



BIKE WALK brighton

A Comprehensive Pedestrian and Bicycle Master Plan
For The Town of Brighton, New York

January 2013

ACKNOWLEDGEMENTS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



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Bike Walk Brighton



Chapter 1: Executive Summary

EXECUTIVE SUMMARY

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



In 2008, the Town of Brighton determined that a Master Plan considering both bicycle and pedestrian traffic was essential for the success of the Town's sustainability efforts. Funded by the Federal Highway Administration through the Genesee Transportation Council (GTC), the Town hired a consultant team to prepare a Pedestrian and Bicycle Master Plan. This plan, known as **BikeWalkBrighton**, will serve as a blueprint for a well-connected, safe, and functional active transportation network of sidewalks, and on- and off-road routes to enhance the safety and circulation of pedestrians, bicyclists, and motorists.

The Master Plan evaluated 43.6 miles of arterials and collectors throughout the Town of Brighton, as well as road and trail connections with the Town of Penfield, Town of Pittsford, Town of Henrietta and the City of Rochester. Connections to the University of Rochester Medical Center and River Campus, Rochester Institute of Technology, and the Brighton campuses of Monroe Community College were also assessed. The plan is intended to coordinate with major roadway improvement projects and private development projects. Finally, the plan evaluated connections between parks, open space, recreational trails, and intercampus trails linking local universities.

BikeWalkBrighton is the next step towards community sustainability. The Master Plan aims to create an inclusive system that recognizes the wide range of mobility levels of all pedestrians and bicyclists. Brighton has the opportunity to pursue a balance of on-road and off-road facilities that will meet the current needs of pedestrians and bicyclists and create a supportive environment for progressing less experienced cyclists to advanced riders.

PLANNING PROCESS. The planning process for **BikeWalkBrighton** included involvement from a dedicated Task Force as well as participation from the general public. The Task Force provided input, reviewed materials, and coordinated outreach efforts to the community about the project. The general public was invited to attend three public information meetings, provide feedback on project recommendations, participate in a Town-wide survey, and follow project progress through a project website, as well as via Facebook and Twitter.

The planning process included a review of existing bicycle, pedestrian and multi-use trail plans, studies and proposals, as well as other relevant Town planning documents. The plan has been designed to provide direction regarding the active transportation issues associated with the Town of Brighton's planning initiatives, such as the Monroe Avenue Vision Plan and the Comprehensive Plan update.

The goal of an improved active transportation system is compatible with other community planning efforts related to transportation and sustainability. While pedestrian and bicycle improvements are important to meet the needs of Brighton today, they are likely to be even more important in meeting the needs of tomorrow. With the development of this plan, the Town of Brighton is taking a progressive stance in addressing important issues, such as rising fuel prices, environmental degradation, and health problems related to inactivity. **BikeWalkBrighton** will help the Town to harvest the long-term economic, environmental, health and social benefits of active transportation.

Bike Walk Brighton



Chapter 2: Introduction

EXECUTIVE SUMMARY

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



EXISTING CONDITIONS ASSESSMENT. The Plan contains a thorough assessment of the existing conditions in Brighton. The topics reviewed include the characteristics of residents and the Town, existing pedestrian and bicycling conditions, accident data, existing trail conditions, priority intersections, and existing programs and policies. In addition, an active transportation survey was used to gather information reflecting Brighton residents' current levels of walking and bicycling activity, their attitudes toward walking and bicycling, and their insight into barriers that exist.

The physical characteristics of a community can impact the development of bicycle and pedestrian facilities. The physical characteristics of Brighton make it promising for the growth of an active transportation network. The Town is relatively compact, and the moderate topography is manageable by pedestrians and bicyclists of various ages and ability levels. Climate presents a challenge for some residents, but many other communities have extensive active transportation networks in spite of cold weather.

A total of 43.6 miles of roadway were assessed in the study. The existing pedestrian conditions along these roadways were assessed through an inventory of sidewalks and pedestrian level of service. Of the 87.2 miles of possible sidewalk along the roadways in the study area, 36.5 miles of sidewalk were found. The Pedestrian Level of Service (LOS) Model indicates how safe and/or comfortable pedestrians feel while walking alongside a particular roadway. The Town-wide average for pedestrian LOS was found to be 3.7, an average score of D. None of the roadway segments earned an A, and only a few earned a B or an F. Most of the segments earned a C, D, or an E.

A similar process was used for evaluating bicycling conditions. The Bicycle Level of Service Model indicates how safe and/or comfortable bicyclists feel while riding on a particular roadway. The Town-wide average for bicycle LOS was found to be 3.3, an average score of C. No roadway earned an F, but a few earned an A. Most roadways were found to be a B, C, D or E.

A safety evaluation was also conducted for the Town of Brighton using 10 years of historical data from the GTC. Pedestrian and bicycle crash locations were each mapped in order to identify areas that are a safety concern. This safety assessment was a key component in selecting the priority intersections, as well as making recommendations for priority sidewalk additions.

Bicycle and pedestrian conditions on shared-use trails in the Town of Brighton were also assessed during the study. In addition to roadways, sidewalks and shared-use trails, the Existing Conditions Assessment for [BikeWalkBrighton](#) included an analysis of priority intersections. Intersections were identified based on their proximity to destinations, level of use and known safety issues (as identified in the safety evaluation).

Intersection safety assessments involved field investigations that considered the physical and operational characteristics of each location, pertinent to pedestrian and bicycle safety. Elements that were investigated include: sidewalks, crosswalks, crossing widths, intersection geometry and corner radii, traffic controls, lighting, sight lines and other physical conditions; signal operations, phasing and timing related to pedestrian safety, turning volumes, traffic operations, movements and speeds.

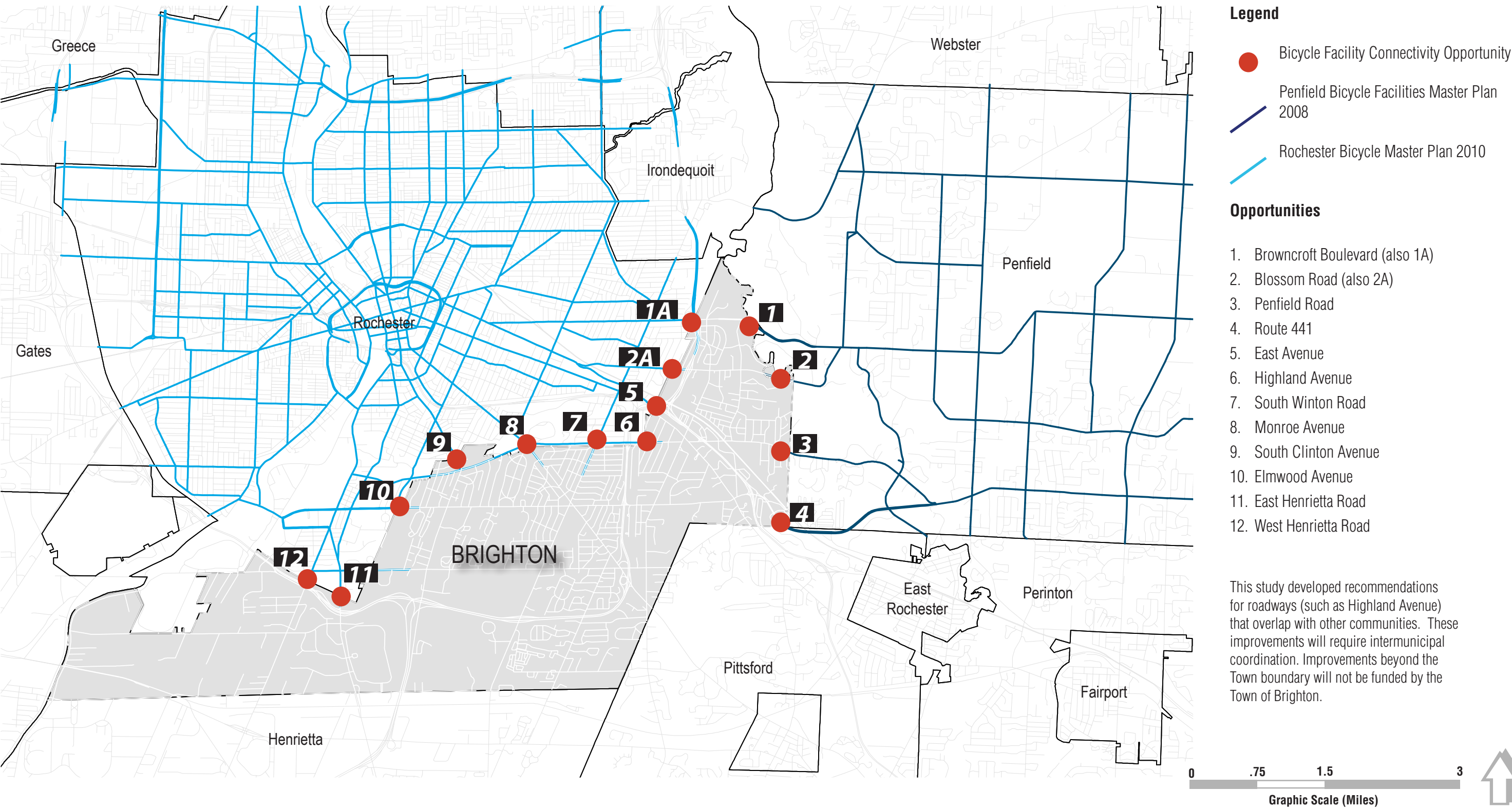
PEER CITY REVIEW. The Peer City Review compiled active transportation ideas and best practices from some progressive communities with characteristics similar to Brighton. The foundation for this report is a peer city review conducted for the City of Rochester's Bicycle Master Plan in 2010. Cities identified in the Rochester project included Boulder, Colorado; Montreal, Quebec; Minneapolis, Minnesota; and Madison, Wisconsin. Due to the inherent differences between Rochester and Brighton, and because [BikeWalkBrighton](#) includes pedestrians, additional cities were added and each of the original peer cities was reviewed for pedestrian facilities and programs.

The Peer City Review includes inner-ring suburban communities similar to the Town of Brighton. The new peer suburban communities are Westminster, Colorado; Edina, Minnesota; Fitchburg, Wisconsin; and Middleton,

EXISTING CONDITIONS ASSESSMENT



Figure 1
Inter-Municipal Active Transportation Network



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Wisconsin. Much of the information about each city's program is available in the city's transportation plans and and/or bicycle or pedestrian master plans. Additional details, typically on implementation, were added based on interviews with the bicycle and pedestrian coordinators from the respective cities.

ALTERNATIVES. The Alternatives Toolbox compiles the active transportation facilities considered for the Town of Brighton and their potential impacts. Multiple design, program and policy solutions can be used to address bicycle and pedestrian needs. Thus, for each active transportation alternative, reviewing the design details, impacts, and viability for the Town of Brighton was critical to selecting an appropriate solution.

Each alternative was evaluated based on three categories (impacts to the budget, impacts to different users, and impacts to the environment), as well as their appropriateness for addressing the issues specific to the Town of Brighton. Based on input from the **BikeWalkBrighton** Task Force and the community, the consultants selected which alternatives were the most appropriate.

RECOMMENDATIONS. The plan advocates for a comprehensive approach to enhancing active transportation in the Town of Brighton. Core concepts guiding the recommendations include:

1. Improving safety through implementation of infrastructure improvements, programs and policies.
2. Providing a balanced approach that addresses the needs of pedestrian and bicyclists of all ability levels.
3. Emphasizing links and connections between existing active transportation assets to support the growth of a safe, attractive and identifiable **BikeWalkBrighton** network.
4. Identifying partnerships and collaborations that foster the growth of active transportation in Brighton and surrounding communities.
5. Making the best use of existing infrastructure and opportunities to provide a cost-effective and sustainable active transportation system.

The infrastructure recommendations include intersection improvements, sidewalk additions, bicycle boulevards, new shared-use trails, and "hybrid trails" which blend different facility types into a continuous route. Concept projects take advantage of existing infrastructure and opportunities, address the need for new east-west routes, and provide connectivity to community resources. Taken together, implementation of the recommended projects will provide an expanded grid for active transportation in Brighton, and improved connectivity to the growing regional system.

IMPLEMENTATION. The final section in the plan includes a discussion of the proposed phasing and implementation of the various recommendations, cost estimates associated with selected projects, potential funding sources, and next steps. Each project varies in priority based on the number of people served by the project and the feasibility of construction and funding. Each project was ranked as a Priority project, Recommended project, or Possible project. Each ranking has related sequencing recommendations.

The projects recommended in **BikeWalkBrighton** encompass a number of facets of active transportation, and vary significantly in cost, effort, and resources required for successful implementation. The Town of Brighton has a finite amount of resources that can be applied to each project, and will not be able to address every recommendation immediately. However, the Town of Brighton has committed to assuming the financial responsibility for active transportation facility improvements as resources allow.

It is important to note that the recommended improvements have been studied to assess feasibility, but have been neither studied nor developed to the extent necessary to immediately commence construction. Additional study and operational analysis is required for each of the recommendations prior to implementation. Consultation and concurrence from impacted facility owners is required prior to implementation. Where appropriate, either access agreements from landowners or property acquisition are necessary prior to implementation.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



This report summarizes the analysis, planning, and design efforts involved in **BikeWalkBrighton**, the Town of Brighton's Pedestrian and Bicycle Master Plan.

A. Background and Purpose of the Plan

The goal of planning is to improve the welfare of people and their communities by creating more convenient, equitable, healthful, efficient, and attractive places for present and future generations. As such, planning is an orderly, open approach to determining a community's needs and goals, and developing strategies to address those needs and meet those goals. Land use planning enables civic leaders, businesses, and citizens to play a meaningful role in creating communities that enrich people's lives.

A Master Plan is a product of land use planning, and serves as a blueprint for the future. It is a comprehensive long range document, intended to guide local decisions on public and private uses of land, as well as the provision of public facilities. A Pedestrian and Bicycle Master Plan is intended to guide growth and development as it relates to pedestrian and bicycle issues. A Master Plan is a policy based document, but it does not regulate land use. Thus, a Master Plan is not a zoning document - the recommendations are only to provide guidance. A Master Plan contains conceptual projects and ideas. The recommended improvements have been studied to assess feasibility, but have been neither studied nor developed to the extent necessary to immediately commence construction. **BikeWalkBrighton** is an expression of the Town of Brighton's intentions for the future regarding active transportation, and provides guidance to accomplish that vision.

In May 2007, then-Supervisor Sandra Frankel established the Green Brighton Task Force (GBTF) to review issues related to climate change, and make recommendations about ways that the Town could become more energy efficient and environmentally aware, and reduce its carbon footprint. The GBTF recommended the creation of a Bicycle Task Force to develop a safe and functional bike plan for the Town of Brighton.

The Town of Brighton realized that a Master Plan considering both bicycle and pedestrian traffic was essential for the success of the Bicycle Task Force. Therefore, the Town applied for and received Unified Planning Work Program funding from the Genesee Transportation Council (GTC) to prepare a Pedestrian and Bicycle Master Plan, with the intention to develop a plan for a well-connected and functional active transportation network. Brighton will connect to active transportation plans previously developed for the City of Rochester and the Town of Penfield. This study developed recommendations for roadways (such as Highland Avenue) that overlap with other communities. These improvements will require intermunicipal coordination. Improvements beyond the Town boundary will not be funded by the Town of Brighton. See **Figure 1** for an illustration of intermunicipal connections.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



The Master Plan evaluated 43.6 miles of arterials and collectors throughout the Town of Brighton, as well as road and trail connections with the Town of Penfield, Town of Pittsford, Town of Henrietta and the City of Rochester. Connections to the University of Rochester Medical Center and River Campus, Rochester Institute of Technology, and the Brighton campuses of Monroe Community College were also assessed. The plan is intended to coordinate with major roadway improvement projects, including the I-590/Winton Road Diverging Diamond Interchange and the I-390 interchange project at NYS Routes 15/15A, as well as private development projects. Finally, the plan evaluated connections between parks, open space, recreational trails, and intercampus trails linking local universities.

The plan has been designed to provide direction regarding the active transportation issues associated with the Town of Brighton's planning initiatives, such as the Monroe Avenue Vision Plan and the Comprehensive Plan update.

BikeWalkBrighton is an important step for the Town's ongoing evolution as a safe and sustainable community. For more than fifteen years, the Town of Brighton has followed a course of community planning that has been comprehensive, continuous and participatory. As far back as the 1996 Monroe Avenue Streetscape Study, a common thread has been the understanding that a safe, sustainable and equitable balance of various transportation modes is an essential foundation for the community. The Pedestrian and Bicycle Master Plan will form a bridge between past planning and future implementation.

The primary objective is to develop a well-connected, safe, and functional active transportation network of sidewalks and on- and off-road trails to enhance the safety and circulation of pedestrians, bicyclists, and motorists.



Brighton residents have recognized the benefits that arise from efforts to improve community sustainability. In recent years, residents have supported sustainability efforts promoted by a number of committees and organizations, which include, but are not limited to:

- The Green Brighton Task Force, a volunteer citizens' committee organized by the Town.
- Color Brighton Green, an independent non-profit organization.
- The Sustainability Oversight Committee, which advises Town officials with regard to sustainability.

BikeWalkBrighton is the next step in efforts towards community sustainability. The Plan aims to create an inclusive system that recognizes the wide range of mobility levels of all pedestrians and bicyclists in Brighton. Pedestrian mobility levels cover a broad spectrum that fluctuates with age, fitness and personal health. On-road bicycle facilities that are attractive to 'A' (advanced) cyclists may not appeal to 'B' (basic) cyclists, and are not suitable for 'C' cyclists (children). Brighton has the opportunity to pursue a balance of on-road and off-road facilities that will meet the current needs of pedestrians and bicyclists and create a supportive environment for progressing today's 'B' and 'C' riders to tomorrow's 'A' riders. With this in mind, the primary objective of **BikeWalkBrighton** is to develop a plan for a well-connected, safe, and functional active transportation network of sidewalks and on- and off-road trails to enhance the safety and circulation of pedestrians, bicyclists, and motorists.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



B. Community Outreach and Public Input

Planning of any kind cannot be done in a vacuum, and must be informed by local residents. GTC regularly identifies community participation as an objective in the *Long Range Transportation Plan for the Genesee-Finger Lakes Region*, which guides their planning efforts. The Plan states, "The transportation planning process should be conducted in as open and visible a manner as possible, encouraging community participation and interaction between and among citizens, professional staff, and elected officials." Public participation is not just a requirement, but a critical element of a successful plan.

Table 2.1. Chronology of Community Involvement

Date	What	Purpose
November 15, 2011	Task Force Meeting	Project Kick-off
December 19, 2011	Task Force Meeting	Review project progress
February 9, 2012	Task Force Meeting	Review project progress
March 12, 2012	Task Force Meeting	Review Inventory and Analysis with consultant
March 29, 2012	Public Information Meeting	Introduce Project, Present Inventory and Analysis, Solicit Input
April 24, 2012	Task Force Meeting	Review project progress
May 14, 2012	Task Force Meeting	Review project progress
June 18, 2012	Task Force Meeting	Review Draft Recommendations with consultant
June 28, 2012	Public Information Meeting	Present Draft Recommendations, Solicit Input
August 20, 2012	Task Force Meeting	Review project progress
September 24, 2012	Task Force Meeting	Review Final Recommendations
October 2, 2012	Public Information Meeting	Present Final Recommendations

The planning process for **BikeWalkBrighton** included involvement from a dedicated Task Force as well as participation from the general public. Representatives from the Town of Brighton, and from pedestrian and bicycling organizations, served on the **BikeWalkBrighton** Task Force. The Task Force provided input, reviewed materials, and coordinated outreach efforts to the community about the project. The general public was invited to attend three public information meetings, provide feedback on project recommendations, participate in a Town-wide survey, and follow project progress through a project website, as well as Facebook and Twitter. As of November 2012, nearly 300 surveys have been completed, the website has had more than 800 unique users, the Twitter feed has 22 subscribers, and the Facebook page has 94 "likes" or followers. **Appendix A** summarizes public outreach.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



C. Relationship to Other Plans and Studies

In developing new plans, it is important to refer to plans and studies that have already been completed to evaluate how the new plan relates to existing plans. A review of existing bicycle, pedestrian and multi-use trail plans, studies and proposals, as well as other relevant Town planning documents, provides context for the development of this Pedestrian and Bicycle Master Plan. In addition, representatives from local colleges and universities (U of R, RIT and MCC) were consulted; however, their extensive plans and studies are not listed below.

