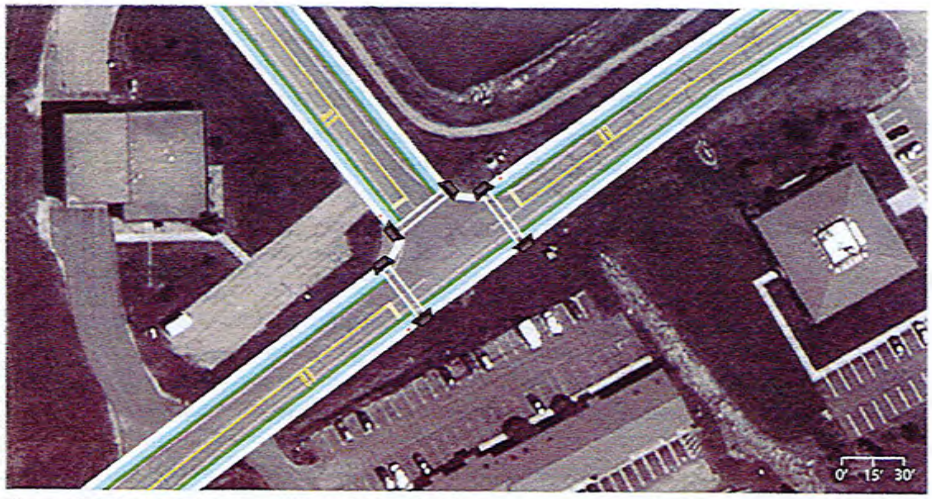

Figure 5-5. *Proposed crosswalk installations for the intersection of Fire Hall Road and Parkside Drive (Data source: ArcGIS Online)*

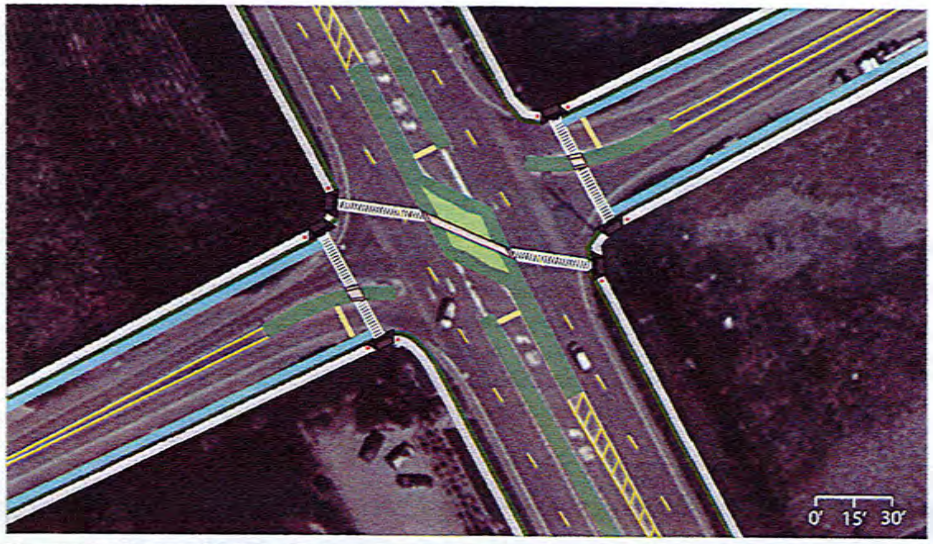

Figure 5-6. *Proposed redesign for the super street intersection on Route 332 at Thomas/Emerson Road (Data source: ArcGIS Online)*

Figure 5-7. *Viewpoint for a pedestrian wishing to cross the super street intersection in MUO-1 from the southeast corner of Emerson Road as it is today and should proposed upgrades are implemented*

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Chapter 6
Multimodal Transportation: Biking

Introduction

Part of having a well-developed multimodal transportation plan for the Uptown Area of the Town of Canandaigua requires increased attentiveness to non-vehicular types of transportation like biking. Biking provides an efficient and healthier alternative to using automobiles and it allows people to enjoy the outdoor spaces that this portion of Canandaigua has to offer. Having the option to bike to and from key local destinations can reduce the living expenses of the residents who might normally rely solely on their automobiles. Meanwhile, increasing the bikeability of an area can also reduce air pollution and greenhouse gas emissions, enhance recreational use, and promote healthier lifestyles. In order to maximize the bikeability of the Uptown Area, the Town of Canandaigua must approach multimodal transportation with the safety of bicyclists and other non-motorized roadway users in mind.

There are many public health reasons why municipalities like Canandaigua should actively support alternative modes of transportation like biking. With more than 35% of Americans (or 78.6 million adults) considered obese, biking can help mitigate this costly health issue by reducing heart disease, certain types of cancer, stroke, type 2 diabetes and even death related to obesity (Adult Obesity Facts, 2014). Obesity in adult populations is increasing and childhood and teenage obesity are also increasing. Since 2012 over a third of the childhood and adolescent population is considered obese causing an increase in health issues such as diabetes within their population (Adolescent and School Health, 2014).