1. Comprehensive List of Plans, Studies and Technical Memorandums

BikeWalkBrighton builds on the following previously completed local planning initiatives:

- Access 390: I-390 Exit 16 Interchange Reconstruction Project, Transportation Project Report, 2011
- Bicycle and Pedestrian Action Plan for the Rochester Metropolitan Area, 1996
- Corbett's Glen Master Plan, 2005
- Genesee-Finger Lakes Historic Transportation Gateway Inventory and Assessment, 2009
- Final Report of the Green Brighton Task Force: Recommendations for Sustainable Future, 2008.
- Highland Park/Canalway Trail Planning and Concept Design, 2004
- I-590 Bicycle/Pedestrian Bypass Feasibility Study, 2009
- Long Range Transportation Plan for the Genesee Finger-Lakes Region 2035
- Monroe Avenue Streetscape Study, 1996
- Monroe Avenue Vision Plan, 2011
- Mount Hope Avenue: A Vision for Collegetown, 2008
- Planning for Sustainability in the Allens Creek – Corbett's Glen Area, 2010
- Regional Trails Initiative Final Report & Action Plan: Phase I – Rochester TMA, 2002
- Rochester Bicycle Master Plan, 2011
- Safe Routes to School Guidebook for the Genesee-Finger Lakes Region, 2009
- Technical Memorandum: Bicycle & Pedestrian Supportive Code Language, 2007
- Technical Memorandum: On-Street Bicycle Facilities Opportunities Assessment, 2007
- Technical Memorandum: Overview of Currently Accepted Bicycle Facility Standards, Guidelines, Practices, 2005
- Town of Brighton Comprehensive Plan, 2000
- Town of Brighton Forestry Plan, 2004
- Town of Brighton Open Space and Recreation Plan, 2001
- Town of Brighton Open Space Index Update, 2006-2007
- Town of Penfield Bicycle Facilities Master Plan, 2009
- University of Rochester Campus Master Plan, 2008

2. Selected Summaries of Plans, Studies and Technical Memorandums

While all of the listed studies and reports provide important information, the following summaries provide more detail about the planning documents that relate most to the Master Plan.

Bicycle and Pedestrian Action Plan for the Rochester Metropolitan Area, 1996. This report was prepared in 1996 by the Genesee Transportation Council in response to the Federal policy to promote increased use of bicycling and walking as transportation. The Intermodal Surface Transportation and Equity Act (ISTEA) of 1991 required inclusion of these elements in Metropolitan Transportation Plans and Programs. The plan focuses on specific, achievable actions that would improve conditions for bicycling and walking in the Rochester Metropolitan Area. This plan makes recommendations for bicycle transportation, pedestrian walkways and off-street multi-use trails. The action items for each of these areas are broken down into five categories: engineering, education, enforcement,

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encouragement and economic development. Despite having many important recommendations, in general this plan does not address specific locations for improvements. The plan does, however, propose on-street bicycle routes, including East Avenue, and Mount Hope Avenue, which connect to roadways in the Town of Brighton.

Final Report of the Green Brighton Task Force: Recommendations for Sustainable Future, 2008. The Green Brighton Task Force worked for a year to develop a set of recommendations for Town action on energy and sustainability issues. The report states that the overriding philosophy that should guide future growth and redevelopment of the Town of Brighton is sustainability. Decision-making on transportation, development, and redevelopment should be made with an eye toward the future.

The final report details the following recommendations:

1. Ensure that sustainability remains a Town priority;
2. Encourage green buildings (public and private);
3. Support walkability and alternative transportation;
4. Reduce energy used by Town vehicles;
5. Create more efficient exterior lighting in the public realm;
6. Create a culture of conservation in Town government;
7. Create a culture of conservation in the community;
8. Encourage green business development and green business practices; and
9. Reduce storm water runoff and improve storm water quality.

I-590 Bicycle/Pedestrian Bypass Feasibility Study, 2009. The I-590 Bicycle/Pedestrian Bypass Feasibility Study was part of the 2007-2008 Priority Trails Advancement (PTA) Program administered by the Genesee Transportation Council. This feasibility study recommended the construction of a multi-use trail to connect the Brighton Town Hall Complex on Elmwood Avenue with the Erie Canalway Trail in Meridian Centre Park, as well as link to Buckland Park on Westfall Road. The Erie Canalway Trail, the trail's southern terminus, is an important east-west recreational corridor within New York State, connecting Albany and Buffalo. The portion of the Canalway Trail that goes through Brighton links the Town with Pittsford, Fairport, Greece and the City of Rochester. Approximately 1.75 miles in length, the study area traverses residential neighborhoods, parks, and undeveloped land. The greatest physical challenge to overcome within the study area is I-590, which bisects the trail corridor adjacent to Meridian Centre Park.



Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035 (LRTP 2035). This plan recognizes that the bicycle and pedestrian networks offer the greatest opportunity to improve public health, reduce greenhouse gas emissions, and provide mobility and accessibility to the majority of residents. It includes recommendations to expand the amount of and increase the connectivity of multi-use trails in the region, to increase the availability of sidewalks along federal-aid highways to expand connectivity and access for pedestrians, to promote safe routes to school programs, and to increase the amount of bicycle parking at key locations as well as others to enhance opportunities for active transportation. It recognizes as an issue and opportunity that the transportation system's role in public health extends beyond safety. As such, LRTP 2035 notes that enabling bicycling and walking promotes active transportation that has the potential to reverse the epidemic of obesity that is one of, if not the most, pressing public health issues in the nation.

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Monroe Avenue Vision Plan, 2011. In collaboration with Brighton residents and stakeholders, the Rochester Regional Community Design Center (RRCDC) prepared a community-based Vision Plan for the Brighton/Monroe Avenue Corridor from Highland Avenue to Clover Street. The Vision Plan contains design plans reflecting the goals and ideas of community stakeholders developed during a 2010 design charrette regarding the development of the Monroe Avenue Corridor. The Brighton/Monroe Avenue Corridor Vision Plan contains overlay base plans, each of which includes design and development recommendations for segments of Monroe Avenue that correspond to focus areas that were explored during the charrette. Additionally, the Vision Plan details the potential redesign of the Twelve Corners intersection and green space. The preliminary recommendations in the plan are based on concepts that were important to community members. These concepts include:

- Increasing vehicular and pedestrian safety through alternate traffic patterns and traffic calming, as well as enhanced signage and crossings;
- Creating an environment that is both bicycle and pedestrian friendly;
- Developing a strategy for parking management;
- Respecting, reclaiming and preserving existing historical buildings and green space; and
- Promoting economic vibrancy and opportunity.

Regional Trails Initiative Final Report & Action Plan: Phase I – Rochester TMA, 2002. While primarily a plan for the regional trails vision, this document states that its purpose is to develop a comprehensive and achievable action plan for community leaders to create and maintain a safe, accessible, and highly functional regional trail system that is fully integrated with the existing transportation system and constitutes a nationally recognized distinguishing feature of this region.

The plan acknowledges that in order to truly meet the transportation and recreation needs of the region, it will be necessary to fully integrate the region's trails with its existing road network. It contains a list of on-street trail connection recommendations, including 16 roadways in Brighton, and recommends that Roadway Corridor Feasibility Plans be undertaken to determine what type of improvements are needed and feasible on specific roadway corridors.

The following trail enhancement recommendations were identified in the Town of Brighton:

- Near Term: Auburn Line Trail – Brighton Section Rail to Trail Conversion - Clover St to Highland Ave
- Near Term: Canalway Trail Bridge Connection to MCC
- Near Term: Canalway Trail Upgrade – Brighton to Greece
- Mid-Term: Brighton Trail Development – New Trail Between Elmwood Ave and Westfall Rd
- Mid-Term: Irondequoit Creek Stream Corridor Trail – Panorama Plaza to Empire Boulevard
- Mid-Term: Route 590 Bicycle/Pedestrian Bypass

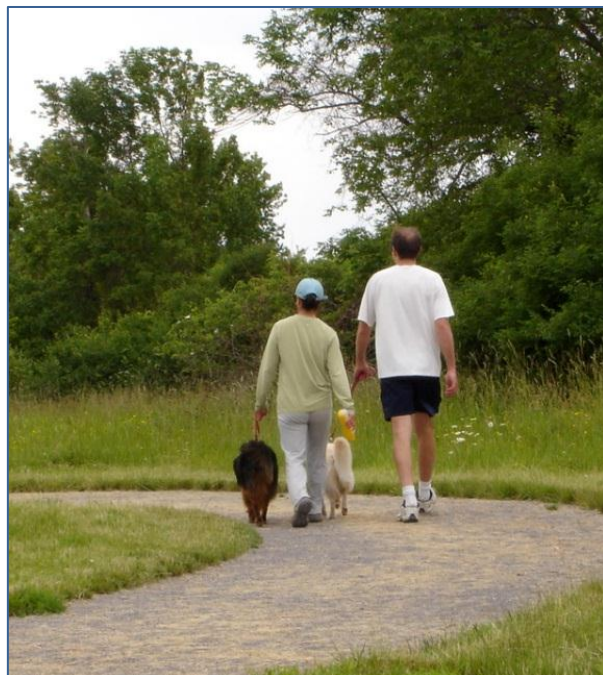
Rochester Bicycle Master Plan, 2011. The objective of this Plan was to identify long-range opportunities for improved bicycling infrastructure and services within the City of Rochester. While the Plan covers many bicycling-related topics, the two main areas of focus are a detailed evaluation of the City's existing on-street bicycle network and the creation of City-wide recommendations to both enhance and promote bicycling in Rochester. The Plan includes a summary of existing planning documents, a peer city review, an evaluation of the City's major roadways, and identification/prioritization of potential bicycle facility improvements on those roads. Options for improving conditions were identified, focusing on opportunities for roadway restriping. Broader City-wide recommendations were also made regarding other bicycle facilities and treatments (such as bike boulevards) and changes to zoning language. The findings of this Plan suggest that the City of Rochester is ideally suited to see a significant increase in the amount of bicycling that occurs. To help Rochester achieve its full bicycling potential, this Plan made recommendations from the perspectives of improving on-street bicycling facilities/accommodation and taking advantage of existing initiatives/partnerships to encourage residents to get out and ride.

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Safe Routes to School Guidebook for the Genesee-Finger Lakes Region, 2009. This guidebook is a plan to establish safe walking and bicycling programs for schools in the Genesee-Finger Lakes Region. In addition to describing the basic elements of starting a program, it discusses the opportunities and barriers to doing so, and describes how to implement a program.



Technical Memorandum: Bicycle & Pedestrian Supportive Code Language, 2007. This document examined local and regional zoning and development codes to identify exemplary codes and policies that enhance accessibility and safety for bicyclists and pedestrians. This memorandum includes many examples that are appropriate in the Town of Brighton, which are referenced in the Recommendations section of this document.

Technical Memorandum: On-Street Bicycle Facilities Opportunities Assessment, 2007. This document updates the work done on the *Regional Trails Initiative*, focusing on opportunities to incorporate bicycle accommodation per the accepted range of on-street bicycle facility types emphasizing low-cost applications and strategic improvements. Roads were categorized based on rural/urban classification, posted speed, pavement width, shoulder width, number of lanes and average daily traffic.

An additional suitability rating of near-, mid-, or long-term recommendation based on ratings developed by the Rochester Bicycling Club was applied. "Poor" or "fair/poor" rated segments were recommended for near-term study, "fair" segments were rated for mid-term study and those rated "fair/good" or "good" were recommended for long-term study. Of those near-term recommendations for further study in the Rochester Transportation Management Area, seven of them are within the Town of Brighton's jurisdiction. Based on the criteria listed in *Selecting Roadway Design Treatment*, the recommended facility treatment for each of these roadways is a 5-6' bike lane.

Technical Memorandum: Overview of Current Accepted Bicycle Facility Standards, Guidelines, and Practices, 2005. This Technical Memorandum provides an overview of the current accepted national, state, and local bicycle facility standards, guidelines, and practices. It also provides information on liability as it relates to bicycle facilities and the accommodation of bicycling in our transportation system. This information serves as a basis for recommending bicycle facility treatments for the Rochester Transportation Management Area (TMA) roadway system. The Rochester TMA includes Monroe County and the adjacent developed areas of Livingston, Ontario and Wayne Counties.

To support municipalities and transportation agencies' efforts to improve bicycling conditions in this region, GTC staff surveyed and assessed existing roadway conditions for opportunities to provide on-street bicycle accommodations within the Rochester TMA. This survey utilized existing data and Geographic Information Systems (GIS) resources compiled by GTC staff. GTC staff employed current accepted bicycle facility standards, guidance, and practices to recommend potential bicycle accommodations for collector and arterial roads in the TMA.

Town of Brighton Comprehensive Plan 2000. Comprehensive Plan 2000 provided a community vision and plan for the future of Brighton. Comprehensive Plan 2000 was intended to be the primary instrument used to direct the use of land in the community, particularly the Town's remaining open spaces. The vision for the future of the Town as

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



stated in the plan is: *“Centrally located in the Rochester metropolitan area, the Town of Brighton values its diversity and sense of community. In planning for the future, our community wishes to protect the beauty and livability of its residential areas, increase park and recreation space, enhance the Twelve Corners/Town Hall area as the center of the Town, extend the green and landscaped aspect of its neighborhoods to its commercial areas, and expand its tax base in a financially responsible manner that is compatible with these goals.”*

In support of this vision, Comprehensive Plan 2000 incorporated two major elements, the Open Space & Recreation Plan and the Land Use Plan, and included other elements important to Brighton’s future: Visual Character, Regional Coordination, the Natural Environment, Town Services, Housing and Transportation. For each of these plan elements, goals and recommendations were developed by the Comprehensive Plan Steering Committee. The plan also included an implementation section to ensure that recommendations were acted upon, as well as lay out a procedure for updating the plan in the future.

Town of Brighton Open Space Index, 2006/2007. The purpose of this inventory was to provide information on open spaces to Town staff, Board members and others to assist in the development review process and facilitate sound land use planning decisions. The inventory included information on site location, ownership, physical features such as streams, soils and slopes as well as proximity to sanitary sewer and water services, and natural features such as plant communities. Site planning data such as zoning and land use information and potential linkages with other open space or cultural features were also included. This document was meant to be used as a reference to identify sensitive environmental features, and potential environmental hazards for open spaces which may be affected by development proposals. A total of 25 separate open space areas were mapped. The document was prepared to provide technical information on open space sites in the Town of Brighton, rather than serve as a policy document.

Town of Penfield Bicycle Facilities Master Plan, 2009. This report summarizes the objectives, procedures and products derived from the analysis and planning studies for the Bicycle Facilities Master Plan for the Town of Penfield. Based on input from the Penfield bicycling community, a list of Community Destinations was mapped. The best roadways accessing and connecting the Community Destinations were identified and mapped as Priority Bicycle Routes. The Priority Routes include roughly 61 miles of roadway, and fall under Town, County and State jurisdiction. An inventory and analysis process was then applied to the Priority Bicycle Routes. To help focus and prioritize implementation of improvements, input from the cycling community was solicited to identify areas along the Priority Routes that have problems in need of immediate attention or repair.



The Penfield Bicycle Facilities Master Plan emphasizes the requirements of the basic cyclist, while recognizing the needs of advanced cyclists and children. Recommendations for improvements were made in four categories: On-road Improvements, Off-road Improvements, Bike Facilities at Destinations, and Policies & Programs. A phasing plan and cost estimates are included to facilitate implementation of the Recommendations. An Education Plan provides tools and strategies to increase public awareness, enhance safety, and encourage bicycling among a diversity of user groups. The Education Plan recognizes that transportation networks are shared resources utilized by motor vehicles, bicycles, and pedestrians alike.

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D. Parallel Projects

As with most planning efforts, other projects are planned or proposed concurrent to the planning efforts at hand. The purpose of this section is to briefly describe projects that are being proposed within or adjacent to the Town of Brighton that could potentially impact bicycle or pedestrian facilities, effect roadways, or contribute to the objectives of **BikeWalkBrighton**. The projects discussed in this section are not being proposed, developed, or funded by the Town of Brighton (except where indicated). They are independent initiatives sponsored by a variety of public and private organizations.

CityGate

Proposed by Anthony J. Costello and Son Development, CityGate will be an urban live-work community on the Erie Canal. The project, which is under consideration by the Town, will span 63 acres in Rochester and Brighton, with one-third of the property in the Town. The project calls for redeveloping the former Monroe County Iola campus into 1.2 million square feet of offices, retail, a hotel, and 1,035 housing units. Also proposed are two parking garages and 2,700 off-street parking spaces. The proposal states that 1,500 construction jobs and 700 permanent jobs will be created. This project is to be completed in phases, with the northwest part of the property at Westfall and East Henrietta Roads to be developed first. This phase calls for a mixed-use neighborhood with offices and residential.

Clinton Crossing Corporate and Lifestyle Center

Project plans include 988,000 square feet of mixed use development including 820,000 square feet of office and 168,000 square feet of commercial and retail. The proposal includes 3,420 parking spaces, additional medical offices at Clinton Crossings, a corporate center, and a lifestyle center on the east end of the parcel with retail space. A hotel and convention center are planned at a different site as a separate project, unrelated to this project. Plans for considerable green space are also included.

Diverging Diamond Interchange

At the interchange of I-590 and South Winton Road, morning rush-hour traffic is heavy exiting the expressway, causing traffic to back up from the off ramp. South Winton Road northbound also experiences high volumes, causing backups into adjacent intersections and onto the bridge over the Erie Canal—resulting in a fair number of collisions. To address this problem, the New York State Department of Transportation is building a Diverging Diamond Interchange, a new and different kind of traffic pattern that's been shown to improve safety for drivers, bicyclists, and pedestrians. The Interchange includes improved sidewalks, curbed refuge islands, crosswalks, multi-use sidewalks, and designated on-road bicycle shoulder space. Diverging Diamonds help create a smoother traffic flow with fewer backups and delays. The Diverging Diamond in Brighton is the first in New York State. Construction is scheduled to be complete in the Fall of 2012.

Faith Village

Faith Temple, a non-denominational religious group, has proposed Faith Village on a 70-acre site near South Winton and Westfall Roads. An application has been filed for consideration by the Town, which includes a community-oriented complex featuring a new church sanctuary, school, pre-school, youth center, and senior living facility.

Highland Crossings Trail (Highland Park/Canalway Connector Trail)

The Highland Crossings Trail will connect Highland Park in the City of Rochester with the Erie Canalway Trail and the Genesee Riverway Trail. When constructed, the trail will provide a safe pedestrian and bicycle route to Highland Park from both of these well-traveled regional trails. The connectivity improvements will significantly enhance the local and regional trail system by providing access to the park, as well as other new destinations. The trail will include on-road and off-road sections in order to complete the route. No federal transportation funding is committed at this time, and as such, construction timing is unknown.

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Monroe Avenue Green Street

The Monroe Avenue Green Street project will reconstruct road right-of-way on Monroe Avenue in the Town of Brighton with green infrastructure stormwater management practices and naturalize an adjacent channelized stream segment. The project will focus on Monroe Avenue from approximately Buckland Creek to Westfall Road. Proposed streetscape and stormwater improvements include street trees, bioretention areas, porous pavement sidewalks, rain gardens, and riparian buffers. The project will provide a wide range of benefits, including a reduction in stormwater pollution, improved water quality, and minimized flooding. The project will also restore sections of Buckland Creek as a community resource, contribute to the revitalization of 12 Corners, and demonstrate the effectiveness and feasibility of green infrastructure practices to the community. Funding has been awarded to the Town by New York State. The project will be constructed by the Town of Brighton.

Mount Hope Avenue Reconstruction, Phase 1

These improvements include a full reconstruction of Mount Hope Avenue, between Elmwood Avenue and Rossiter Road. Mount Hope Avenue is a five-lane Principal Arterial that contains some of the most accident-prone intersections in the region. Currently under construction, plans call for a landscaped center median with turn lanes, on-street parking, wide sidewalks, enhanced lighting, access management, and a new signalized intersection coordinated with the planned University of Rochester Collegetown mixed-use development.