Moreover, having the option to bike to and from a destination or for recreational purposes provides people with a controlled intensity of physical activities that they would not normally get on a daily basis (Teschke, et. al., 2012). More specifically having the option to ride a bike can also improve the following important health factors:

- Increases cardiovascular fitness;
- Increases muscle strength and flexibility;
- Decreases stress levels;
- Improves posture and coordination;
- Strengthens bones;
- Decreases body fat levels; and,
- Reduces anxiety and depression

(Cycling-Health Benefits, 2015)

RECOMMENDATIONS IN BRIEF

- Installation of more signage designating bike lanes throughout the Uptown Area
- Implementation of painted bike lanes along major thoroughfares like State Route 332 and County Route 28

Despite the benefits of riding a bike, people tend to stay away from having to bike because of several different reasons such as:

- Bad drivers;
- Dangerously designed roads;
- Substandard infrastructure;
- Perception of danger;
- Lack of facilities (e.g., bike racks or lockers);
- Previous accidents;
- Cost of equipment; and,
- Too time-consuming

  (Walsh, 2014)

The Town of Canandaigua is well-positioned to improve the bikeability of the Uptown Area and, in doing so, stands to ensure a more sustainable future.

Best Practices

Bike Lanes

The purpose of having bike lanes is to guide the flow of traffic in an orderly fashion in order to increase cyclists' safety as well as cyclists' confidence that vehicles will not interfere with their path (Bicycle Facility Design, 2014; NYSDOT, 2006). Although cyclists are required by law to use the right hand side of public roadways, having bike lanes can increase the confidence and safety of inexperienced and youth cyclists who might otherwise use other forms of transportation (Bicycle Facility Design, 2014; NYSDOT, 2009). The best practices for installing bike lanes include:

- Painted lanes on the right hand side of the road (Figure 6-1); and,
- Designated lanes that are parallel to the road and that have a buffer separating the bike lane from other traffic (Figure 6-2)

  (MUTCD, 2009; NYSDOT, 2006)

Signage

Another important aspect of improving bikeability of an area is the implementation of adequate signage that clearly designates the location of bike lanes and other shared-use pathways (MUTCD, 2009; Figure 6-3). Such signage will remind motorists that there may be cyclists on the road and help direct cyclists to the safest and most efficient biking routes (MUTCD, 2009;

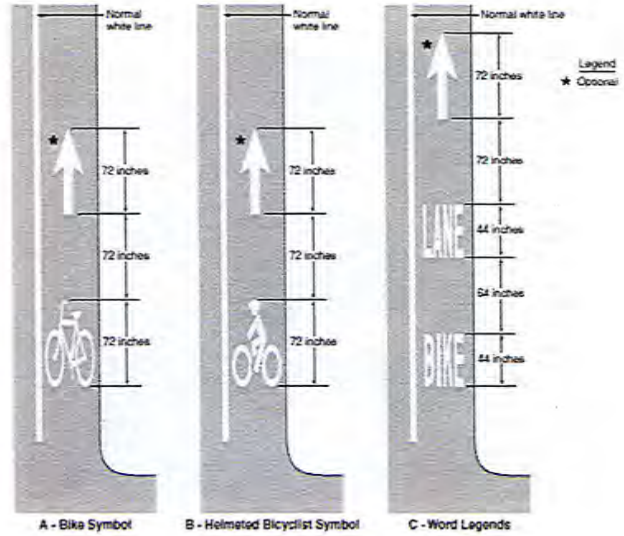

Figure 6-1. *Federally recommended bike lane pavement markings (Source: MUTCD, 2009:809)*

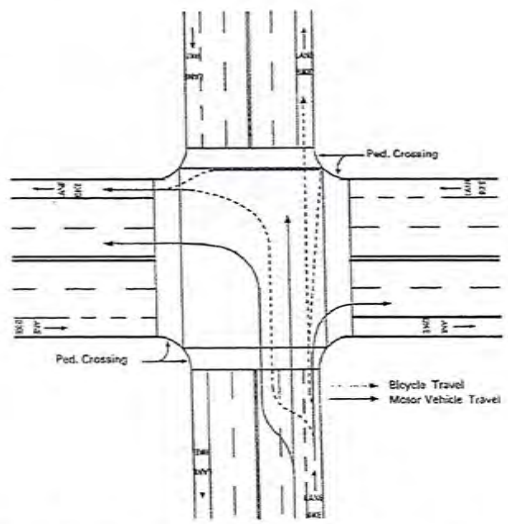

Figure 6-2. *Examples of how to appropriately delineate bicycle lanes on major arterial roadways (Source: NYSDOT, 2006:17-11)*

NYSDOT, 2006). Furthermore, when used in combination with pavement markings (Figure 6-1), shared-use pathway signage like highlights the location of bike paths can improve the safety of other types of non-motorized roadway users like pedestrian.

Detailed Recommendations

In line with the other recommendations in this report, we recommend that the Town of Canandaigua implement bike lanes and supplemental shared-use pathway signage throughout the Uptown Area using a phased approach (Figure 6-4).

Immediate future

Due to an anticipated in the level of residential development in the vicinity of Parkside Drive, Brahm Road and Cowan Road, we recommend the installation of marked bike lanes on both sides of the street in this portion of MUO-1 (Figure 6-5). In addition, related to our proposal for enhancing recreational facilities at Blue Heron Park, we also recommend that bike lanes be implemented along the entirety of Firehall Road in the next 1 to 3 years. In all of these locations, the Town will need to consider whether the current road widths are wide enough to accommodate the addition of bike lanes and, if not, we recommend widening these interior roads to make the implementation of Complete Streets with bike lanes a possibility.

Near-term future

Once bike lanes are in place along the central interior roadways of MUO-1, we then recommend the Town shift its attention to County Road 28 and North Road. As the number of residents increases in the Uptown Area, the Town would be well-served to increase the safety of cyclists wishing to ride recreationally along these feeder roads. At present, County Road 28 and North Road are fairly wide but may need widened further to accommodate the safe movement of cyclists in the area.