The Reserve

Also proposed by Anthony J. Costello and Son Development, The Reserve on the Erie Canal will be a 65-acre, 327-unit residential community located along the Erie Canal in the Town of Brighton. The proposed hybrid urban-suburban project will include six distinct "neighborhoods" with a diversity of home style options, anchored by a 12,000 SF clubhouse and 1.3-mile trail system. The walking path will connect to the Town of Brighton's Meridian Centre Park and the Erie Canalway Trail. The Erie Canalway Trail will receive significant improvements between Meridian Centre Park and East Henrietta Road, including 110 light poles, new docks and launching areas, public parking, and seating areas. South Clinton Avenue will be restriped to reduce travel lanes in both directions, and include a wide shoulder to accommodate bicycle traffic. Construction began in the Fall of 2012, and will continue for several years.

St. John's Community: Brickstone Development

St. John's Senior Communities is developing a new St. John's Community, Brickstone Development, located to the west of St. John's Meadows along Elmwood Avenue. Currently under construction, this development will be comprised of the following senior living residential development features: 53 single family bungalow cottages; 9 town homes; 40 independent living apartments; and a village center. The village center will house a 6,000 SF area for tenant retail/commercial uses and 4,000 SF for common area and support service functions, such as facility management and resident community space. The Highland Crossing Trail will be constructed along the southern and western property lines, and easements have been provided as a part of the development effort.

Town of Brighton Comprehensive Plan Update

The Town of Brighton will begin updating the 2000 Comprehensive Plan in 2013. Recommendations from the [BikeWalkBrighton](#) final report will be incorporated into the Comprehensive Plan update.

Winfield Park

Winfield Park is approximately 132.2 acres of mixed use development including residential, senior housing, office space and a community clubhouse on seven parcels of property located on Brighton-Henrietta Town Line Road, east of the Clinton Avenue and BHTLR intersection, in the Town of Brighton. An application has been filed for consideration by the Town, which includes 64 single-family patio homes; 65 townhomes; 360 apartment units contained within nine, four-story buildings; four, 10-bedroom 'greenhouse' structures to be owned and operated by St. John's Nursing Home, 332,000 total square feet of office space, a community center, and approximately 68 acres of open space. The project, as proposed, will include some improvements to the southern side of the canal.

Bike Walk Brighton



Chapter 3: Active Transportation Benefits

ACTIVE TRANSPORTATION BENEFITS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



ACTIVE TRANSPORTATION BENEFITS

The goal of an improved active transportation system is compatible with other community planning efforts (previously outlined) related to transportation and sustainability. While pedestrian and bicycle improvements are important to meet the needs of Brighton today, they are likely to be even more important in meeting the needs of tomorrow. With the development of this plan, the Town of Brighton is taking a progressive stance in addressing important issues, such as rising fuel prices, environmental degradation, and health problems related to inactivity. [BikeWalkBrighton](#) will tie into other ongoing Town-wide sustainability efforts, and will help the Town to harvest the long-term economic, environmental, health and social benefits of active transportation.

Transportation accounts for more than 30 percent of the carbon dioxide emissions in the United States (West, 2007). In addition, transportation is a significant household expense for many people. However, there are other transportation options besides using a motorized vehicle, which include active transportation possibilities, such as walking and bicycling. Walking and bicycling as a means of transportation offer environmental, health, economic and social benefits.



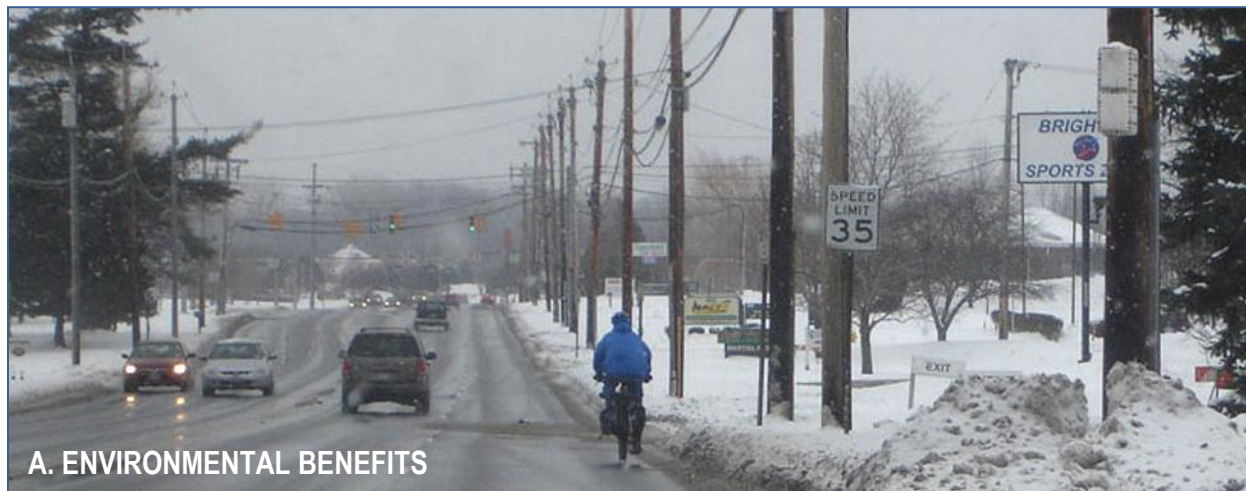
Active transportation has benefits in each one of these categories, but the synergy between these varied and disparate benefits results in enhanced community sustainability:

- A local economy that is robust and balanced, with better access to jobs, education and health care.
- Increased health for persons engaging in active transportation, and increased safety for all.
- Ecosystems that thrive as a result of reduced air pollution and reduced greenhouse gas emissions.
- Infrastructure that encourages culturally and socially diverse groups to prosper and connect to the larger community.

The following pages discuss the various benefits associated with active transportation.

ACTIVE TRANSPORTATION BENEFITS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



A. ENVIRONMENTAL BENEFITS

Switching to active transportation reduces emissions of greenhouse gases and other pollutants that contribute to global warming, smog, and acid rain. Greenhouse gases are atmospheric gases – primarily carbon dioxide, methane and nitrous oxide – which trap the sun's heat, making the Earth a greenhouse. Emissions of greenhouse gases enhance the Earth's greenhouse effect, contributing to climate change. Air pollution includes ground level ozone and fine airborne particles, as well as carbon monoxide, nitrogen oxides and sulfur oxides. This mix of substances makes smog (SES, 2007). Air pollution also causes lung cancer and respiratory problems. A study of U.S. cities found that mortality rates were 17-26% higher in cities with the dirtiest air compared to those with the cleanest air.

In the United States, 88 percent of all trips are made by car—and many of those cars carry only one person.

(West, 2007)

Half of the average person's greenhouse gas emissions result from transportation.

- Motor vehicle emissions represent 31% of total carbon dioxide, 81% of carbon monoxide, and 49% of nitrogen oxides released in the U.S. (LAB, 2012).
- Short car trips are much more polluting than longer trips on a per-mile basis.
- 60 percent of the pollution resulting from auto emissions is released during the first few minutes of operation of a vehicle (LAB, 2012).

The majority of Americans use their cars to make short trips of a mile or less, causing major environmental damage.

- Of all the trips made in the United States, 50% are less than three miles and 28% are one mile or less.
- A personal motor vehicle is driven in 72% of trips involving less than one mile.
- 50% of the working population commutes five miles or less to work.

Choosing active transportation is an easy way to reduce our environmental impact – bicycling and walking create zero greenhouse gas emissions. A short, four-mile round trip by bicycle keeps about 15 pounds of pollutants out of the air we breathe (Worldwatch Institute). Infrastructure designed to accommodate vehicles is harmful to the environment as well. There are 800 million automobile parking spaces in the U.S., totaling 160 billion square feet of concrete and asphalt. The environmental impact of all of these parking spaces is equivalent to 10 percent more carbon dioxide emissions per automobile (Bikes Belong, 2012). Active transportation can reduce air pollution, minimize traffic congestion, and help to lessen our national dependence on petroleum.

ACTIVE TRANSPORTATION BENEFITS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



The most valuable natural resource of any community is the health of the residents. In 2012, the Centers for Disease Control and Prevention (CDC) reported the following statistics from 2010:

- Obesity has risen dramatically in the last 20 years
- 35.7% of U.S. adults age 20 and older – over 78 million people – are obese
- The percentage of young people who are overweight has more than tripled since 1980
- 17% of young people age 2-19 years – over 12.5 million people – are obese
- Overall, adults aged 60 and over were more likely to be obese than younger adults

In Upstate New York, childhood obesity trends exceed or match national trends. In 2004, 21% of Upstate New York 3rd graders were obese, which exceeds the national rate of 17% (Upstate NY, 2004). Childhood overweight and obesity is a precursor for adult obesity. The *Strategic Plan for The Prevention of Childhood Overweight and Obesity in Monroe County, NY 2007-2017*, cites “the physical environment and the lack of affordable and safe recreational venues for many children,” as a factor in childhood overweight and obesity.

Research studies have found that overweight and obese children have lowered academic achievement in standardized test scores (CA Dept of Ed, 2005). Also, findings in other studies show that children who are physically active perform better academically and miss fewer days of school (Dwyer, 1996).

Despite the proven benefits, most people – including more than 50% of American adults – do not get enough physical activity to provide health benefits (CDC, 2012). With this in mind, opportunities for exercise and healthful outdoor activity are more than expendable extras. Parks, trails, and open space resources take on new meaning and value. Opportunities for recreation and active transportation support the health and wellness of local residents, and have significant and quantifiable economic impacts. Active transportation provides an opportunity to incorporate regular physical activity into the daily routine.

...studies have found that
overweight and obese
children have lowered
academic achievement in
standardized test scores...

(California Department of Education, 2005)

Regular physical activity can make a person look and feel better, as well as reduce the risk of disease. Unhealthy diet and physical inactivity can cause or aggravate many chronic diseases and conditions, including type-2 diabetes, hypertension, heart disease, stroke, and some cancers (CDC, 2012). Regular physical activity is an important component of a healthy lifestyle, and aids in the prevention of many chronic diseases, disabling conditions and chronic disease risk factors (CDC, 2012).

ACTIVE TRANSPORTATION BENEFITS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



C. ECONOMIC BENEFITS

Health care costs and insurance rates are escalating, causing serious impacts to the local economy. Lack of physical activity is a contributing factor to a growing number of serious illnesses and health problems among all age groups.

- In 2008, health care costs associated with obesity were estimated at \$147 billion (CDC, 2012).
- Medical costs for people who are obese were \$1,429 higher than for those of normal weight (CDC, 2012).

In addition to health-related costs, operating a personal automobile is very expensive.

- Of every dollar earned, the average household spends 18 cents on transportation, 94% of which is for buying, maintaining and operating cars, the largest source of household debt after mortgages (APTA, 2007).
- The average vehicular commuter spends over \$7,500 per year on commuting expenses, which include the cost of gas, vehicle wear and tear, vehicle maintenance, and insurance.
- In comparison, the cost of operating a bicycle for a year is only \$120.
- On average, switching from driving to walking and cycling saves \$1.42/mile, money that can be re-invested in the local economy.

For some households, active transportation can even reduce the need for additional cars, which can be a yearly expense between \$5,000 and \$11,800 (APTA, 2007). With the money saved on a vehicle, or even just the additional parking, fuel and maintenance required to commute in a vehicle, an active commuter can pay for transit expenses, purchase a good quality bicycle, or buy new walking shoes, with money left over.

Better bicycling conditions will provide access to recreational and work destinations, schools, public transit, and local shops. This will, in turn, promote additional economic development in the vicinity of these destinations. The number of people bicycling can be a good indicator of a community's livability - a factor that has a profound impact on attracting new residents, businesses, workers, and tourists all which contribute towards stimulating the economy.

In Portland, Oregon, it is estimated that by 2040, each dollar they have invested in active transportation infrastructure will result in more than \$8 in benefits. Relatively modest investments – comparable to the construction cost of one mile of an urban 4-lane highway – led to tremendous growth in bicycling. Over time, this will produce secondary benefits in the form of fuel and health care savings worth at least eight times the upfront investment. Conversely, according to the RCA website, nearly every dollar we burn on gasoline leaves the Rochester area (RCA, 2012). By developing transportation programs and encouraging active transportation, the local economy would capture these potential savings and keep shoppers centrally located, resulting in increased community reinvestment.

ACTIVE TRANSPORTATION BENEFITS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



D. SOCIAL BENEFITS

Improving transportation equity by cultivating better walking and bicycling conditions provides mobility for the one-third of people in the United States who do not have cars. This improves access to jobs, education, and health care.

- Cities that promote bicycling tend to retain youth, attract young families, and increase social capital.
- Improved bicycling conditions add to the vitality and quality of life of the community and provide access to recreational destinations across the region
- Bicycling and walking increases opportunities for social interaction and contributes to a sense of community.
- Increased active transportation typically increases safety for motorists, bicyclists, and walkers. For example, in Portland, Oregon, bicycle crashes went down by 50%.
- Infrastructure encourages culturally and socially diverse communities to prosper and connect to the larger community.

Active transportation can reduce stress and allow for more community interaction. Riding a bicycle allows a commuter to choose a less busy route and by-pass traffic lights. Walkers and cyclists see more of their community than stoplights, white lines and car bumpers, and benefit from the stress relief that accompanies physical exercise.

Cities that promote bicycling tend to retain youth, attract young families, and increase social capital.

(Indianapolis Bicycle Master Plan)

Studies have shown that the longer the regular commute, the greater amount of stress that a commuter feels. Stress often leads to fatigue, headaches, and irritable moods, which can subsequently affect work performance and household dynamics. It is easier and less expensive to park a bike than a car, which further reduces the stress of commuting. In addition, a culture dependent on cars encourages urban sprawl, which destroys communities and keeps people isolated from one another.

Land use and building patterns exacerbate health problems by providing new, disconnected neighborhoods that have few opportunities for walking or biking. In addition, our lifestyles

have become increasingly sedentary in our post-industrial society. Walking and bicycling provide an opportunity to simultaneously obtain the benefits of transportation and physical exercise.

Bike Walk Brighton



Chapter 4: Existing Conditions Assessment

EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



This section contains an assessment of the existing conditions in the Town of Brighton. The topics discussed in this chapter include the characteristics of residents and the Town, existing pedestrian and bicycling conditions, accident data, existing trail conditions, priority intersections, and existing programs and policies.

A. Residents

Understanding the characteristics of the residents of the Town of Brighton is as important as the assessment of the existing infrastructure. The section contains information about pedestrian and bicycle facility users, local demographics, and the results of the active transportation survey conducted during the course of the project.

1. Pedestrian and Bicycle Facility Users

Pedestrian and bicycle facilities in the Town of Brighton will be used by people of all ages and skill levels. Emerging user groups, such as strollers, bicycle trailers, wheelchairs and adult tricycles, should be considered as possible facility users, but facility planning has been conducted with bicyclists and pedestrians considered to be the primary user groups.

Bicyclists. On average, bicyclists require a minimum width of 40 inches to operate. When bicyclists are traveling alongside motor vehicles, a width of five feet or more is recommended to allow bicyclists to safely maneuver.

While the minimum operating space and bicycle facility width remains relatively the same between users, the skills, confidence and preferences of bicyclists vary largely. The challenge in planning for bicycle facilities is designing for the diversity of user skills. According to the Federal Highway Administration (FHWA), the Federal policy goal for bicycling is “to accommodate current use and encourage increased use, while enhancing safety.”

The FHWA identifies the following types of bicycle users:

- Group A: Advanced Bicyclists
- Group B: Basic Bicyclists
- Group C: Children

Defining the bicyclist skill level through three groups and designing for the specific groups helps to refine roadway and path treatments. A description of the three different types of bicycle users by the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities follows.



Group A: Advanced Bicyclists. Group A is comprised of advanced or experienced riders who are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with minimal detours and delays. Advanced riders are typically comfortable riding with motor vehicles in traffic. They comprise the majority of the current users of collector and arterial streets and are best served by the following:

1. Direct and convenient access to destinations usually via the existing street and highway system.
2. The opportunity to operate at maximum speed with minimum delays.
3. Sufficient operating space on the roadway or shoulder to reduce or preferably eliminate the need for either the bicyclist or the motor vehicle operator to change position when passing.

Ideally for Group A riders, all roads would be “bicycle friendly.”

EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Group B: Basic Bicyclists. Group B is comprised of basic adult and teenage riders who may also be using their bicycles for transportation purposes, such as getting to the store or visiting friends. Group B bicyclists are less confident of their ability to operate in traffic without special provisions for bicycles. Basic riders prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared use paths and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. Group B bicyclists prefer:

1. Comfortable access to destinations, preferably by a direct route, using either low-speed, low traffic-volume streets or designated bicycle facilities, avoiding routes with high-volume or high traffic speeds.
2. Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths.

Group B bicyclists would be best served by designated bicycle facilities on key routes through main travel corridors with lower volume rates and similar travel times.

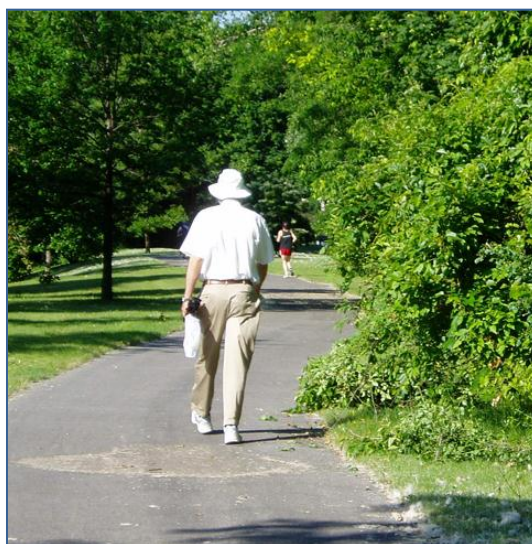
Group C: Children. Group C bicyclists are children riding on their own or with their parents. This group may not travel as fast as their adult counterparts, but still require access to key destinations in their community, such as schools, convenience stores and recreational facilities. It is important to make sure children do not develop a false sense of security if they are encouraged to ride on a busy street. Group C bicyclists prefer the following:

1. Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas.
2. Residential streets with low motor vehicle speed limits and volumes linked with shared use paths and busier streets with well-defined pavement markings between bicycle and motor vehicles.
3. Well-defined separation of bicycles and motor vehicles on arterial and collector streets linked with shared use paths and other bicycle facilities.

Group C bicyclists would be best served by routes that provide access to key destinations, but keep them off of busy roads, as safety is more important than travel time.

Pedestrians. On average, two people walking side-by-side or passing one another generally require 4.67 feet of space, while two people in wheelchairs need a minimum of 5 feet to pass one another. While the minimum operating space and pedestrian facility width are relatively the same between users, the skills, confidence and preferences of pedestrians vary. These variations are mostly a result of differences in age and differences in physical, cognitive and sensory abilities.

The 2010 New York State Supplement to the National Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways 2009 Edition mandates that crossings be designed to accommodate a walking speed of 3.5 feet per second. However, due to a high population of aging people, a walking speed of 3.0 feet/second may be more appropriate in the design of any crossing facility in the Town of Brighton.



EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



The 2004 AASHTO Pedestrian Guide provides an overview regarding different types of pedestrians. It is more difficult to classify pedestrians into the same types of categories presented for bicyclists. Pedestrians exhibit a wide range of physical, cognitive, and sensory abilities and disabilities. All pedestrians are part of the transportation mix and should be anticipated in the design of pedestrian facilities. Table 4.1 lists some of the common characteristics of pedestrians at various ages.

Table 4.1. Common Pedestrian Characteristics by Age Group¹

Age Group	Ages	Characteristics
Infants and Toddlers	0-4	<ul style="list-style-type: none">▪ Learning to walk▪ Requires constant adult supervision▪ Developing peripheral vision, depth perception▪ Act impulsively and unpredictably
Young Children	5-8	<ul style="list-style-type: none">▪ Increasing independence, but still requiring supervision▪ Limited peripheral vision and poor depth perception▪ Act impulsively and unpredictably
Preteens	9-13	<ul style="list-style-type: none">▪ Susceptible to “darting out” into intersections▪ Poor judgment▪ Sense of invulnerability
High School Aged	14-18	<ul style="list-style-type: none">▪ Improved awareness of traffic environment▪ Poor judgment▪ Feel invincible
Adults	19-40	<ul style="list-style-type: none">▪ Active, fully aware of traffic environment
Middle-Aged Adults	41-65	<ul style="list-style-type: none">▪ Are still active▪ May experience a slowing of reflexes, range of motion, and observational skills
Senior Adults	65+	<ul style="list-style-type: none">▪ Difficulty crossing street▪ Vision loss and reduced abilities under low light/night conditions▪ Difficulty hearing vehicles approaching from behind▪ High fatality rate if hit

Both AASHTO and the FHWA note that there is no single “standard pedestrian” and that the transportation network should accommodate a variety of pedestrians. For example, children and adults perceive their surroundings differently. Children require adult supervision in order to navigate the transportation system safely and independently. Children sometimes walk more slowly than adults, and have a lower eye height.

Older adults also have different needs. This group of pedestrians requires more time to cross the street, desires more predictable surfaces, benefits from handrails in steep areas, and needs places to rest along their route. Older pedestrians are also more likely to be killed or seriously injured in a crash. Because we live in an aging population, the needs of older pedestrians will continue to increase.

In addition, some pedestrians have limited mobility. This can be due to physical disabilities, as well as carrying packages, pushing strollers, or otherwise transporting items. The ability to reach a destination depends on a person’s speed, coordination, endurance, and the types of obstacles, grades and cross-slopes he or she encounters along the way. Accessibility guidelines provide minimum specifications for accessibility that meet the needs of most people. However, exceeding the minimum standards will make environments accessible to more people.

¹ AASHTO Pedestrian Guide, 2004; and FHWA Bicycle & Pedestrian Program.

EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Emerging User Groups. The following section briefly summarizes a study conducted by Bruce Landis, Theodore Petrisch and Herman Huang and sponsored by the FHWA, "Characteristics of Emerging Road Users and Their Safety", Publication No. FHWA-HRT-04-103, printed in October 2004. According to recent research, emerging road and trail users constitute an increasing portion of transportation system users. With the development of new technologies and changing demographics, devices such as kick scooters, inline skates, hand cycles, and recumbent bicycles are becoming more common than they were even ten years ago. Electric personal transporter devices (e.g., the Segway™) are relatively new technologies that are now appearing on paths and roadways around the country. Additionally, the American population is aging, and the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs, and powered scooters) is increasing. Types of emerging user groups include:

- Inline skates
- Kick scooters
- Strollers
- Recumbent bicycles
- Bicycle trailers
- Power wheelchairs
- Skateboards
- Electric bicycles
- Tandems
- Segway™
- Manual wheelchairs
- Assistive power scooters
- Adult tricycles
- Hand cycles

With the increase in the number of emerging users comes a greater need to design and build suitable facilities. Many communities throughout the United States have adopted the AASHTO Guide to the Development of Bicycle Facilities as a standard for bike lane, shared roadway, and shared-use trail design. As its title implies, the guide is written with bicyclists in mind, so its recommendations are based on the physical dimensions and operating characteristics of bicyclists. Emerging users have different characteristics from bicyclists, and as such, trails designed and built to accommodate bicyclists may not meet the needs of these emerging users.

The findings of this study demonstrate that there is great diversity in the operating characteristics of various road and trail user types. AASHTO's design bicycle length of 6 feet and width of 30 inches were adequate for the majority of observed users. However, bicycle trailers and recumbent bicycles exceeded the design length. Power wheelchairs exceeded the design width. The recommended two-way trail width of 10 feet gave most users traveling single-file in opposite directions enough room to pass each other, though some only barely. The recommended two-way trail width of 10 feet was not wide enough for many user types to complete a three-point turn. The growing need to accommodate emerging users is not restricted to off-street shared-use trails. The results of this research are valuable in determining how to better accommodate emerging user groups.



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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



2. Demographics

The population of the Town of Brighton grew and changed slightly between 2000 and 2010. The population grew by nearly three percent. In addition, certain age groups changed, as shown in Table 4.2.

Table 4.2. Population Trends

	Town of Brighton (2010)	Town of Brighton (2000)	% Change 2000-2010
Total Population	36,609	35,584	+ 2.9%
Residents - Under 14 Years	5,936 (16.2%)	5,916 (16.6%)	-0.4%
Residents - 15-24 Years	5,086 (13.9%)	3,881 (10.9%)	+3.0%
Residents - 25-49 Years	12,233 (33.4%)	13,315 (37.4%)	-4.0%
Residents - 50-64 Years	6,933 (18.9%)	5,659 (15.9%)	+3.0%
Residents - 65 Years and Above	6,421 (17.6%)	6,813 (19.2%)	-1.6%

Residents between the ages of 25 and 49 years of age continued to be the largest segment of the population, despite a 4% decrease in this group. The segments of the populations containing residents between 15 to 24 years of age, and 50 to 64 years of age each grew by 3%, respectively. And despite the nationwide trend showing an aging population, the percent of residents older than 65 years of age actually decreased in the Town of Brighton. The U.S. Census Bureau has recorded the following data regarding active transportation:

Table 4.3. Active Transportation Demographics

	Brighton
Workers* Who Biked to Work	313 (1.8%)
Workers* Who Walked to Work	268 (1.5%)
Workers* Who Work Within 15 Minutes Of Home (2000)	7,460 (44.5%)
Mean travel time to work ² (2000)	15.6 minutes
Residents Who Attend High School	1,510

* indicates workers who are over 16 years of age

In general, bicycling is a growing mode of transportation for recreation and commuting. However, walking and bicycling are not currently common ways to travel to work in the Town of Brighton. The statistics in Table 4.3 indicate that very few residents walk and bike to work. However, nearly half of all workers (over 16) in the Town of Brighton work less than fifteen minutes from home. In addition, students are potential walkers and bicycle users. According to the U.S. Census Bureau, 1,510 residents of the Town attend high school. High school students, as well as some elementary and middle school students, can walk and bike to school. Table 4.4 details the number of walkers in the Brighton Central School District, as of January 2012. See [Figure 2](#) for an illustration of students who walk to school.

Table 4.4. BCSD Students Who Walk to School

	Walkers
Brighton High School	327
Twelve Corners Middle School	178
French Road Elementary School	14
Council Rock Elementary School	2
Total BCSD Walkers	521 students

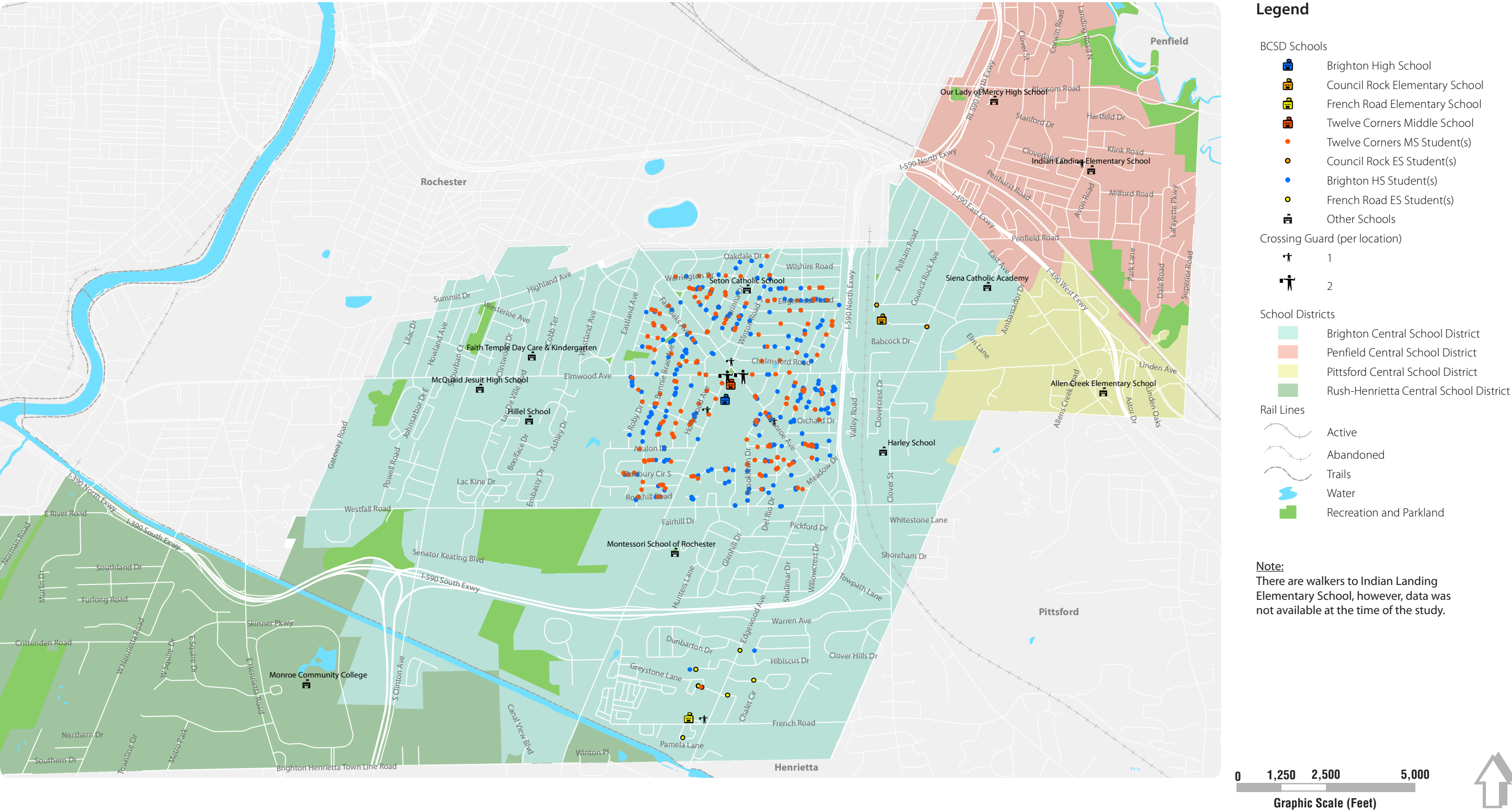
Source: Brighton Central School District, 2012

² Travel time to work refers to the number of minutes that it usually took the person to get from home to work each day, whether waiting for public transportation, riding in a car, or any other time spent related to getting to work.

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Figure 2
Locations of Students Walking to School by District



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In addition, an inventory of bicycles and bicycle facilities was conducted at three schools in the Brighton Central School District. On three occasions, bicycles and bicycle racks were counted at Brighton High School, Twelve Corners Middle School, and French Road Elementary School. [Figure 3](#) illustrates the location and number of facilities that were found at each school. In addition, bike racks are scarce in the surrounding Twelve Corners area.

All of this data suggests an opportunity to increase walking and bicycle ridership to work and school with the proper facilities.

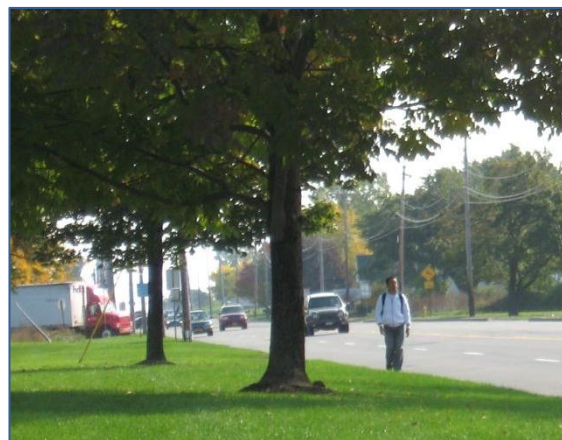
3. Active Transportation Survey Results

An active transportation survey was used to gather information reflecting Brighton residents' current levels of walking and bicycling activity, their attitudes toward walking and bicycling, and their insight into barriers that presently exist. The content was developed in collaboration with the Bike Walk Brighton Task Force and Town officials. Survey data was captured through the use of Survey Monkey, a third party online survey tool. The survey went live in March 2012 and will be active for one year. As of December 2012, more than 300 surveys had been received.

Approximately 75% of respondents are Brighton residents, while 25% are not. In contrast, about 30% of respondents work in Brighton, while more than 70% work elsewhere. Approximately half of the respondents consider themselves advanced bicyclists, while the other half of the respondents consider themselves basic bicyclists. The primary reason that respondents selected for choosing to walk or ride a bicycle was for exercise and personal health. Many people reported that their walking and bicycling varies by season, more dramatically so for bicycling than walking.

Members of the community feel that Brighton's central location in the Rochester area offers good opportunities for creating bicycle commuter connections and easier access, not only through Brighton, but to surrounding neighborhoods and communities such as the Towns of Henrietta, Pittsford, Penfield, and the City of Rochester.

Responses from community members indicate that there is a great demand for better pedestrian access to destinations such as the University of Rochester/Strong Memorial Hospital, the Erie Canalway Trail, Marketplace Mall, Monroe Community College (MCC), Town of Brighton schools and parks, and the Twelve Corners area.



Despite the presence of school crossing guards, participants expressed frustration towards the lack of safety for students who commute on foot or by bike. Some suggestions from community participants include developing safe greenways/commuter corridors to school campuses to promote and support increased biking, walking and jogging within the student body. Additionally, there is a similar concern for safer pedestrian access to Town parks.

Survey participants also indicated a desire for developing safer pedestrian crossings at multi-lane street intersections, creating safety awareness, using speed humps or other traffic calming methods, offering pedestrian-only crossings at every traffic signal, and where feasible, developing new multi-use trails or bike lanes.

The greatest concern voiced by participants was the inadequacy of pedestrian mobility and safe bicycling conditions along Elmwood Avenue, Monroe Avenue, Westfall Road, Edgewood Avenue, Highland Avenue, and certain areas along Winton Road. The Twelve Corners neighborhood is also a concern to the community because of the high amount of vehicular traffic in proximity to the school and the surrounding shops and restaurants. Please see [Appendix B](#) for a detailed summary of survey results.

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Figure 3
Brighton Central School District: Bicycle Facilities Inventory

Brighton High School

Approximate Bike Rack Location *



Date	Time	Bike Racks	Parked Bike Count
03.22.2010	10:30am	6	42
05.09.2010	11:00am	6	37
09.13.2010	11:30am	6	61



Twelve Corners Middle School

Approximate Bike Rack Location *



Date	Time	Bike Racks	Parked Bike Count
03.22.2010	10:45am	6	21
05.09.2010	11:15am	5	43
09.13.2010	11:45am	5	53



French Road Elementary School

Approximate Bike Rack Location *



Date	Time	Bike Racks	Parked Bike Count
03.22.2010	11:00am	3	5
05.09.2010	11:30am	2	7
09.13.2010	12:00pm	3	11



Note: Bikes were locked to fences and handrails in addition to bike racks at the High School, Middle School and Elementary School. This might indicate the need for additional bike racks or bike racks in additional locations.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



B. Town Characteristics

The physical characteristics of a community can impact the development of bicycle and pedestrian facilities. The physical characteristics of Brighton make it promising for the growth of an Active Transportation network.

1. Geography, Topography, and Climate

Geography, topography and climate all influence the way in which people walk and ride in a community.

Geography. The Town of Brighton, New York is bordered by the City of Rochester to the north, the Town of Henrietta to the south, the Genesee River (and the Town of Chili) to the west, and the Towns of Pittsford and Penfield to the east. Brighton is a connecting link between the City of Rochester and suburbs to the south and east, and is therefore of central importance in a growing regional Active Transportation system. Brighton is located at 43°7'24"N 77°34'5"W in Monroe County.



Nowhere more than three miles wide, the Town stretches in a crescent shape from Indian Landing at the northeast corner to the Genesee River in West Brighton. The long axis of the Town is roughly 5.5 miles from east to west, and the short axis is roughly 2.5 miles from north to south. As the crow flies, the Town is about 8 miles from the northeast corner to the southwest corner. The Town is the third smallest in Monroe County.

Topography. Land forms in and around Brighton are the result of ice sheets during the Pleistocene epoch. The retreating ice sheets reached a standstill at what is now the southern border of Rochester, melting at the same rate as they were advancing, depositing sediment along the southern edge of the ice mass. This created a line of hills, including (from west to east) Mount Hope, the hills of Highland Park, Pinnacle Hill, and Cobb's Hill.

Those glacial formations, along with the Irondequoit Creek Valley, comprise the most significant topography in the Town of Brighton. Most areas of the Town are nearly flat or gently sloping. Elevations range from 256' in Ellison Park to 613' at the east end of Summit Drive. The moderate topography is manageable by pedestrians and bicyclists of various ages and ability levels.

Climate. Brighton lies in the humid continental climate zone and has four distinct seasons. Summer sees generally comfortable temperatures that usually stay in the 80-85°F range, accompanied by moderate to high humidity. Heat waves are not uncommon during a typical summer, with temperatures in the 90-100°F range. Precipitation is plentiful year round. The average rainfall is 34 inches, and average snowfall is 100.5 inches.

Winter conditions can present some special challenges for walkers and riders: fewer hours of daylight, lower visibility, colder temperatures, and ice and snow on paved surfaces. Maintenance and snow removal are important factors to consider. Brighton has an average of 66 snowy days per year. Conversely, 299 days (on average) are snow-free.

2. Land Use and Development

Originally settled in 1790 and formally established in 1814, the Town of Brighton has the distinction of being one of the oldest towns in Monroe County. Named for Brighton, England, the Town remained a farming and brick-making community until the 20th century, when the community began its evolution into a suburban residential area.

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Early in the twentieth century, Brighton's extensive farm tracts began to give way to the suburban housing that would characterize the Town throughout the 1900s. Several factors contributed to this transformation. The influx of immigrants to the City of Rochester in the second half of the nineteenth century coupled with large-scale urban industrial development contributed to the noise and crowded living conditions in the city. Those who were able purchased property in the country, accessible by private vehicle.

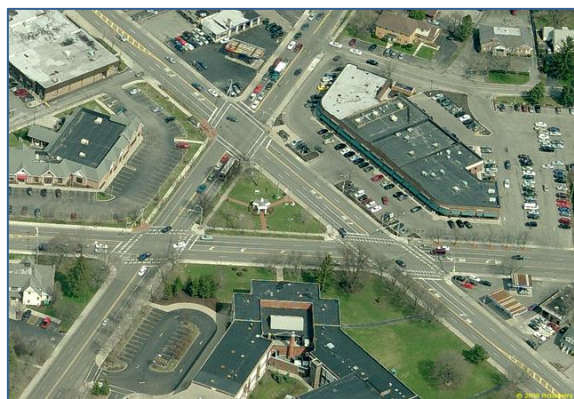
At first, this privilege of commuting to work and shopping in the city was reserved to the very wealthy. Later in the 1800s, horse-drawn omnibuses and trolleys put the countryside in reach of everyone. Transportation developments, especially the private automobile, contributed to Brighton's housing development. Brighton's growth continued throughout the twentieth century.

During the nineteenth and twentieth centuries, the City of Rochester appropriated land from the Town of Brighton on multiple occasions. Perhaps the most controversial annexation occurred in 1905 when the City acquired the Village of Brighton, an area near the intersection of present-day Winton Road and East Avenue. As a result, the Town of Brighton has lacked a traditional village center for more than a century. The present-day central community hub is the Twelve Corners, named for the three intersecting roads, Winton Road, Monroe Avenue and Elmwood Avenue, which define 12 distinct corners.

3. *Population Density and Local Destinations*

The Town has a total area of 15.6 square miles. With the exception of a few significant parcels of land, the Town is completely developed, with homes, office buildings and businesses occupying former agricultural land. With a population of about 36,000 people, the average population density is 2,302 people per square mile. The compact configuration of the Town is an advantage for creating an Active Transportation network.

Priority destination for pedestrians and bicyclists in Brighton include public and private schools, colleges and universities, parks and open space, places of worship, community centers and commercial areas. The Erie Canalway Trail in Brighton is both a popular destination and a functional piece of Active Transportation infrastructure.



The distance between many destinations tends to be very modest (see [Figures 4 and 5](#)). Primary destinations in Brighton, such as parks and schools, are evenly distributed throughout the Town. The greatest concentration of destinations, however, is in the Twelve Corners area. The Twelve Corners contain retail, office, and commercial destinations, as well as schools and places of worship, all within walking distance of many residential neighborhoods.