Long-term future

Within ten years, we recommend that the Town consider installing bike lanes along State Route 332 in the Uptown Area. While primarily car dealerships and other commercial enterprises currently line this commercial corridor, we are proposing the conversion of this arterial into a Complete Street that encourages the development of more local businesses that can cater to the needs of the Uptown Area's current and future residents. Bike lanes along State Route 332 are therefore an integral part of this development strategy as their presence will allow residents and visitors alike to utilize non-vehicular types of transportation.

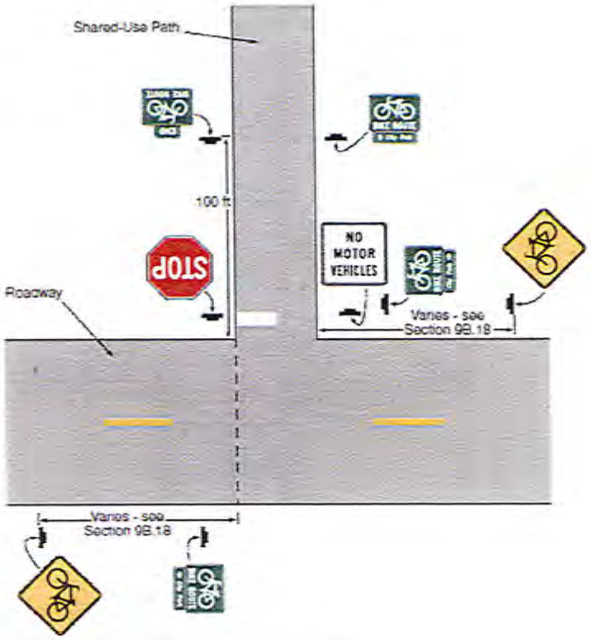

Figure 6-3. *(Source: MUTCD, 2009:801)*

Figure 6-5. *Vignette showing how a bike lane might work in the Uptown Area (Source: Meghan Mohney)*

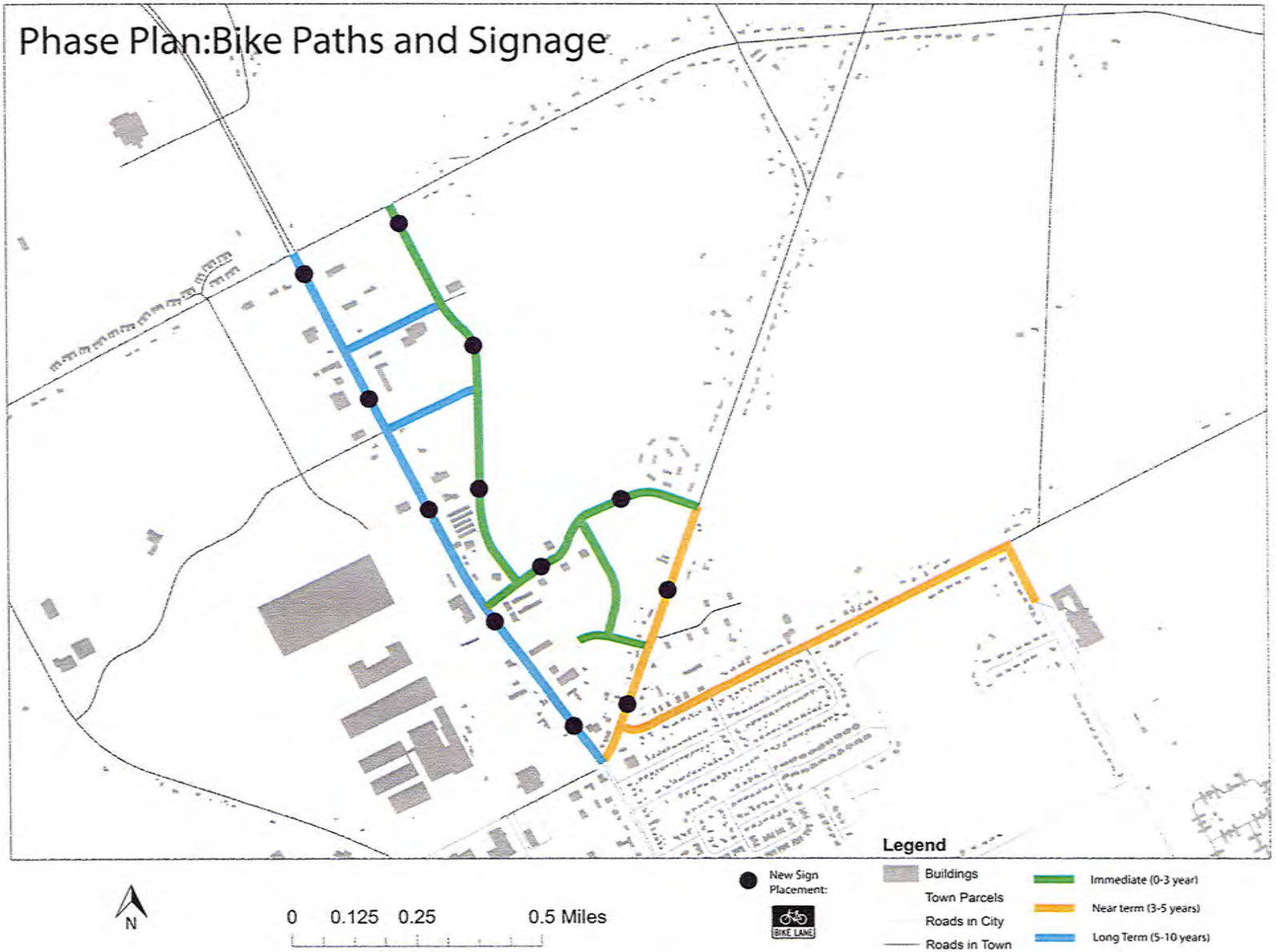

Figure 6-4. *Phasing plan for the installation of bike lanes in the Uptown Area (Source: Megan Mohney)*