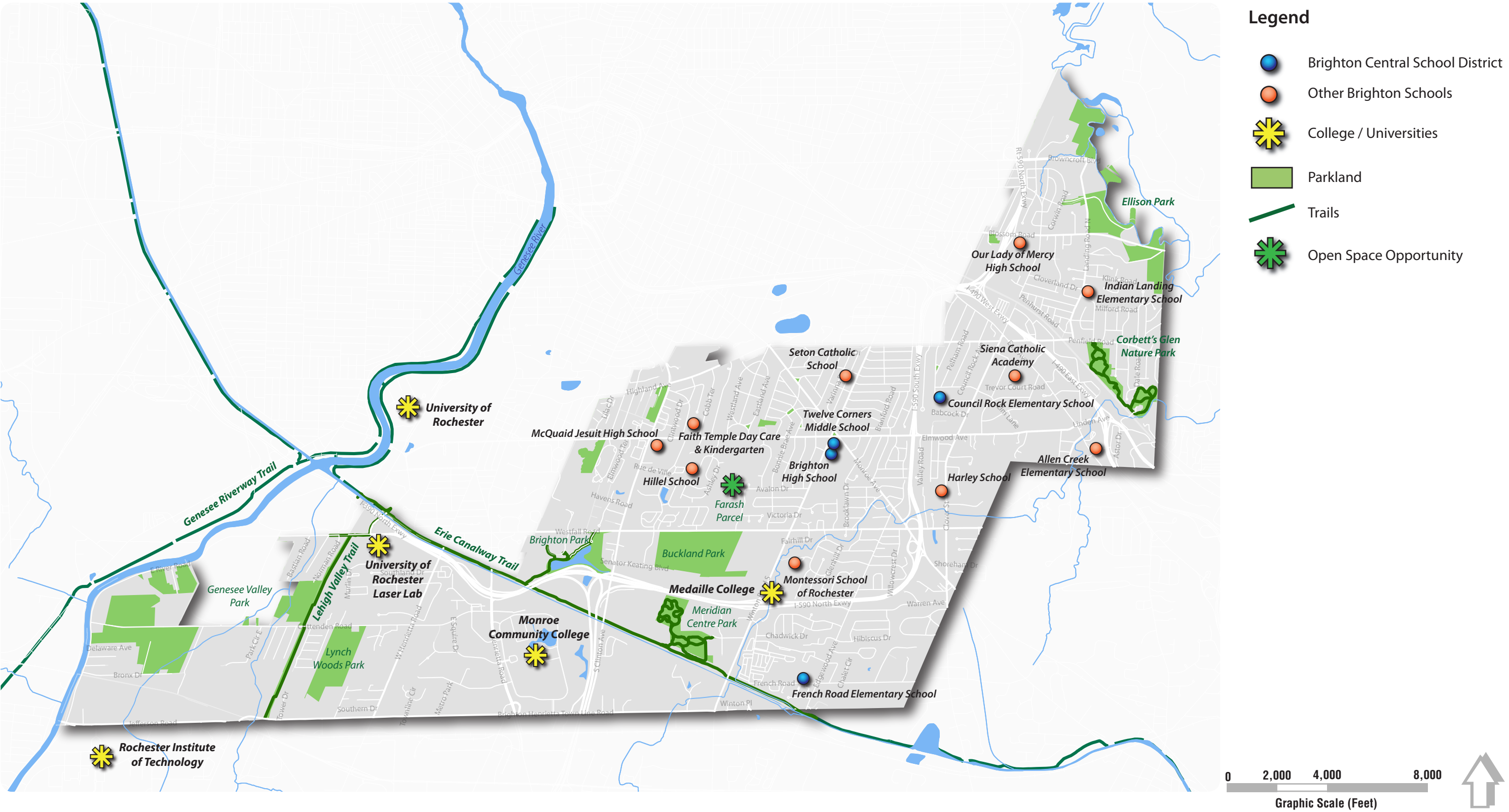
Outside of the Twelve Corners, some areas of Brighton host "Destination Clusters" that include multiple destinations in close proximity. One example is the Meridian Centre area with the Erie Canalway Trail, an office development, a Town park, and a senior living facility. Another example is the Corbett's Glen area with a Town park, elementary school, County park, and temple.

As an older inner ring suburb, Brighton is in close proximity to downtown Rochester. In addition, the Town is near the University of Rochester (U of R) and Rochester Institute of Technology (RIT), and has Monroe Community College (MCC) within Town borders. The distance from the Twelve Corners to downtown, MCC, and the U of R is each about 3 miles. A number of key destinations were identified in [Figure 4](#), and the distances between them were mapped. The average distance between these destinations was only 3.5 miles. Many trips are short enough to be undertaken by walking or bicycling, if safe and convenient active transportation facilities were available.

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Figure 4
Town of Brighton Destinations



EXISTING CONDITIONS ASSESSMENT



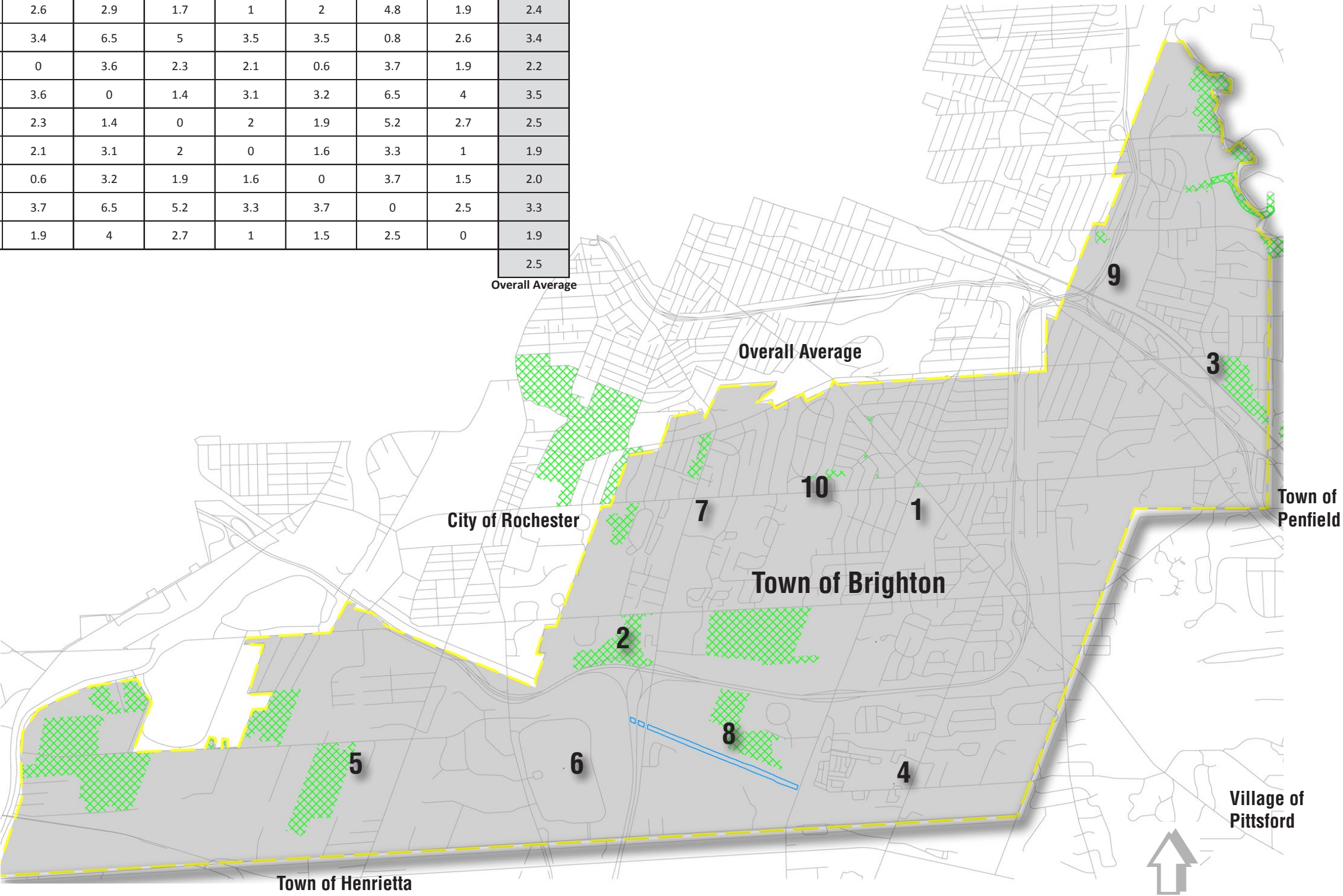
Figure 5

Destinations and Distances

	Distance in miles from point to point	Brighton H.S.	Brighton Park	Corbett's Glen	French Road Elementary	Lynch Woods	MCC	McQuaid H.S.	Meridian Center	Mercy H.S.	Town Hall	Average Distance
1	Brighton H.S.	0	2.1	3.3	1.6	4.2	3	1.3	1.5	2.2	0.5	2.0
2	Brighton Park	2.1	0	5.2	2.6	2.9	1.7	1	2	4.8	1.9	2.4
3	Corbett's Glen	3.3	5.2	0	3.4	6.5	5	3.5	3.5	0.8	2.6	3.4
4	French Road Elementary	1.6	2.6	3.4	0	3.6	2.3	2.1	0.6	3.7	1.9	2.2
5	Lynch Woods	4.2	2.9	6.5	3.6	0	1.4	3.1	3.2	6.5	4	3.5
6	MCC	3	1.7	5	2.3	1.4	0	2	1.9	5.2	2.7	2.5
7	McQuaid H.S.	1.3	1	3.5	2.1	3.1	2	0	1.6	3.3	1	1.9
8	Meridian Center	1.5	2	3.5	0.6	3.2	1.9	1.6	0	3.7	1.5	2.0
9	Mercy H.S.	2.2	4.8	0.8	3.7	6.5	5.2	3.3	3.7	0	2.5	3.3
10	Town Hall	0.5	1.9	2.6	1.9	4	2.7	1	1.5	2.5	0	1.9
Overall Average												2.5

Distances

- Longest Trip 7.7 Miles
- Shortest Trip 0.7 Miles
- Average Trip 2.5 Miles



Not to scale

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



C. Existing Pedestrian Conditions

The existing pedestrian conditions in the Town of Brighton were assessed through an inventory of sidewalks, pedestrian level of service, and shared-use trails. The sidewalk inventory and pedestrian level of service are discussed in this section, and the shared-use trails are described later in this chapter.

1. Existing Infrastructure

The presence of sidewalks was assessed along arterial and collector streets in the Town of Brighton. 43.6 miles of roadway were assessed in the study. Of 87.2 miles of possible sidewalk (2 sidewalks on each side x 43.6 miles of roadway), 36.5 miles of sidewalk were found along those roadways. **Figure 6** illustrates existing sidewalk locations, and **Figure 7** analyzes the presence or absence of sidewalks throughout the system. The percentages shown in **Figure 7** are an estimate of total sidewalk coverage on one side of the roadway. They are to be used as a quick reference and guide for locating gaps in the sidewalk network. Field investigations are needed to identify the exact locations and gaps in the sidewalk network.

2. Level of Service and Existing Operating Conditions

The Pedestrian Level of Service Model indicates how safe and/or comfortable pedestrians feel while walking alongside a particular roadway. This evaluation of walking conditions is based on user perceptions of a wide range of pedestrians and has been applied on tens of thousands of miles of roads throughout the United States. The Model takes into account both traffic characteristics and roadway geometry, including traffic volume, traffic speed, sidewalk presence/width, roadway width, presence/width of a buffer area, and presence of barriers (on-street parking and street trees) between the street and the walking environment. It is the accepted methodology for evaluating walking conditions contained in the 2010 Highway Capacity Manual.

These factors are used in calculating an LOS letter and numerical score for each roadway segment. The scores are listed on a letter scale from A-F and a numerical scale from ≤ 1.5 to > 5.5 . Ultimately, these results can assist communities, engineers, and planners as an effective analytical tool in the identification of segments that have the greatest need for the implementation or improvement of bicycle and pedestrian facilities.

Field data collection focused on acquisition of roadway elements needed to conduct the existing conditions evaluations via the bicycle and pedestrian level of service models. The observers subdivided segments at locations where significant changes to the roadway cross section occur. In addition to level of service data (number and width of lanes; posted speed limit; presence, width, and separation of bicycle and pedestrian facilities; on-street parking; and pavement condition), additional elements were collected to assist in the eventual identification of potential bicycle facility improvements. These supplemental data items include total pavement width (to identify restripe candidates), signal density (to assist in the identification of road diet candidates), and presence of curbs (to determine the feasibility of adding paved shoulders).

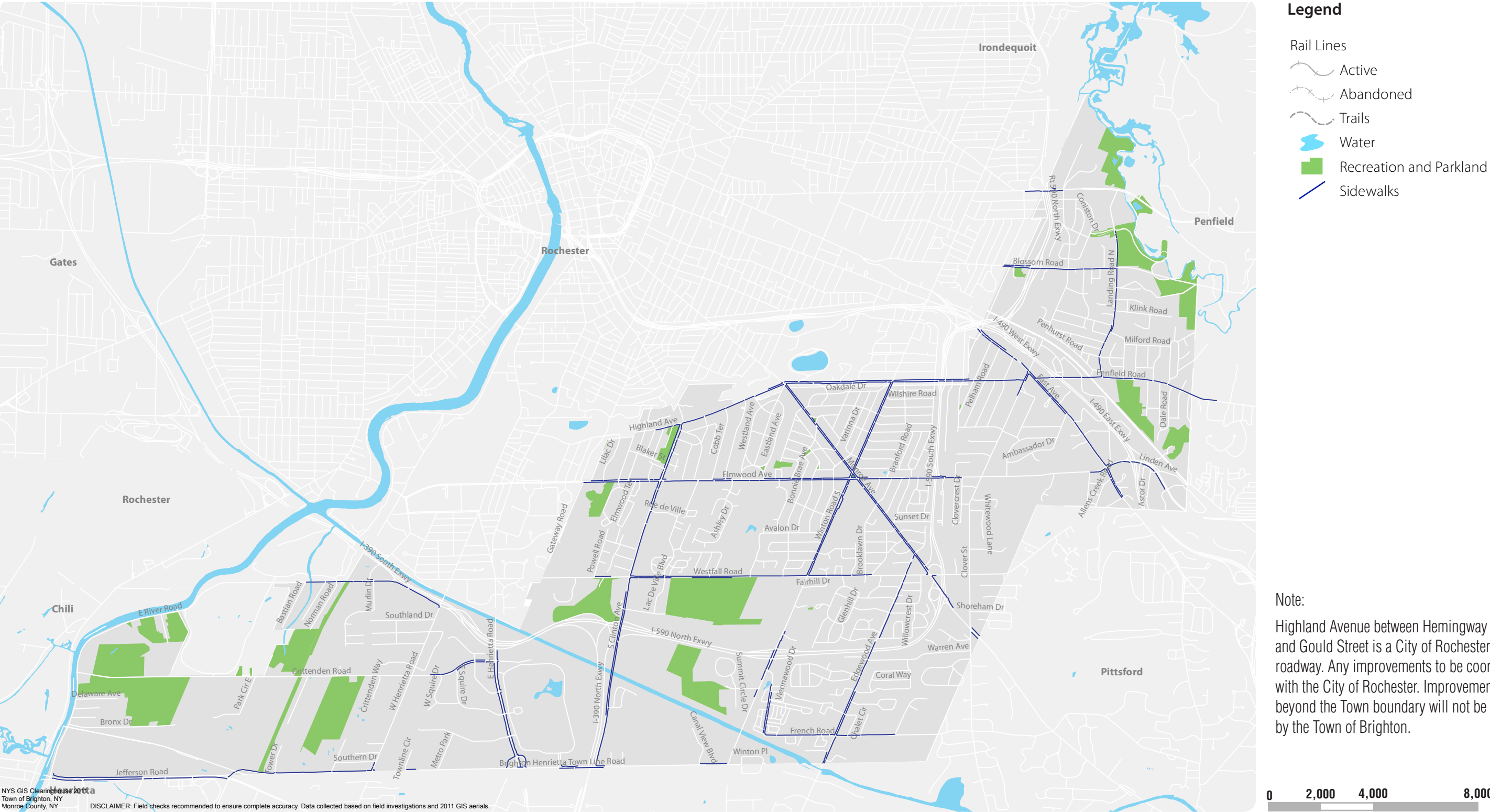
Bicycle and pedestrian level of service data are used by planners and engineers in a variety of planning and design applications. Results can be used to provide a snapshot of existing bicycling and walking conditions, identify roadways that are candidates for reconfiguration for bicycle and pedestrian facility improvements, conduct a benefits comparison among proposed facilities and roadway cross-sections, and to prioritize and program roadways for such improvements.

Figure 8 illustrates the pedestrian level of service throughout the Town of Brighton. The Town-wide average for pedestrian LOS was found to be 3.7, an average score of D. None of the roadway segments earned an A, and only a few earned a B or an F. Most of the segments earned a C, D, or an E. **Figure 9** juxtaposes the level of service analysis with the location of several community schools. **Appendix C** provides additional information about the Pedestrian Level of Service model, and **Appendix D** provides the pedestrian LOS data sheets for all roadways that were analyzed in the course of the study.

EXISTING CONDITIONS ASSESSMENT



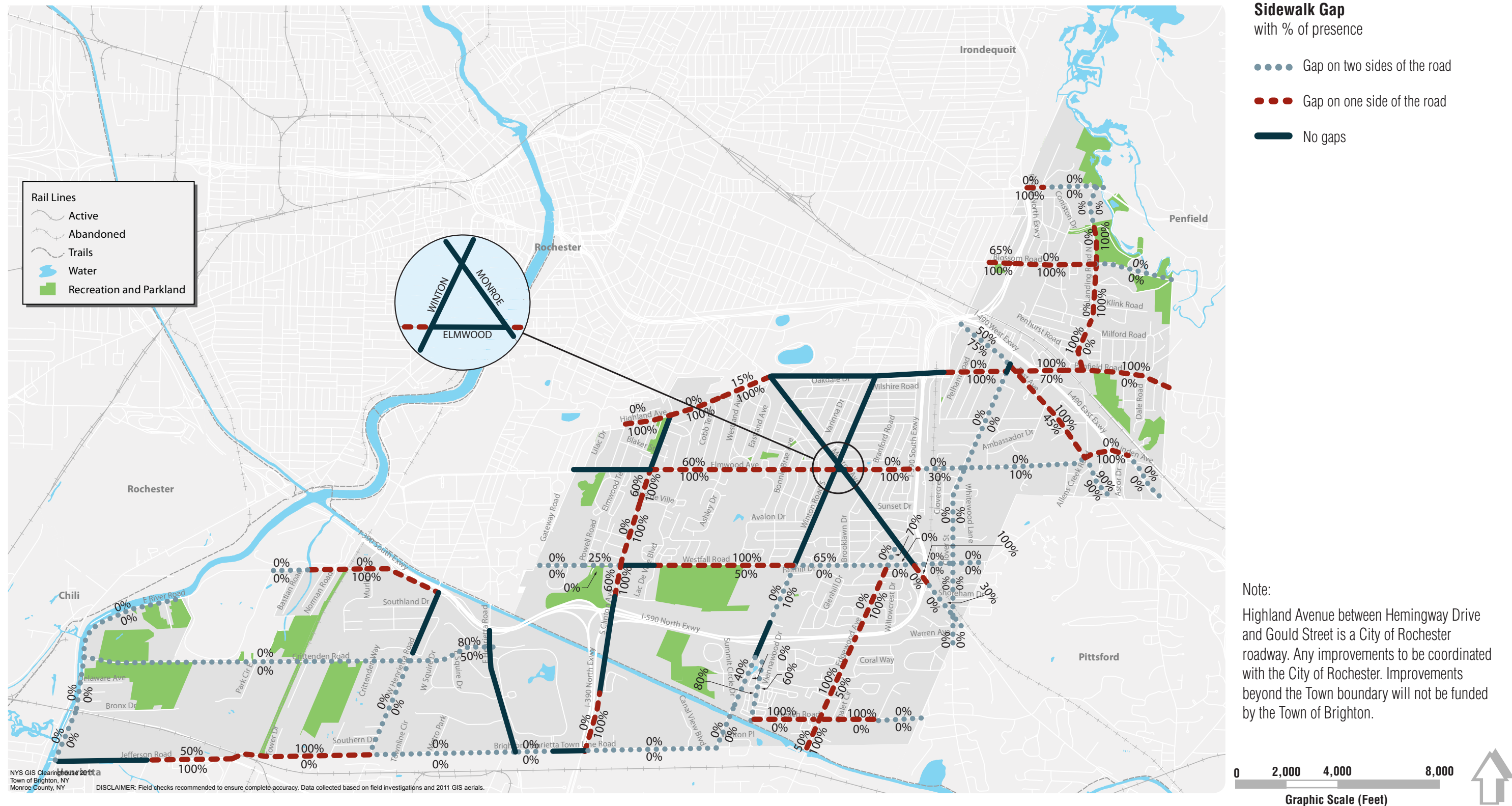
Figure 6
System Map of Sidewalks - Arterials and Collectors



NYS GIS Clearinghouse
Town of Brighton, NY
Monroe County, NY
DISCLAIMER: Field checks recommended to ensure complete accuracy. Data collected based on field investigations and 2011 GIS aerials.