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Chapter 7
Multimodal Transportation - Snowmobiling

Introduction

Snowmobiling is a popular winter recreational activity in the Finger Lakes region. In the Uptown Area, residents and tourists have access to more than twenty miles of wilderness trails maintained by the Finger Lakes Snowmobile Club and Lehigh Valley Snow Riders (Figure 6-1). Due to the area's proximity to these snowmobile trails, the Town of Canandaigua has the opportunity to enhance recreational opportunities for its residents while also ensuring that snowmobilers more consistently use designated trails when moving through the Uptown Area.

RECOMMENDATIONS IN BRIEF

- Installation of a snowmobile path connecting existing paths with amenities and services available in the Uptown Area
- Placement of clear signage along snowmobile paths in the Uptown Area, including signage indicating that snowmobiles are not permitted in Blue Heron Park
- Development of a trail grooming maintenance plan

Best Practices

Trail Grooming

One of the most important considerations when encouraging snowmobiling in an area is trail maintenance (as referred to as trail grooming), or "the activity of producing a smooth surface of snow with uniform high density through the use of mechanical equipment" (Raap, 2005:5). In other words, to minimize damage to snowmobiles and the trails themselves, it is important that these recreational pathways are regularly groomed to ensure any trail irregularities caused by general use are removed to produce a smooth riding surface (Figure 7-1).

Figure 6-1. *Snowmobile trails in the Town of Canandaigua. The orange line is the section maintained by Finger Lakes Snowmobile Club, and the red line depicts the trail maintained by Lehigh Valley Snow Riders (Source: http://jimapco.com/maproom/ snowmobile/ nys/)*

Signage

Another best practice for snowmobiling is to install signage along the trails that help guide users through an area. Like other forms of roadway signage, snowmobile trail signage is "designed to communicate information about the trail to the rider" (NYSOPRHP, 2010:31) in a quick and efficient manner. As such, the International Association of Snowmobile Administrators (IASA) recommends the use of approved snowmobile signage that is universal to all trails regardless of location (Figure 7-2). Additional snowmobile trail signage can include directional arrows highlighting the route of the trail as well as speed limits, stops ahead, and corridor trail numbers (NYSOPRHP, 2010).

Detailed Recommendations

Due to its location adjacent to several area snowmobile trails, the Uptown Area is likely to continue to experience snowmobile traffic in the future. At present, the two areas of MUO-1 most affected by recreational snowmobiling activities appear to be Blue Heron Park (pers. comm., 08 Apr 2015) and the Brahm Road corridor leading to Eric's Office (Figure 7-3). In order to better control the flow of snowmobiles through the Uptown Area, we recommend that the Town.

Work with snowmobiling organizations to take a proactive approach in delineating snowmobile trails and demarcating those areas in which snowmobiles are not permitted (Figure 8-4). Rather than approaching this issue in a phased approach, we instead recommend that the Town immediately work toward increasing its communication with snowmobilers in the Uptown Area. We suggest that the Town coordinate with nearby snowmobiling clubs to provide a well-maintained trail along Parkside Drive that brings riders southward to Eric's Office Restaurant and other businesses, which appears to be a popular stop for snowmobilers in the area (pers. comm., 08 Apr 2015). This trail should be supplemented by appropriate signage clearly indicating the appropriate route for snowmobilers, as well as any stops or yields they should make along this route. To deter snowmobiling in Blue Heron Park, we recommend that the Town of Canandaigua place "snowmobile prohibited" signage at the entrances to this park. These steps will not only improve multimodal transportation options in the Uptown Area but also enhance winter recreational and associated economic activities in the Town.

Figure 7-1. *A well-maintained snowmobile path (Source: Raap, 2005:8)*

Figure 7-2. *Common signage used to designate where snowmobiles are and are not permitted (Source: IASA, 2000)*

Figure 7-3. *Evidence of snowmobile traffic near the intersection of Brahm Road and Cowan Road (Source: Benoit Gamache/Robin Lewis)*

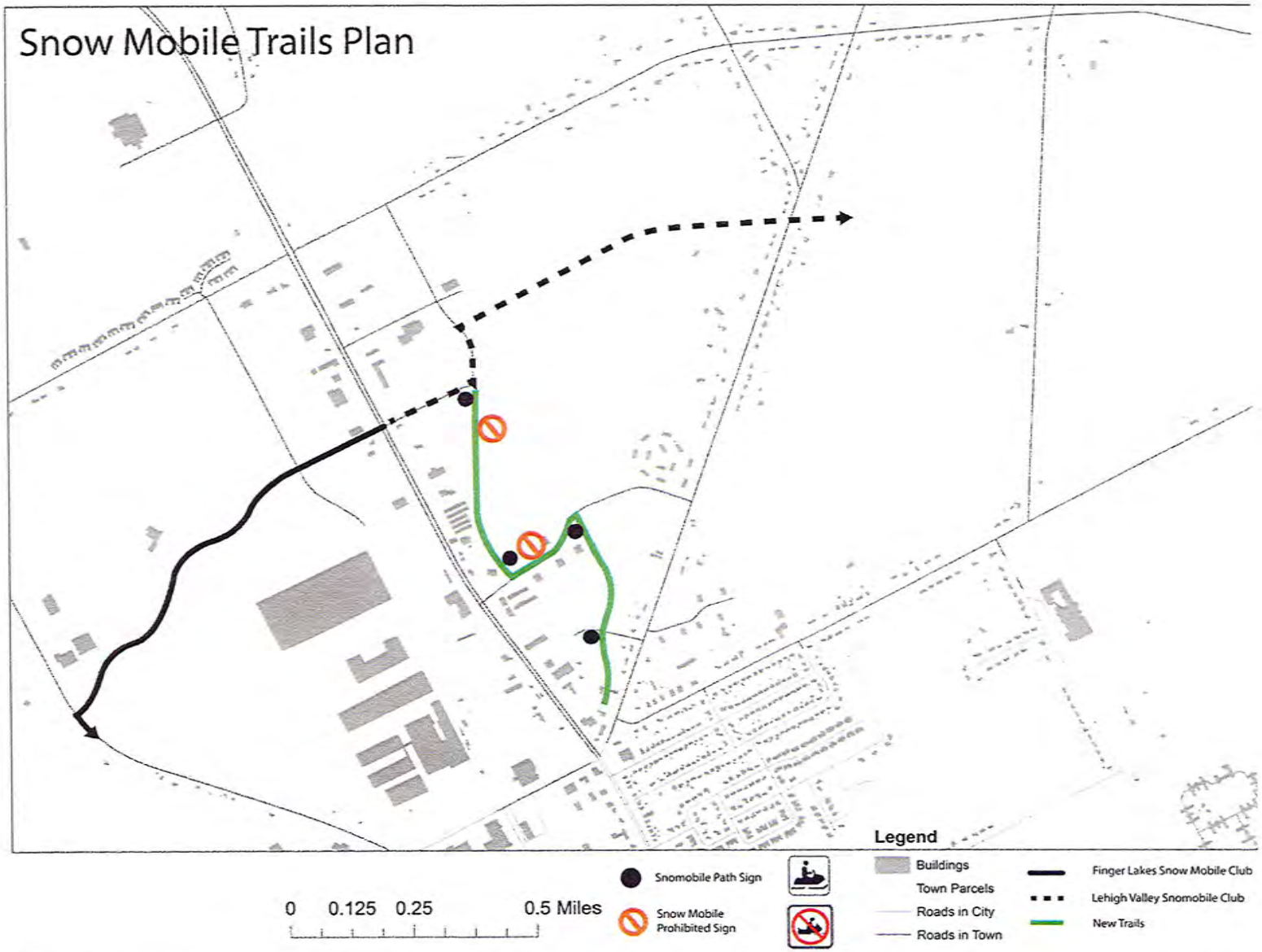

Figure 7-4. *Proposed location for a snowmobile trail connecting to existing club trails in the northern portion of MUO1 that would allow these recreational users to access the amenities and services available in the Uptown Canandaigua Area*

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Chapter 8
Multimodal Transportation – Public Transit

Introduction

Public transportation is a transit service offered to the members of the public. It allows for more mobility and provides people with options to get to work, visit friends and relatives, go to school, and meet appointments (Public Transportation Benefits, 2015). According to the American Transportation Association, in the United States public transportation can include any or a mix of the following:

- Buses;
- Trolleys and light rail;
- Subways;
- Commuter trains;
- Streetcars;
- Cable cars;
- Van pool services;
- Paratransit services for senior citizens and people with disabilities;
- Ferries and water taxis; and,
- Monorails and tramways

(Public Transportation Benefits, 2015)

RECOMMENDATIONS IN BRIEF

- Add a formal bus stop with a bus shelter and bike rack at the corner of Parkside Drive and County Route 28 within the next three years.
- Currently only some of the RTS buses have bus bike racks. Within the next three years all RTS buses should have bus bike racks.

Best Practices

Reliability

Public transportation is most beneficial to residents when transit services are reliable and frequent. This improves convenience for the riders. Also, transit systems should try to improve their transit travel time. The Seattle Urban Mobility Plan suggests the best practices are priority at traffic signals, queue bypass lanes, transit-only lanes, consolidation of stops, and faster fare collection (Seattle Department of Transportation, 2008).

Multimodal transportation

Smart Growth America's National Complete Streets Coalition emphasizes the idea of creating streets that incorporate all forms of mobility including public transit. Well-designed streets with different transportation models include sidewalks, bus stations, other public transit stations, accessible bus stops, and infrastructure to help buses move more easily through traffic. Smart Growth America suggests creating separate bus lanes to help buses move through traffic congestion more smoothly and to keep on schedule.

Convenience for all types of users

Bus stops should use bus shelters to shield users from inclement weather and keep them comfortable. All bus systems should accommodate users with disabilities or special needs by providing automatic door opening, increased walkway widths on the buses, low-floor buses, smooth walking surfaces, curb ramps (for people using handcarts, scooters, baby strollers, bicycles, and wheelchairs) (Litman, April 2015). Smart Growth America suggests bicycle parking at bus and rail stops to extend the range of users (National Complete Streets Coalition: Public Transportation, 2015). Also, the addition of bicycle racks to all buses increases intermodal transportation in the area.