Figure 7

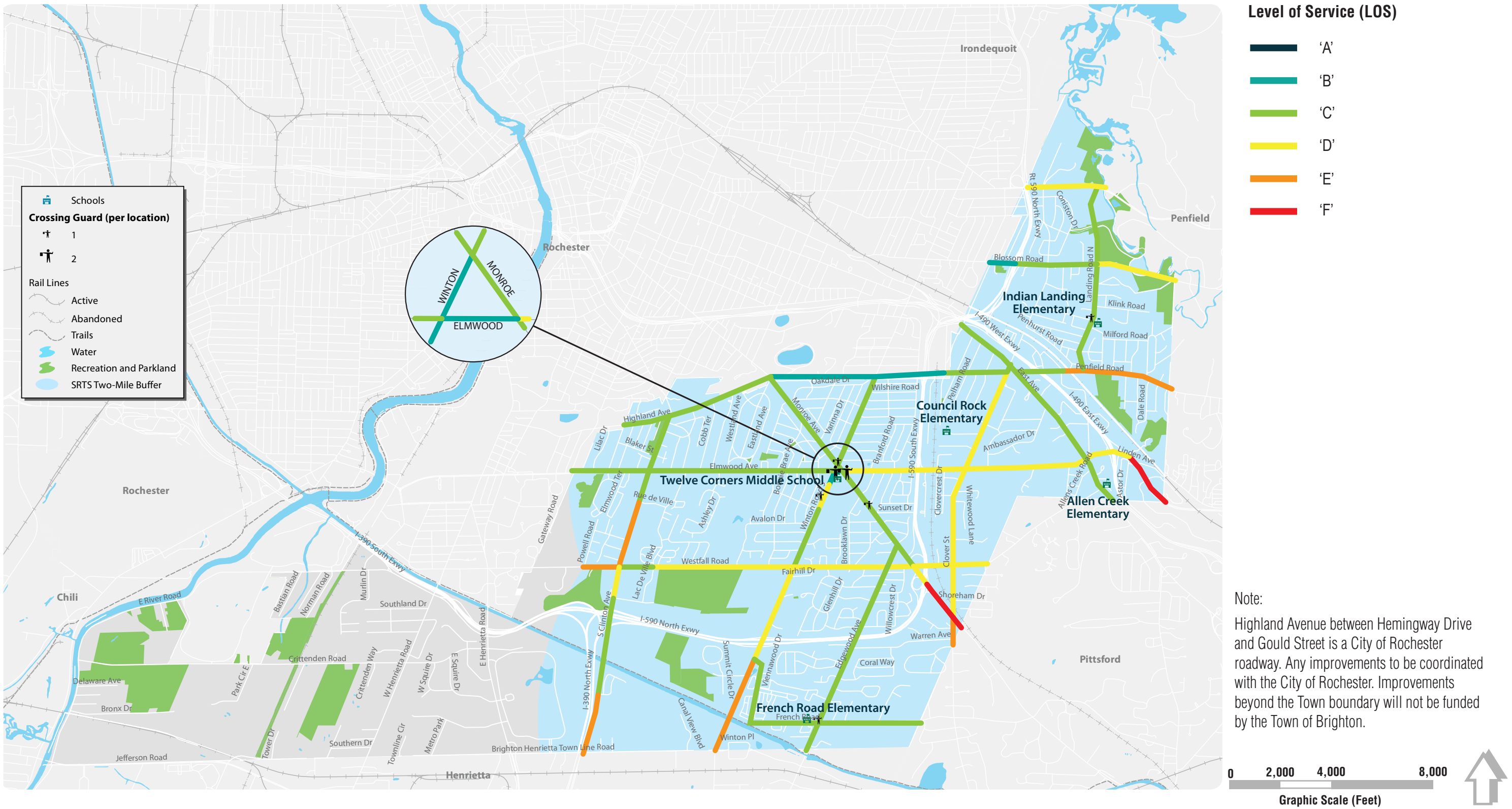
Sidewalk Network Gap Presence



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Figure 9
Pedestrian Level of Service: Adjacent to Schools Eligible for the Safe Routes to School Program

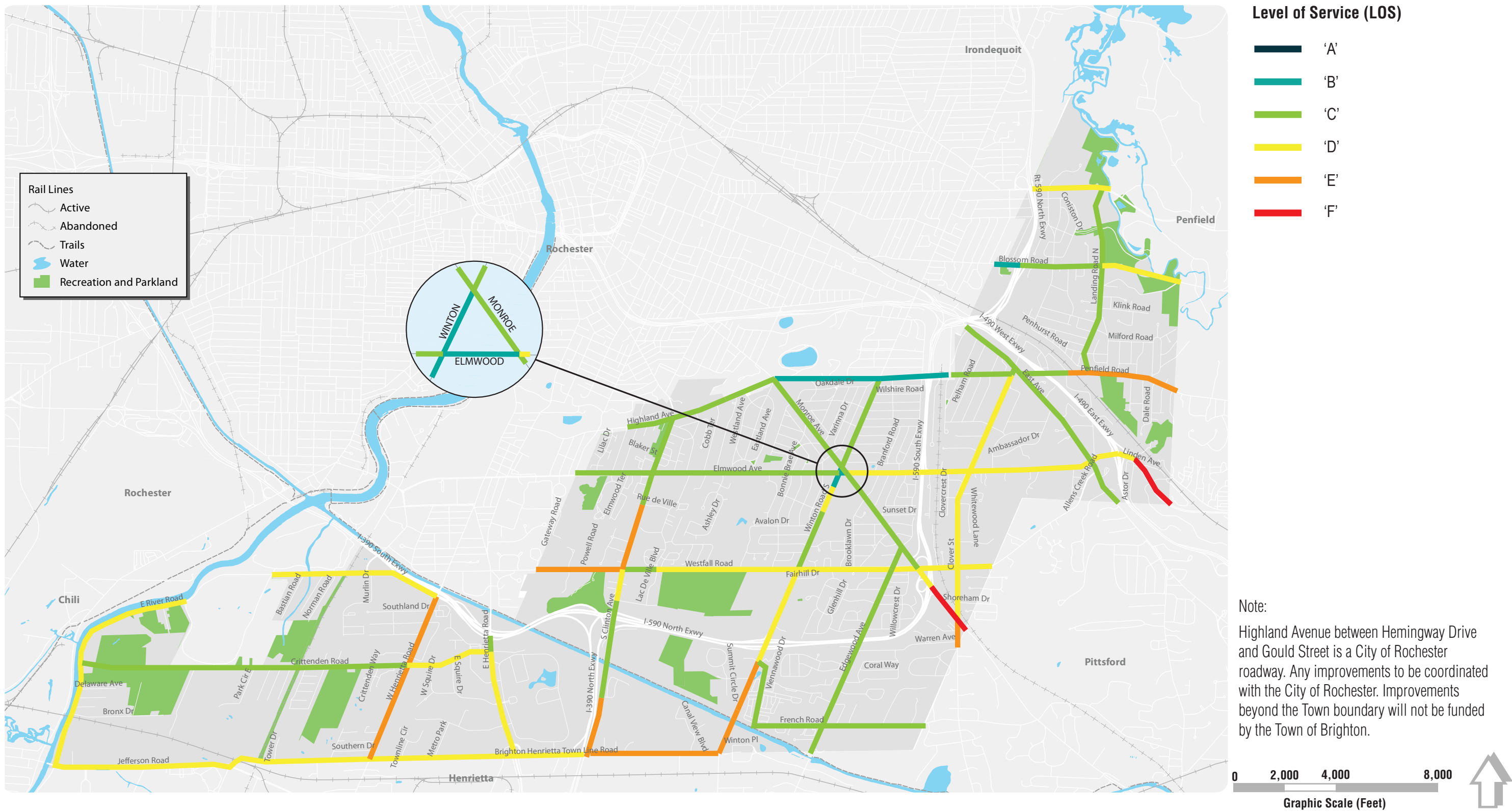


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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 8
Pedestrian Level of Service



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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



D. Existing Bicycling Conditions

The existing bicycling conditions in the Town of Brighton were assessed through an inventory of on-road conditions via bicycle level of service, and off-road conditions via shared-use trails. The bicycle level of service is discussed in this section, and the shared-use trails are described later in this chapter.

1. Level of Service and Existing Operating Conditions

The Bicycle Level of Service Model indicates how safe and/or comfortable bicyclists feel while riding on a particular roadway. This evaluation of bicycling conditions is based on user perceptions of a wide range of bicyclists and has been applied on more than 100,000 miles of roads throughout the United States. The Model takes into account both traffic characteristics and roadway geometry, including traffic volume, traffic speed, prevalence of trucks, outside lane width, paved shoulder or bike lane width, and pavement condition. It is the accepted methodology for evaluating bicycling conditions contained in the 2010 Highway Capacity Manual.

These factors are used in calculating an LOS letter and numerical score for each roadway segment. The scores are listed on a letter scale from A-F and a numerical scale from ≤ 1.5 to > 5.5 . Ultimately, these results can assist communities, engineers, and planners as an effective analytical tool in the identification of segments that have the greatest need for the implementation or improvement of bicycle and pedestrian facilities.

Field data collection focused on acquisition of roadway elements needed to conduct the existing conditions evaluations via the bicycle and pedestrian level of service models. The observers subdivided segments at locations where significant changes to the roadway cross section occur. In addition to level of service data (number and width of lanes; posted speed limit; presence, width, and separation of bicycle and pedestrian facilities; on-street parking; and pavement condition), additional elements were collected to assist in the eventual identification of potential bicycle facility improvements. These supplemental data items include total pavement width (to identify restripe candidates), signal density (to assist in the identification of road diet candidates), and presence of curbs (to determine the feasibility of adding paved shoulders).

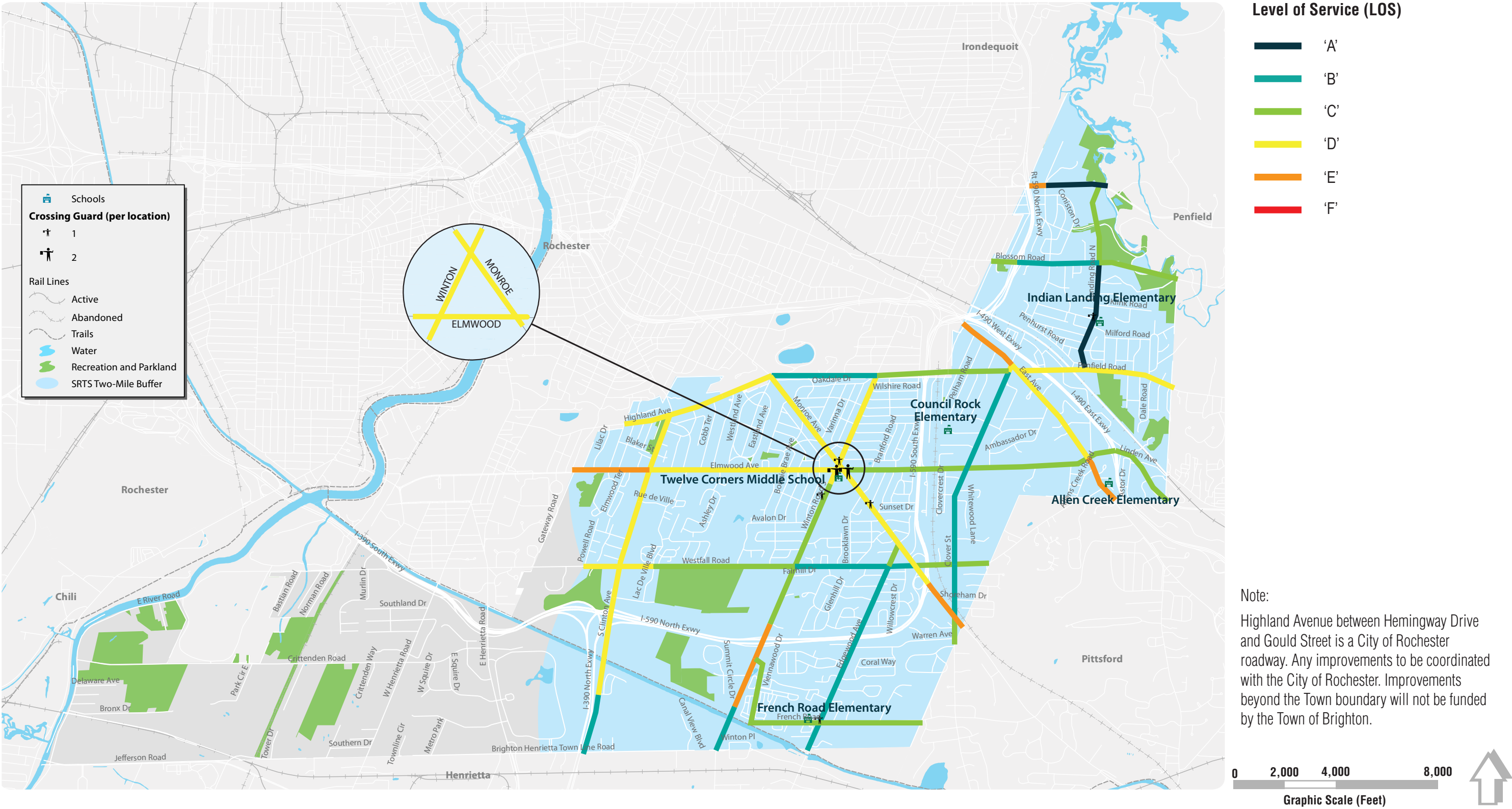


Bicycle and pedestrian level of service data are used by planners and engineers in a variety of planning and design applications. Results can be used to provide a snapshot of existing bicycling and walking conditions, identify roadways that are candidates for reconfiguration for bicycle and pedestrian facility improvements, conduct a benefits comparison among proposed facilities and roadway cross-sections, and to prioritize and program roadways for such improvements.

The roadway network study area included all arterials and collectors in the Town of Brighton, a total of 43.6 miles. **Figure 10** illustrates the bicycle level of service throughout the Town of Brighton. The Town-wide average for bicycle LOS was found to be 3.3, an average score of C. No roadway earned an F, but a few earned an A. Most roadways were found to be a B, C, D or E. **Figure 11** overlays the level of service analysis with the location of several community schools. **Appendix C** provides additional information about the Bicycle Level of Service model, and **Appendix D** provides the bicycle LOS data sheets for all roadways that were analyzed in the course of the study.



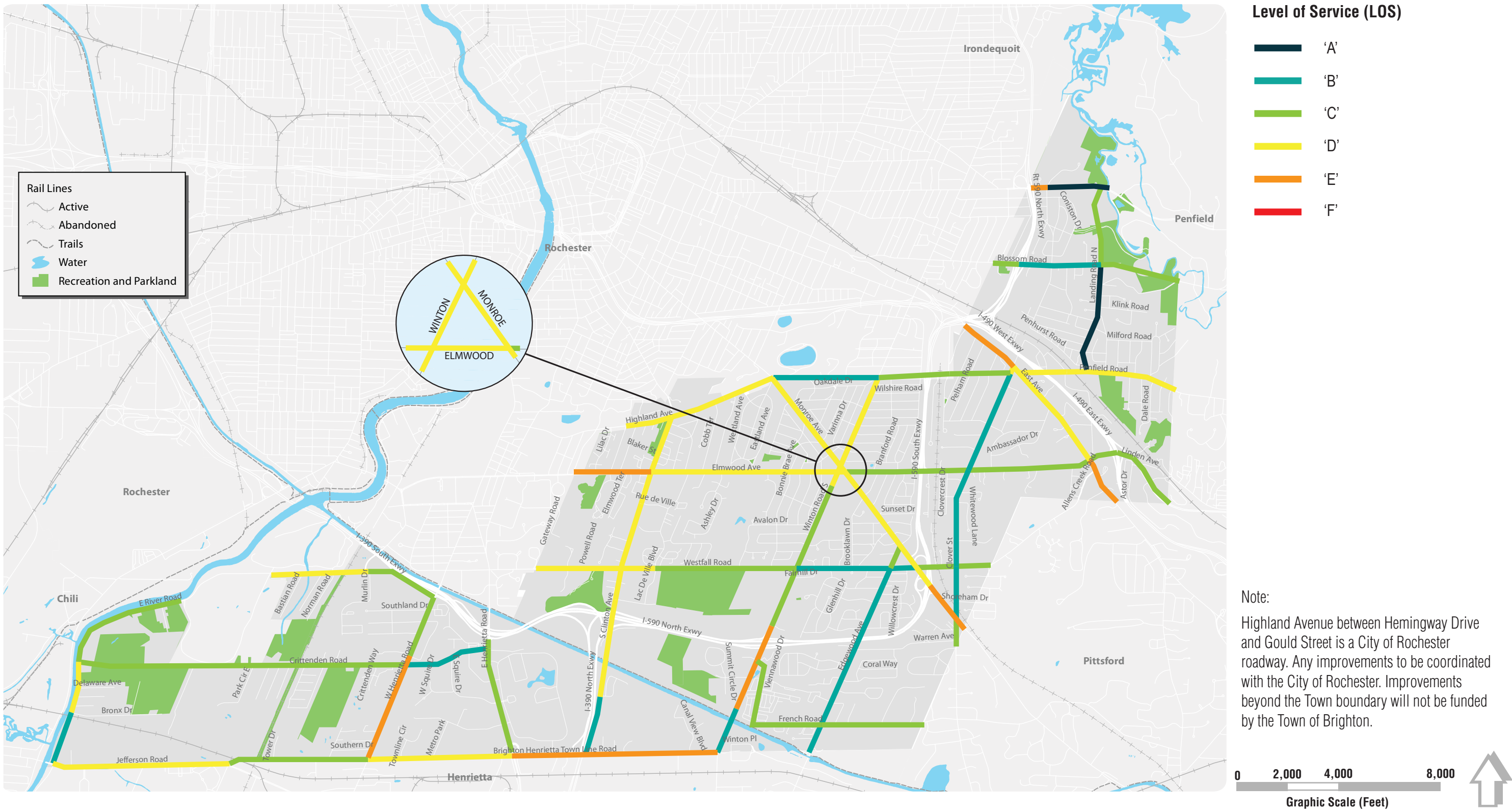
Figure 11
Bicycle Level of Service: Adjacent to Schools Eligible for the Safe Routes to School Program



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Figure 10
Bicycle Level of Service



EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



E. Safety Evaluation

A safety evaluation was conducted for the Town of Brighton using 10 years of historical data from the Genesee Transportation Council. Pedestrian and bicycle crash locations were each mapped in order to identify areas that may present opportunities to improve bicyclist and pedestrian safety. This safety assessment was a key component in selecting the Priority Intersections, as well as making recommendations for Priority Sidewalk Additions.



1. Pedestrian Crash Density

Figure 12 illustrates that the following areas exhibit relatively higher levels of pedestrian crash density:

- Twelve Corners
- Monroe Avenue and Clover Street
- South Clinton Avenue and Elmwood Avenue
- West Henrietta Road and Crittenden Road
- I-390 and East Henrietta Road
- Monroe Avenue and Brooklawn Drive (and generally between Winton Road and Edgewood Avenue)
- East Avenue, Clover Street, and Penfield Road

2. Bicycle Crash Density

Figure 13 illustrates that the following areas exhibit relatively higher levels of bicycle crash density:

- Twelve Corners
- East Avenue, South Landing Road, and Elmwood Avenue/Linden Avenue
- I-590 and Monroe Avenue
- South Clinton Avenue and Elmwood Avenue (and west along Elmwood)
- South Clinton Avenue and Highland Avenue
- I-390 and East Henrietta Road
- East Avenue, Clover Street, and Penfield Road
- Monroe Avenue and Edgewood Avenue

It is important to note that areas with higher crash densities may reflect higher rates of usage (i.e., more pedestrians crossing the street and more bicyclists traveling along the roadway) and do not necessarily indicate that these areas are less safe for an individual bicyclist or pedestrian passing through. However, even if the higher crash densities reflect only the higher rates of usage, these areas should still be considered for the prioritization of safety enhancements on the basis of relative cost effectiveness as they would serve larger numbers of users than areas with lower rates of usage. All recommendations should be sensitive to the context of the location, as well as the professional judgment of the individuals developing and implementing said recommendations.

EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 13
Crash Denisty Analysis: Bicycle Incidents



- Bicycle Collision
- College
- Schools
- Parks

Density

Few Crashes

Many Crashes

Few crashes indicate one singular crash. Many crashes indicate multiple crashes in close proximity of one another.

Note:
10-year historical data provided by the Genesee Transportation Council.

0 2,000 4,000 8,000

Graphic Scale (Feet)



EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 12
Crash Density Analysis: Pedestrian Incidents



- Pedestrian Collision
- College
- Schools
- Parks

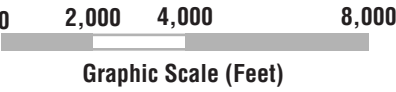
Density

Few Crashes

Many Crashes

Few crashes indicate one singular crash. Many crashes indicate multiple crashes in close proximity of one another.

Note:
10-year historical data provided by the Genesee Transportation Council.



EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



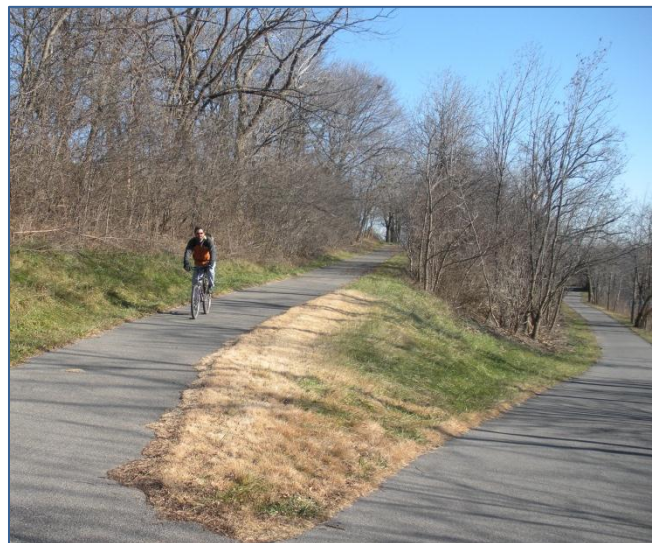
F. Shared-Use Trails

The Town of Brighton has two key shared-use trails that provide opportunities for walking and bicycling for transportation or recreation. Both the Erie Canalway Trail and the Lehigh Valley Trail are regional trails that extend beyond Town borders. Both trails were assessed in late Fall of 2011. Detailed trail inventory sheets can be found in [Appendix E](#), with information regarding:

- Trail surface material, width, and condition;
- Striping;
- Trail alignment and sight distance;
- Amenities (seating, lighting, signage, etc);
- Points of Interest;
- Trailhead or access point(s);
- Road crossings; and
- Other considerations, such as encroachments, property issues, special opportunities/constraints.

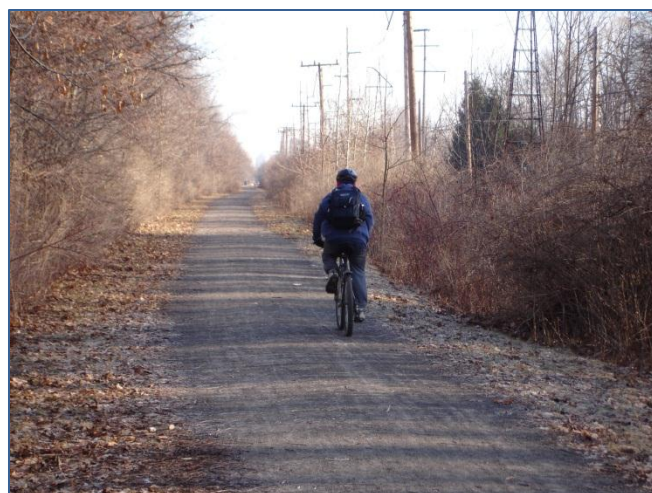
1. Erie Canalway Trail

Within the Town of Brighton, the Erie Canalway Trail travels east to west between Edgewood Avenue and the Lehigh Valley Trail (near the U of R). The trail is asphalt for the entire length. Between Edgewood Avenue and the Brighton Park pathway, the trail is 12 feet wide with a center stripe in good to excellent condition. From just west of Brighton Park to the Lehigh Valley Trail, the trail is nine feet wide, without a center stripe, in fair to good condition. The trail is generally in good condition, and receives substantial use. Sight distances are generally quite good, except for a few brief locations. The trail connects a number of destinations, but wayfinding is difficult, with little signage to direct users to or from the trail or other points of interest. Wayfinding signage is a key recommendation along the trail.



2. Lehigh Valley Trail

Within the Town of Brighton, the Lehigh Valley Trail travels north to south between the Erie Canalway Trail (near the U of R) and Brighton-Henrietta Townline Road. Between the Canalway Trail and East River Road, the trail is 12 feet wide and composed of gravel. From East River Road to Townline Road, the trail is 8 feet wide and composed of stonedust. The trail is generally in good condition, with no striping, and good to excellent sight distance. The trail connects various points of interest, including commercial areas, universities, and open space. The trail does not have any seating, lighting, and little signage. Parking, wayfinding signage, trailheads, and crossing/access improvements are needed.



EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



G. Priority Intersections

In addition to roadway and sidewalks, the Existing Conditions Assessment for [BikeWalkBrighton](#) included an analysis of priority intersections. Intersections were identified based on their proximity to destinations, level of use, and likelihood that focused safety enhancements would benefit the greatest number of users.

1. Locations

Ten priority intersections were identified in the Town of Brighton. As illustrated in [Figure 14](#), the locations selected for detailed analysis included:

- Winton Road and Monroe Avenue (Twelve Corners)
- Elmwood Avenue and Winton Road (Twelve Corners)
- Elmwood Avenue and Monroe Avenue (Twelve Corners)
- South Clinton Avenue and Elmwood Avenue
- East Avenue, Clover Street, and Penfield Road
- Landing Road and Blossom Road
- Monroe Avenue and Brooklawn Drive
- Monroe Avenue and Westfall Road
- Monroe Avenue and Clover Street
- West Henrietta Road and Crittenden Road

Intersections were selected that could serve as examples for other intersections that were not studied. It is important to note that in selecting intersections, consideration was given to students, who may be walking and bicycling to school facilities, as well as senior citizens, who have active transportation needs to get to community services and health care providers. Bicycle and pedestrian facilities are particularly important to both of these groups.

2. Needs Assessment

Intersection safety assessments involved field investigations that considered the physical and operational characteristics of each location, pertinent to pedestrian and bicycle safety. Elements that were investigated include, and are not limited to: sidewalks, crosswalks, crossing widths, intersection geometry and corner radii, traffic controls, lighting, sight lines and other physical conditions; signal operations, phasing and timing related to pedestrian safety, turning volumes, traffic operations, movements and speeds.

The objectives of investigation and recommendations include the following:

- minimize conflicts between different modes of transportation;
- separate conflicts;
- improve visibility between modes; and
- elevate motorist awareness of pedestrian and bicycle activity.

The specific details of each intersection assessment can be found on Sheets 1-8 of [Figure 17](#), presented later in the plan in combination with recommended improvements.

H. Existing Programs and Policies

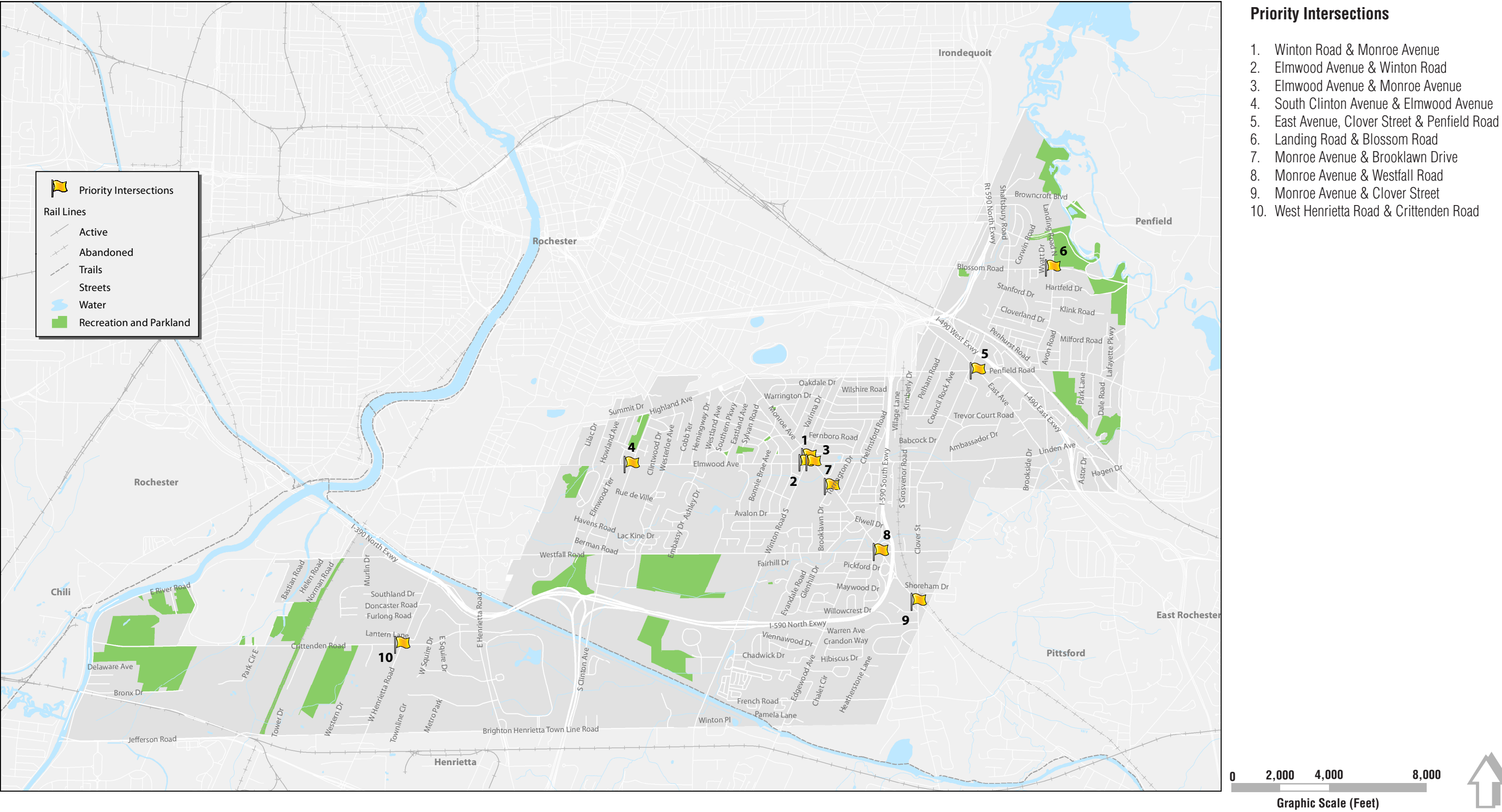
Existing programs and policies related to zoning, engineering standards, outreach and education, maintenance, and enforcement were assessed. The assessment of these programs and policies, where appropriate, can be found side-by-side with recommended improvements in the Recommendations chapter.

EXISTING CONDITIONS ASSESSMENT

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 14
Priority Intersection Locations



Bike Walk Brighton



Chapter 5: Peer City Review Summary

PEER CITY REVIEW SUMMARY

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



A. Peer City Review Summary

An excellent way to identify best practices for the Town of Brighton is to look at other communities around the country that have created robust environments for walking and bicycling.

The Peer City Review for **BikeWalkBrighton** compiles Active Transportation ideas and best practices from some progressive communities with characteristics similar to Brighton. The foundation for this report is a peer city review conducted for the City of Rochester's Bicycle Master Plan in 2010. Cities identified by the Rochester project stakeholders included Boulder, Colorado; Montreal, Quebec; Minneapolis, Minnesota; and Madison, Wisconsin.

It is notable that cold weather climates need not deter the advancement of Active Transportation. In 2010, Minneapolis was ranked as the #1 Bike-Friendly City by *Bicycling* magazine. The city has also received a silver "Bicycle Friendly Community" award from the League of American Bicyclists.

Due to the inherent differences between the City of Rochester and the Town of Brighton, and because **BikeWalkBrighton** includes pedestrians, additional cities were added and each of the original peer cities was reviewed for pedestrian facilities and programs. Information from other cities, including Seattle, Washington and Tucson, Arizona are also included where relevant.

The Peer City Review includes inner-ring type suburban communities similar to the Town of Brighton. The new peer suburban communities are Westminster, Colorado; Edina, Minnesota; Fitchburg, Wisconsin; and Middleton, Wisconsin. Much of the information about each city's program is available in the city's transportation plans and and/or bicycle or pedestrian master plans. Additional details, typically on implementation, were added based on interviews with the bicycle and pedestrian coordinators from the respective cities.

For each of the Peer Cities, information was collected in the following categories:

1. Bicycle Infrastructure including bike lanes, paved shoulders, shared use paths, shared lane markings, and bike boulevards;
2. Bicycle Services including bike parking, bike sharing, end-of-trip facilities, and route/wayfinding signage;
3. Municipal code language that supports pedestrians and bicycling;
4. Pedestrian infrastructure;
5. Bicycle and Pedestrian Education and outreach programs;
6. Municipal staffing commitment;
7. Private sector partnerships and/or incentives;
8. Snow removal strategies; and
9. Strategies for dealing with on-street parking when attempting to retrofit roadways.



Signage examples in Boulder, CO

PEER CITY REVIEW SUMMARY

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



B. Highlights

The Peer City Review provides an extensive catalog of proven best practices for supporting walking and riding. Following are a few selected examples that may be of particular relevance to [BikeWalkBrighton](#). The complete review can be found in [Appendix F](#).

Montreal has developed a 19 mile network called the White Network that is maintained all year long. Since 2007, in addition to routine maintenance, this series of bike paths has been plowed and kept clear of snow allowing for use during all seasons. An additional 39 miles are planned for this network.

The City of Boulder, Colorado is installing bike corrals as a year-long demonstration project to evaluate use, maintenance, traffic safety and public opinion of the treatment. Bike corrals provide seasonal or permanent bike racks in an on-street parking space or parking lot space. Bike corrals are also being proposed for Montreal, where they will be used from spring to the fall and removed in the winter to facilitate snow removal. On-street bicycle parking, similar to a bike corral, is being used in Seattle.

In Edina, Minnesota, a number of bicycle racks have been installed by local Eagle Scouts.

Minneapolis, Minnesota has an extensive bicycle parking program and has published a Bike Racks and Lockers Map to help bicyclists find available parking. Every office building in Minneapolis is required by law to provide bicycle storage. Minneapolis also has specific design guidelines for pedestrian zones, street corners, bus stops, and wayfinding.

In Westminster, Colorado provisions for bicycle parking exist in the municipal zoning code.

Seattle, Washington requires bicycle commuter shower facilities for buildings over 250,000 square feet gross floor area.

In Boulder, Colorado the City runs an annual campaign stressing the importance of using bike lights. Lighten Up Boulder teams the City with the University of Colorado and local merchants to offer discounts on bike light accessories at participating merchants.

Middleton, Wisconsin has submitted a Bicycle Friendly Community Application and is waiting to hear the League of American Bicyclists' review and rating.

Other active transportation practices can be found in the full Peer City Review, found in [Appendix F](#).



Bike corral, Boulder, CO



On-street bicycle parking, Seattle, WA

Bike Walk Brighton



Chapter 6: Alternatives Toolbox

ALTERNATIVES TOOLBOX

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



This section describes the active transportation facilities considered for the Town of Brighton and their potential impacts. Multiple design, program and policy solutions can be used to address bicycle and pedestrian needs. Thus, for each active transportation alternative, reviewing the design details, impacts, and viability for the Town of Brighton is critical to selecting appropriate solution.

For this report, the active transportation facilities are categorized as on-street, off-street, or program and policy alternatives. On-street alternatives include all possible strategies within the roadway, such as bicycle lanes or a road diet. Off-street alternatives deal with the area from the curb to the front of a building with the main focus on the pedestrian experience. Program and policy alternatives provide strategies for zoning changes, educational programs, enforcement, maintenance, program effectiveness, and security. A summary of design details and benefits for each facility that was considered is found in the Design Elements for Active Transportation Matrix (Table 6.1) included in this section.

Also included in the Design Elements for Active Transportation Matrix are different impacts for each alternative. In addition to the typical measure of impact to the bottom-line, each alternative should be assessed based on different user and sustainability impacts. The subsections below explain the impacts reviewed and the matrix shows how each alternative impacts the budget, different users, and social and environmental aspects. Evaluating each alternative's impacts on budget, users and sustainability ensures a selection process that clearly, consistently, and comprehensively assesses the tradeoffs between different pros and cons of each alternative.

Each alternative was evaluated based on these three categories, as well as their appropriateness for addressing the issues specific to the Town of Brighton. Based on input from the Bike Walk Brighton Task Force and the community, the consultants selected which alternatives were the most appropriate.

A. Cost Impacts

Impact to the bottom-line is a key consideration for selecting an active transportation alternative for implementation. The cost of implementing alternatives can range depending on cost of material, labor and design. The Design Elements for Active Transportation Matrix (Table 6.1) provides a cost estimate range for each alternative considered. Cost estimates are grouped in the following three subcategories:

- \$ - Low cost: under \$10,000
- \$\$ - Medium cost: \$10-50,000
- \$\$\$ - High cost: > \$50,000

B. User Impacts

A key component to designing active transportation elements is to understand that different users will likely have different expectations. Some design elements may be beneficial for certain user groups and detrimental to others. For example, one alternative, such as a refuge island, may improve safety for pedestrians or motorists, but may have a negative impact on bicyclists. The different user groups considered for each alternative include: pedestrians, bicyclists, motorists, transit, neighbors, and emergency vehicles. The different user preferences for active transportation alternative are listed below.

1. *Pedestrian Preferences*

- Buffering from moving vehicles
- Aesthetically pleasing surroundings and amenities
- Safe environment
- Shorter walking distances
- Access to community facilities and destinations

2. *Bicyclist Preferences*

- Well-connected network of bicycling facilities
- Safe travel routes
- Direct routes
- Access to community facilities
- Access to bicycle parking facilities

3. *Motorist Preferences*

- Minimal traffic delay and conflicts
- Parking and access to businesses and community facilities
- Consistently designed facilities

4. *Transit Driver and Passenger Preferences*

- Space to operate and maneuver vehicles
- Minimal conflicts and delays
- Multi-modal facilities
- Bus stop access and facilities

5. *Neighbor Preferences*

- Neighborhood connectivity
- To feel safe and secure
- Access to property, businesses, and community facilities

6. *Emergency Vehicle Operator Preferences*

- Space to operate and maneuver vehicle
- Minimal conflicts and delays
- Safe travel routes

ALTERNATIVES TOOLBOX

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



The Design Elements for Active Transportation Matrix (Table 6.1) shows the review of each alternative's impact (positive, negative, mixed, or no impact) for each user group. For example, bicycle lanes provide bicyclists with their own lane, which has a positive impact on all user groups by reducing conflicts in the road between bicyclists and motorists, transit, or emergency vehicles, and on the sidewalk between bicyclists and pedestrians or neighbors.