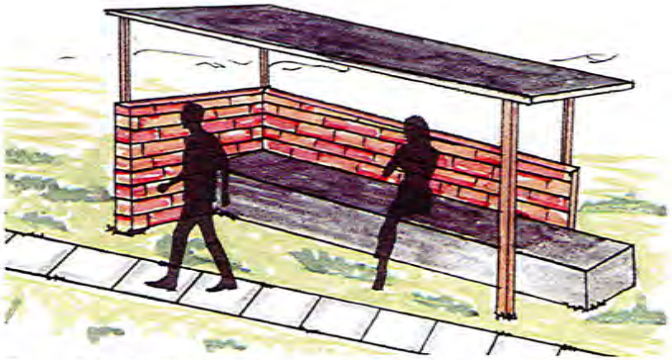

Figure 8-1. *Visual of the type of bus shelter that could be constructed on the northeast corner at the intersection of Parkside Drive and County Route 28 (Source: Kate Boeding/Megan Mohney)*

Detailed Recommendations

Since much of the Uptown Area may currently be considered fairly suburban-rural, public transportation options are beneficial because they allow more mobility for residents in the area. While the Uptown Area already has many of these best practices in place to accommodate users, we offer recommendations to enhance the public transit system in the immediate to near-term future. With the increase in population predicted for the Uptown Area, the Town should plan for the millennial generation whose use of public transportation is growing (Transit Lifestyle, 2015).

Immediate future

During our fieldwork in MUO-1, some residents indicated that the public transit schedule could sometimes be irregular, especially after work in the evenings. We recommend that the Town of Canandaigua partner with RTS to solidify service times for public buses in the Uptown Area.

We also suggest that the Town of Canandaigua add a formal bus stop at the northeast corner of Parkside Drive and County Road 28 because residents are currently using this area as an informal bus stop (Figure 8-1). Formal bus stops should include a bus shelter that protects users from the elements. These shelters can also be used by the Town for advertising for summer programs or other events (City of Canandaigua Comprehensive Plan, 2013: APPENDICES, 2013).

Figure 8-2. *Example of a bike rack installed on a public bus like those operated by RTS (Source: www.bmorebikes.com)*

Near-term future

Currently only some RTS buses operating in the Canandaigua area have bike racks on the buses. Within the next three to five years bus bike racks should be added onto all public transportation buses to encourage users to utilize the Complete Streets system to its full potential (Figure 8-2). Also, bike racks should be installed at the bus stop as well.

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Chapter 9
Parks & Recreation

Introduction

When approaching development in the Uptown Area, it is important to consider the role that parks play in enhancing the health of communities and the environment. Various sources suggest that well-designed and maintained parks, especially those within areas where further residential development is anticipated, can provide a variety of personal, social, and economic benefits to members of a community (Sherer, 2006).

A nationwide study of the benefits of local recreation and park services conducted at Pennsylvania State University indicates that parks offer members of a community the opportunity to exercise, be entertained, to relax, become more aware of their own community, and offer opportunities to participate in informal group activities (Bedimo-Rung Mowen, and Cohen, 2005). In addition, the enhancement of parks within communities is also shown to increase increased property values, while maintaining the affordability of living in such communities (Crompton, 2001). From a sustainability perspective, parks allow for the opportunity to preserve open spaces, provide habitat for a variety of plants and animals, control air pollution, and store/filter storm water runoff (Sherer, 2006). Parks are most certainly an essential component to preserving ecosystems within developed areas, such as the Uptown Area.

RECOMMENDATIONS IN BRIEF

- Construct demonstration gardens along the northeast edge
- Install confined wildflower gardens at the intersections of walking paths
- Add a bocce ball court and horseshoe pits near the pavilion
- Provide an access point to the Auburn Trail from within Blue Heron Park

Best Practices

Accessibility and equity

Successful parks are those that are accessible to every member within a community regardless of their location of residence, financial resources or physical abilities. It is important that parks are easily reachable from many, if not all, neighborhoods within a particular area and assure equitable access to visitors (Harnik, 2003). When professional planners design a park, they consider how parks can be used by differently-abled people and available to residents with low-incomes. Parks that are easily accessible to many members within a community are typically located within either a walking or biking distance from a residential area and take into consideration the age and lifestyle demographics of an area in order to tend to the elderly and children (Harnik, 2003). Various studies have been conducted using Geographic Information Systems (GIS) to determine levels of accessibility and distributional equity of public parks (Nicholls, 2001). Many planners resort to using software such as ArcGIS and holding focus groups with community members to improve the accessibility of a park.

Wide range of amenities

Parks that are well-designed and maintained promote community development and significantly enhance the quality of life for members of the community in which parks are sited (Sherer, 2006). Parks that gain global recognition usually offer a variety of recreational and innovative services and activities for people within a community. The activities within a park are usually determined by the park's location within a geographic area or a community (Schneider, 2014). Schenley Park, located in Pittsburgh, Pennsylvania is widely recognized for the variety of unique features that it has to offer its visitors, such as a botanical garden, walking trails, a concert area, and meadows. The diversity of amenities in Schenley Park have the potential to significantly increase the amount and types of people that visit the park.

Sustainability-Focused Design

Parks have the potential to provide beneficial environmental services to a community that is undergoing development and urban expansion. There are even several options for designing a park that incorporates planned practices and physical structures that minimize human impact on the environment such as green infrastructure (Chiesura, 2004). Green infrastructure uses specific plants, soils, and natural processes to control and filter stormwater runoff (EPA, 2014). Various types of infrastructure include bioswales, rain gardens, permeable pavements, and green parking. Parks that enhance the local environment also have a variety of trees and shrubs to filter air, prevent soil erosion, and mitigate storm water run-off. They may also have native wildflower and/or community gardens to attract pollinators and make the park more aesthetically pleasing (USDA, n.d.). Patterson Park, located in Baltimore, Maryland has community garden that has been used by local community members for several years (NRPA, 2011). The community gardens provide residents from the nearby neighborhoods with the opportunity to engage with each other and grow a variety of vegetables and flowers. Suggestions from various members of the Town of Canandaigua Citizens Implementation Committee (CIC) have indicated that sustainability within Uptown is a priority. Therefore, the planning team has taken applicable practices from parks around the world into consideration when developing recommendations for Blue Heron Park.

Case Study: Boston, Mass.

Dewey Square Park, located in Boston, Massachusetts is widely recognized for its inclusion of a wide variety of sustainability attributes (RFK Greenway Conservancy, 2013). The Dewey Demonstration Gardens section of this park of particular significance as they consist of a rain garden, a raised edible garden, a pollinator garden, and an urban composting section (Figure 9-1). The rain garden enhances the sustainability of the park through its placement of specific plants that have the potential to absorb large amounts of stormwater. These plants prevent chemicals from storm water runoff from polluting nearby watersheds, reducing humans' impact on the environment. The raised edible garden grows organic lettuce, cabbage, strawberries, and a variety of fruit trees (Figure 9-2). YouthBuild Boston helps to maintain both the rain garden and the edible garden, by planting and harvesting the produce. The pollinator garden has a variety of flowering plants that are rich in nectar and pollen to attract a variety of pollinators such as butterflies and hummingbirds (Figure 9-3). The composting site in the demonstration gardens provides the park with an area to dispose of and compost organic waste such as leaves, and stems that can eventually be used as mulch for the gardens.

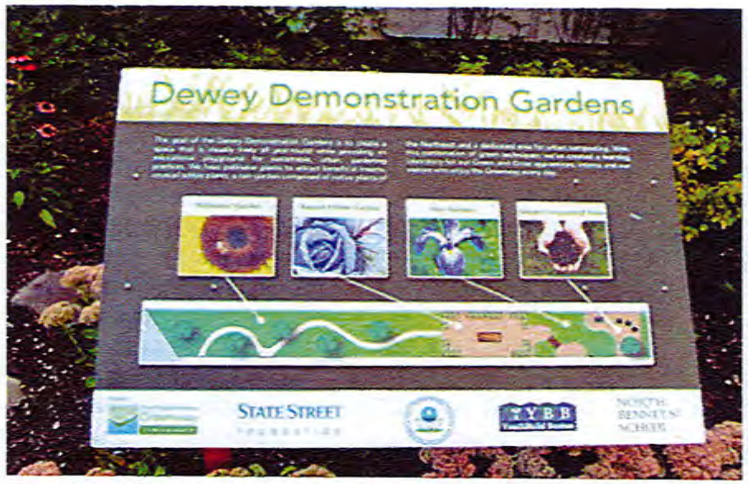


Figure 9-1. *Informational sign about demonstration gardens in Dewey Square Park (Source: www.waymarking.com/gallery)*

Figure 9-2. *The edible garden located at Dewey Square Park (Source: cityphile.com)*

Detailed Recommendations

To enhance recreational opportunities in the Uptown Area, we propose the enhancement of Blue Heron Park and its amenities in the immediate future, as well as the routing of the Auburn Trail across State Route 332 on Airport/Aroline Roads toward Blue Heron Park. Like the previous chapter, we offer our recommendations for parks and recreation in the Uptown Area in a condensed timeline as we feel that the sooner these changes are made, the more residents and visitors will use the Uptown Area's various recreational areas and opportunities.

Immediate future

In the next 1 to 3 years, we recommend the following upgrades to Blue Heron Park:

Wildflower gardens. Small wildflower gardens placed near walking paths would bring recreational and visual appeal to Blue Heron Park while creating habitats for wildlife. A decline in native pollinator populations worldwide has resulted from a loss of

Figure 9-3. *Raised beds and pollinator garden at Dewey Square Park (Source: http://suzannesmomsblog.files.wordpress.com/2012/05/ 051812_raised_ food_beds.jpg*

Figure 9-4. *Wildflower gardens along the curves and corner of sidewalks (Source: www.waukeganparks.org)*

Figure 9-5. *Wildflower garden around signs (Source: www.waukeganparks.org)*

biodiversity. The Town of Canandaigua can use Blue Heron Park as an important refuge for pollinators to increase and maintain ecosystem stability and services. (Figure 9-4; Figure 9-5)

Demonstration gardens. The implementation of demonstration gardens in the northern eastern quadrant of Blue Heron Park would also increase the educational value of the area for residents and visitors alike. Demonstration gardens usually have four sections: a) a pollinator garden; b) a raised bed edible garden; c) a rain garden; and d) a composting area (for more details, refer to the Dewey Square Park case study above). Due to these spaces being used for hands-on education, little maintenance is required.

Additional recreational amenities. To provide visitors to Blue Heron Park with expanded recreational opportunities, we recommend installing a bocce ball court and several horseshow pits along the western side of the pavilion (Figure 9-6; Figure 9-7). Such amenities can be used by people of all ages and ranges of physical ability.

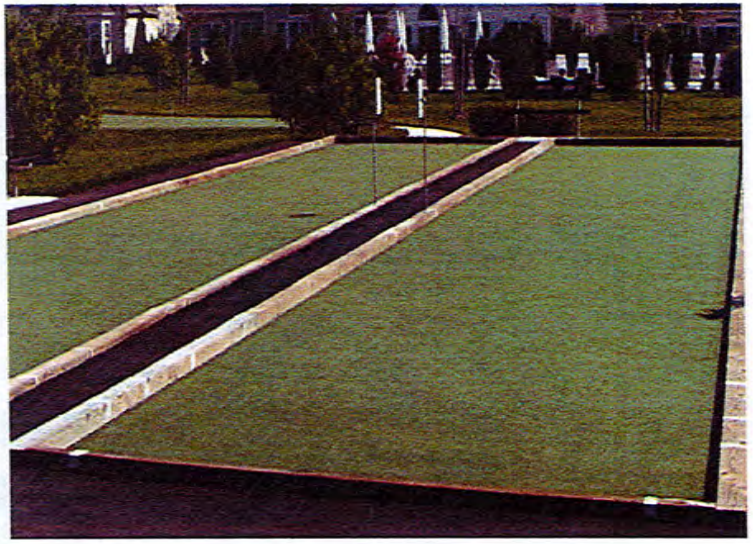
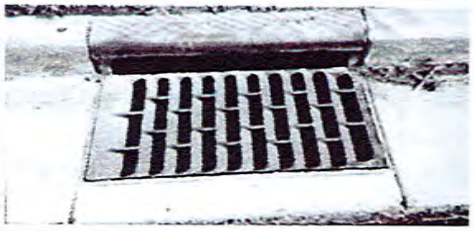


Figure 9-6. *Bocce ball courts (Source:* www.southwestgreens.com*)*

Appendix A

Comprehensive overview of the various treatments used in the Complete Streets model along with their estimated costs and when/where such elements should be implemented. [Quotes from City of Wichita, Kansas Government (2015)]

Treatment Reference	Treatments	Treatment Used When	Details and Examples	Cost	When/Where Implemented
A	Designated driving lanes	Streets do not have pavement markings. Streets should be marked with center line(s) and a solid outside line.	Driving lanes should be between 9- to 12- ft	$.40/LF per line	**Install on Complete Streets roads as suggested in the detailed recommendations.**
B	Paved bike lanes	Designating bike lanes to separate bicyclists from motorized traffic.	Bike lanes should have a minimum width of 4-ft but 5-ft widths or larger are preferable. The lanes should also be painted.	$.50/LF per line For painted buffer lanes: $1/LF	**Please refer to bicycle path recommendations.**
C	Bicycle Safe Inlet Grates	Should be placed with handicapped, pedestrian, and bicyclists in mind.		Depends on the type and size of grate being installed.	**Install on Complete Streets roads as suggested in the detailed recommendations.**

Treatment Reference	Treatments	Treatment Used When	Details and Examples	Cost	When/Where Implemented
D	Share the Road Signs	Informs vehicle and bicyclists that the roadway is shared.		$200	**All Complete Streets.**
E	Intersection Guidance Signage	To show bicyclists and motorists which way to go at an intersection.		$100	**Install on Complete Streets roads as suggested in the detailed recommendations.**
F	Sidewalks	Implemented to reduce accidents and increase walkability.	Sidewalks should be 5- to 6-ft in width or larger and smooth.	$11 per square foot	**Please refer to sidewalk recommendations.**
F	High Visibility Crosswalks	Designates pedestrian's right of way to other forms of transportation.		Depends on the crosswalk	**Please refer to crosswalk recommendations.**
G	Flashing LED Pedestrian Crossing Signs	Increases visibility and motor vehicle driver awareness.		$1,600 per sign	**Install at all crosswalks.**

Treatment Reference	Treatments	Treatment Used When	Treatment Used When	Cost	When/Where Implemented
H	Crossing signs	To warn vehicles of pedestrian crossing.		$150/ installed sign	**Install on Complete Streets roads as suggested in the detailed recommendations.**
I	Speed Display	Makes drivers aware of their speed.		$2,200-$3,000	**Install on Complete Streets roads as suggested in the detailed recommendations.**
J	Bike Racks	Short term storage where bikes are unprotected from the weather. These should be put at transit stops.		$1,000	**3 years**-In all parks and at the Parkside Dr. and Ct. Rt. 28 bus stop.
K	Bike Maps	Inform bicyclists of road rules. Shows a map of bike paths. Put up at transit stations and bike racks.		Varies according to materials, size, and design needs.	When deemed applicable.

Treatment Reference	Treatments	Treatment Used When	Details and Examples	Cost	When/Where Implemented
L	Bus Bike Racks	These should be put onto buses to carry passengers' bikes.		$1,000	**All RTS buses with in 5 years.**
M	Bus Stop Shelters	These should be implemented at bus stop locations. Protects users from weather.		$5,000	**3 years**-Parkside Dr. and Ct. Rt. 28
N	Sidewalk Bench	Provides off the sidewalk areas for resting.		Varies based on size and material. $300-$2,000 per bench.	**Install on Complete Streets roads as suggested in the detailed recommendations.**
O	Street Lights	To improve nighttime visibility and safety. Install along sidewalks.		$99 or more per light.	Install on Complete Streets roads as suggested in the detailed recommendations.

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Appendix B

Additional optional elements of the Complete Street model that could be implemented in Uptown Canandaigua area [Quotes from City of Wichita, Kansas Government (2015)]

Treatment Reference	Treatments	Treatment Used When	Details and Examples	Cost
P	In-roadway warning system	Informs drivers when pedestrians are using the crosswalk.		$25,000 to $40,000 per crosswalk
Q	Bike Shelters	Bike storage meant for a few hours that protects bike from weather.		$2,000
R	Bike Lockers	Long term bike storage for apartments or transit stations.		$1,200
S	Emergency Phone	Provides increased safety.		Depends.

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