C. Sustainability Impacts

Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs. As a form of development, active transportation improvements can have a positive or negative impact on the community, quality of life, livability, and the environment. Thus, each alternative considered for the Town of Brighton was evaluated by the following sustainability measures:

1. *Reduces Energy Consumption by:*

- Supporting non-motorized travel,
- Supporting energy efficient movement of people and goods, and/or
- Using resources with lower operations and maintenance requirements.

2. *Reduces Consumption of Material Resources by:*

- Using recycled materials in construction,
- Requiring less infrastructure in design solution, and/or
- Increasing durability and life of design solution.

3. *Reduces Impacts to Environmental Resources by:*

- Minimizing impact on natural environment,
- Improving outdoor air quality,
- Encouraging and supporting biodiversity, and/or
- Reflecting historical and cultural context.












4. *Supports Healthy Urban Communities by:*









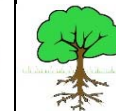
- Incorporating features that support community and livability,
- Incorporating features that support public services and adjacent land uses, and/or
- Incorporating features that enhance public health, safety, and security.








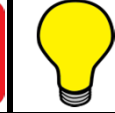
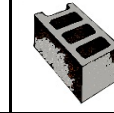
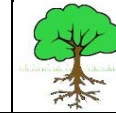

5. *Supports Sustainability During Implementation by:*











- Supporting local economic, social, and resource management needs during construction, and/or
- Reducing environmental and community impacts during construction. (Bevan, 2007)











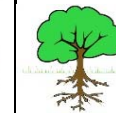



































































The Design Elements for Active Transportation lists whether an alternative has a positive, negative, mixed (positive and negative), or no impact for each sustainability measure. The pages following the matrix provide detailed descriptions and illustrations for selected alternatives from the Active Transportation Toolbox.












	TABLE 6.1: DESIGN ELEMENTS FOR ACTIVE TRANSPORTATION	Cost Impacts	User Impacts						Sustainability Impacts			
	DETAILS & BENEFITS	Estimated Costs	Pedestrians	Bicyclists	Motorists	Transit	Neighbors	Emergency Vehicles	Reduces Energy Consumption	Reduces Consumption of Material Resources	Reduces Impacts to Environmental Resources	Supports Healthy Communities
DESIGN ELEMENT												
On-Street Alternatives												
Bicycle Boulevards	<ul style="list-style-type: none">• A shared roadway intended for through-moving bicyclists• Limited to local motorized traffic by their geometric design• Traffic control features assign right-of-way to the boulevard at intersections to encourage unimpeded bicycle traffic• Most beneficial when serving as an alternate parallel route to a high traffic, less bicycle-friendly arterial	\$	+	+	+	+	+	N	+	+	+	+
Bicycle Lanes: Standard	<ul style="list-style-type: none">• Provide extra buffering, in combination with other elements• Takes bicyclists out of travel lanes, easing motorists' confusion• Can use in conjunction with a road diet• Use Share the Road signage, marked shoulders, and bicycle boulevards where bicycle lanes are not possible• Provide appropriate MUTCD signage• Provide smooth roadway surfaces	\$-\$\$\$	+	+	+/-	+	+	+	+	+	+	+
Bicycle Lanes: Buffered	<ul style="list-style-type: none">• Bike lanes that are separated from the motor vehicle lanes by a wider separation striping• Usually the separation to a buffered bike lane is enhanced with chevron striping• The bike lane is still skipped at commercial driveways and on the approach to intersections - and discontinuous across intersections - just as regular bike lane striping.• Buffered bike lanes are a nonstandard treatment, but can be designed with striping consistent with the MUTCD	\$-\$\$\$	+	+	+/-	+	+	+	+	+	+	+
Bicycle Lanes: Colored	<ul style="list-style-type: none">• Can be used in two different applications: continuous treatment along entire length of bike lane to provide contrast, or painting of conflict zones only• Both treatments alert motorists to the potential presence of bicyclists• Continuous painted lanes can potentially have a traffic calming effect by visually narrowing the roadway• Painted bike lanes are not supported by the MUTCD for traffic control, but painting for aesthetic purposes is allowed• Painted conflict zones are a nonstandard treatment and are not supported by the MUTCD	\$-\$\$\$	+	+	+/-	+	+	+	+	+	+	+
Crosswalks: High Visibility	<ul style="list-style-type: none">• Include pedestrian sign with arrow plaque; in-street pedestrian signs and advance stop/yield line signs• Use saw tooth pavement markings in advance• Place longitudinal markings where wheel tracks can be avoided to reduce wear, maintenance• Unsignalized crossings need further study and coordination with the County	\$-\$\$	+/-	+/-	+/-	+/-	+	+/-	+	+/-	N	+
Crosswalks: Raised	<ul style="list-style-type: none">• Raised crossings include crosswalks and plazas• Used to provide enhanced bicycle and pedestrian crossings at midblock locations, right turn lanes, and bus bays• Raised crossings allow bicyclists/pedestrians to cross the motor vehicle travel stream without changing elevation• This is intended to reinforce the requirement that the motorist must yield at these locations• These crossings can be designed to be consistent with the MUTCD	\$\$-\$\$\$	+	+/-	+/-	+/-	+	+/-	+	+/-	+/-	+

<div>BIKEWALK brighton</div>	TABLE 6.1: DESIGN ELEMENTS FOR ACTIVE TRANSPORTATION	Cost Impacts	User Impacts						Sustainability Impacts			
	DETAILS & BENEFITS	Estimated Costs	Pedestrians	Bicyclists	Motorists	Transit	Neighbors	Emergency Vehicles	Reduces Energy Consumption	Reduces Consumption of Material Resources	Reduces Impacts to Environmental Resources	Supports Healthy Communities
DESIGN ELEMENT			\$-\$-\$-\$									
On-Street Alternatives, Continued												
Curb Extensions	<ul style="list-style-type: none">• Reduces crossing distances and may reduce vehicular speeds• Creates protected parallel parking	\$\$	+	-	+/-	+/-	+/-	+/-	+	+	+/-	N
Cycle Tracks	<ul style="list-style-type: none">• A bikeway separated from the travel lanes by a physical element, which is often on-street parallel parking• Cycle tracks require very careful design, and providing adequate sight distances at conflict areas is critical• Ensuring that motorists yield to bicyclists on the cycle track, where appropriate, is problematic• Appear to have a positive influence on safety, but some cyclists have found them to be problematic due to pedestrian conflicts, motorists using them as loading zones, and increased delays at intersections• Potential conflicts can be minimized using innovative design treatments - chicanes, enhanced sight triangles• Cycle tracks are a nonstandard treatment	\$\$-\$-\$-\$	+/-	+	+/-	+	+/-	+/-	+	+/-	+/-	+
On-Street Parking	<ul style="list-style-type: none">• Shields pedestrians from moving traffic• Car doors create potential hazard when used with bicycle lanes; wide bicycle lanes help to alleviate this hazard• Reverse angle parking puts bicyclist in driver's sightline, but requires more space and buffering than parallel parking	\$\$-\$-\$-\$	+	-	+/-	+/-	+	-	-	+/-	+/-	+/-
Refuge Islands/ Medians	<ul style="list-style-type: none">• Use in conjunction with marked crosswalks with ADT > 12,000 to allow peds/cyclists to cross halfway and wait• Provides enhanced perception of safety for pedestrians and cyclists• Should be raised for increased visibility• Should be 6' min for pedestrians and 6-8' min for cyclists to provide sufficient space and separation from traffic• Separates opposing traffic streams and minimize vehicle/vehicle and vehicle/pedestrian conflicts• May increase traffic speeds• Need more right-of-way and can limit access to adjacent land	\$\$	+	+/-	+	+	+/-	+/-	+	+/-	+/-	+
Road Diet	<ul style="list-style-type: none">• Allows for wider shoulder for cyclists or wider pedestrian area• Reduces vehicular speeds and provides room for exclusive left turn lanes• Reduces frequency and severity of collisions, and may reduce traffic volumes• Reduces crossing width and exposure for pedestrians• Can be used to provide on-street parking	\$-\$-\$	+	+	+/-	+/-	+/-	+/-	+	+	+	+
Uneven Roadway Infrastructure	<ul style="list-style-type: none">• Provide smooth transitions between asphalt and gutter, drainage structures, grates, and other infrastructure• Drainage grates should be bicycle friendly (no parallel-running grates)	\$-\$-\$	+	+	+	+	+	+	+/-	+/-	N	+/-

	TABLE 6.1: DESIGN ELEMENTS FOR ACTIVE TRANSPORTATION	Cost Impacts	User Impacts						Sustainability Impacts			
	DETAILS & BENEFITS	Estimated Costs	Pedestrians	Bicyclists	Motorists	Transit	Neighbors	Emergency Vehicles	Reduces Energy Consumption	Reduces Consumption of Material Resources	Reduces Impacts to Environmental Resources	Supports Healthy Communities
DESIGN ELEMENT		\$-\$\$\$										
<i>On-Street Alternatives, Continued</i>												
Shared Lane Markings or "Sharrows"	<ul style="list-style-type: none"> When a bike lane is not practical, a potential treatment is the shared lane marking, or "sharrow" Intended to assist bicyclists with lateral positioning in the lane, outside the door zone on streets with on-street parallel parking and away from the curb in lanes too narrow to share with a motor vehicle Shared lane markings alert motorists to the position bicyclists are likely to occupy within the lane, encourage safe passing of cyclists by motorists and reduce incidence of wrong-way bicycling Research also suggests that sharrows can reduce the incidence of sidewalk riding 	\$	+	+	+/-	+/-	+/-	+/-	+	+	+	+
Signage: No Turn on Red	<ul style="list-style-type: none"> Bicyclist benefits Needs further study to measure impact on vehicle LOS Helps one crosswalk but hurts the other 	\$	+/-	+/-	-	-	+	N	+/-	+	+/-	+
Signage: Right Turn/Yield to Peds Blank Out Sign	<ul style="list-style-type: none"> Blank-out signs are a way to provide clearly visible information to minimize undesirable motorist movements Alternative to static regulatory and warning signs The sign displays a "Yield to Pedestrians" message to motorists in the right-turn lane 	\$\$	+	+	+/-	+/-	+	+/-	-	-	+	+
Signage: Share the Road	<ul style="list-style-type: none"> A "Share The Road" plaque is mounted below a bicycle warning sign Sign assembly advises drivers to watch for bicycle travel on the roadway 	\$	+	+	+/-	+/-	+/-	N	+	+	+	+
Signals: Bicycle-Demand Actuated	<ul style="list-style-type: none"> Consists of an electrified loop of wire buried in the traffic lane approaches to the intersection Requires dedicated bike space, but allowing cyclists to trip the signal decreases unsafe movements Special pavement markings telling bicyclists where to stop can optimize the functioning of the signal 	\$\$\$-\$\$\$\$	+	+	+/-	+/-	+	+/-	+	N	N	+
Signals: Pedestrian Countdown	<ul style="list-style-type: none"> Informs pedestrians of how much "crossing time" is remaining Use in combination with enhanced crosswalks and other features Now required by MUTCD for all new installations 	\$	+	N	+/-	N	N	N	+	-	N	+
Signals: Timing, Phasing, & Progression	<ul style="list-style-type: none"> Signals can be phased and timed to reduce vehicular delay overall or by approach Progression may help reduce delay for higher-volume areas Example - leading pedestrian intervals 	\$	+/-	+/-	+	+	+	N	+	+/-	N	+
Signalization	<ul style="list-style-type: none"> Signal controlled intersections help limit direct vehicle/vehicle and vehicle/pedestrian conflicts Assigns right-of-way at intersections 	\$\$\$	+	+/-	+/-	+/-	N	+/-	+/-	-	N	+
Turn Lanes	<ul style="list-style-type: none"> Left turn lanes, in particular, allow through traffic to continue to move and reduce the potential for rear-end collisions Use in conjunction with a road diet At signalized intersections, creating separate phases along with turn lanes may increase overall delay 	\$-\$	+/-	+/-	+/-	+	+/-	+	+/-	-	N	+/-

<div>BIKEWALKbrighton</div>		TABLE 6.1: DESIGN ELEMENTS FOR ACTIVE TRANSPORTATION	Cost Impacts	User Impacts						Sustainability Impacts			
DETAILS & BENEFITS		Estimated Costs	Pedestrians	Bicyclists	Motorists	Transit	Neighbors	Emergency Vehicles	Reduces Energy Consumption	Reduces Consumption of Material Resources	Reduces Impacts to Environmental Resources	Supports Healthy Communities	
		\$-\$\$\$											
DESIGN ELEMENT													
Off-Street Alternatives													
ADA-Accessible Bus Stops	<ul style="list-style-type: none">• Provide ADA grades, transitions and surfaces at bus stop• Provide connection to sidewalk• Provide smooth, stable, and slip-resistant surface	\$-\$	+	N	N	+	N	N	N	+/-	+	+	
Benches and Resting Points	<ul style="list-style-type: none">• Provide locations for pedestrians to rest along walk-friendly corridors• Resting points should be placed at regular intervals, a maximum of 900 feet apart• Especially important in encouraging senior citizens to walk to their destination	\$	+	+	N	+	+	N	+	+/-	+	+	
Bicycle Parking: Bicycle Lockers	<ul style="list-style-type: none">• Secure bicycle parking is an important complement to on-street facility improvements• Provides storage options at appropriate location, often determines whether a person will use bicycle or not• Long term parking usually suggests that the bike will be left all day, or overnight, or for an even longer duration• Bicycle storage lockers are generally secure from theft and other tampering	\$	N	+	N	+	+/-	N	+	+	+	+	
Bicycle Parking: Bicycle Racks	<ul style="list-style-type: none">• Secure bicycle parking is an important complement to on-street facility improvements• Provides storage options at appropriate location, often determines whether a person will use bicycle or not• Needs to be accessible to surrounding land uses• More appropriate for short-term parking, usually two hours or less <p>Bicycle corrals are excellent in warmer weather: 1 automobile parking space can be converted to bicycle parking</p>	\$	N	+	N	+	+/-	N	+	+	+	+	
Bicycle Parking: Covered Parking	<ul style="list-style-type: none">• Covered bicycle shelters are another form of long-term bicycle parking, intended for periods of 4-10 hours• Generally located in pedestrian oriented or festival areas due to their higher cost than other forms of bicycle parking• Can be designed as attractive, aesthetically pleasing features of the streetscape• Can promote bicycling by including informational signage, messages, or route maps• Shelters should be outfitted with bike racks• Height should accommodate adult riders while not being so high as to allow rain/snow to fall under the shelter	\$-\$	N	+	N	+	+/-	N	+	+	+	+	
Buffer Area	<ul style="list-style-type: none">• Need a 6'-8' minimum planting strip or tree wells in amenity zone; 8' is the minimum for large maturing trees• Provides extra separation between pedestrians and cars• Provides a more attractive environment• Can serve as a windbreak, if evergreen• Provides shade if deciduous in summer, & reduces heat island effect• Can reduce motorist speed due to decreased sight distance• Utilities should be placed underground when possible	\$-\$	+	+	+	N	+	N	+	+	+	+	
Lighting: Pedestrian Scale	<ul style="list-style-type: none">• Identifies a "pedestrian and cyclist area" and can fill gaps between street lights• Provides additional lighting• Use in conjunction with sidewalk amenity zone	\$	+	+	+	+	+/-	+	-	-	+/-	+	
Lighting: Street Level	<ul style="list-style-type: none">• Use where pedestrian scale lighting is not provided• Increases visibility and potential reduces conflicts for pedestrians, cyclists and motorists	\$	+	+	+	+	+/-	+	-	-	+/-	+/-	

	TABLE 6.1: DESIGN ELEMENTS FOR ACTIVE TRANSPORTATION	Cost Impacts	User Impacts						Sustainability Impacts			
	DETAILS & BENEFITS	Estimated Costs	Pedestrians	Bicyclists	Motorists	Transit	Neighbors	Emergency Vehicles	Reduces Energy Consumption	Reduces Consumption of Material Resources	Reduces Impacts to Environmental Resources	Supports Healthy Communities
												
DESIGN ELEMENT												
Off-Street Alternatives, Continued												
Neighborhood Connectors	<ul style="list-style-type: none">• Provides connections between different neighborhoods or different communities• A safer (and more direct) route often encourages residents to walk or bike instead of drive											
New or Improved Sidewalks	<ul style="list-style-type: none">• Provides a separate space for pedestrians away from travel lanes, particularly when combined with other buffers• 5’ wide minimum for two people to pass comfortably and ADA supported• 6’+ preferred in higher volume locations and to create more of buffer• No utility poles, street furnishings, or other obstructions in sidewalk• Minimize grates and other uneven surfaces											
Pedestrian and Bicycle-Oriented Parking Lots	<ul style="list-style-type: none">• Revise municipal site plan review standards• Applies to commercial properties; provide for bicycle accommodations between the street and the storefront• Provides direct pedestrian paths• Provides covered, secure bike parking• Provides safe and comfortable access to commercial properties for bicyclists and pedestrians• Provides seating near transit stops and corners											
Shared Access Driveways	<ul style="list-style-type: none">• Consolidate driveways by sharing access between users• Reduces potential conflicts between pedestrians and turning vehicles• Use in commercial & retail blocks• Provide incentives for driveway reductions (shared parking provisions, street trees, perennial planting programs)• Maintain sidewalks as concrete, and separate from driveway											
Shared-Use Trail	<ul style="list-style-type: none">• Use where high pedestrian volumes are likely and bicycle lanes are not possible• Allows for pedestrians and bicyclists to share an off-street path• 10’ minimum• Shared use path signage needed											
Sidewalk Amenity Zone	<ul style="list-style-type: none">• Use where high pedestrian volumes are likely, and when possible, in combination with on-street parking• Reduce monotony• 8’ recommended (buffer area between road and sidewalk) not including sidewalk with amenities• Amenities: street trees, street lights, benches, fountains, kiosks, transit amenities, and trash receptacles• Minimum size: 5’ without trees or 6’ with small mature trees• Provide benches at bus stops to make waiting for the bus more comfortable• If necessary, locate utility poles in the amenity zone and avoid poles in the sidewalk• Use pedestrian scale lighting where possible											

	TABLE 6.1: DESIGN ELEMENTS FOR ACTIVE TRANSPORTATION	Cost Impacts	User Impacts						Sustainability Impacts			
	DETAILS & BENEFITS	Estimated Costs	Pedestrians	Bicyclists	Motorists	Transit	Neighbors	Emergency Vehicles	Reduces Energy Consumption	Reduces Consumption of Material Resources	Reduces Impacts to Environmental Resources	Supports Healthy Communities
		\$-\$-\$										
DESIGN ELEMENT												
Program & Policy Alternatives												
Zoning	<ul style="list-style-type: none"> Develop/augment zoning code and site planning language, standards, and guidance Enhance accessibility and safety for bicyclists and pedestrians 	\$	+	+	+/-	+	+	N	+	+	+	+
Educational Programs	<ul style="list-style-type: none"> Develop educational programs for pedestrians, bicyclists and motorists Design programs to cater to different age groups 	\$-\$	+	+	+	+	+	+	+	N	N	+
Community Designation: Bicycle Friendly	<ul style="list-style-type: none"> The Bicycle Friendly Community program was created by the League of American Bicyclists Offers the opportunity to be recognized for achievements in supporting bicycling for transportation and recreation Also serves as a benchmark to identify improvements yet to be made in the community 	\$	+	+	+/-	+	+	N	+	+	+	+
Community Designation: Walk Friendly	<ul style="list-style-type: none"> The Walk Friendly Community program was created by the Pedestrian and Bicycle Information Center Offers the opportunity to be recognized for achievements in supporting walkability Also serves as a benchmark to identify improvements yet to be made in the community 	\$	+	+	+	+	+	N	+	+	+	+
Maintenance Programs	<ul style="list-style-type: none"> Plow and sweep regularly Engage residents and businesses to participate in clean-up days Neighborhood plantings or gardens 	\$-\$	+	+	+	+	+	+	+	+	+	+
Program Effectiveness Measures	<ul style="list-style-type: none"> Develop measurement tools to track success of implemented recommendations Possible measurements include: <ol style="list-style-type: none"> # of crashes, injuries, fatalities Behaviors # of citations issued # of people walking Knowledge, opinions & attitudes Changes in organizational activity Monitor traffic volumes Monitor traffic speeds 	\$-\$	+	+	+	+	+	+	N	N	N	+
Enforcement	<ul style="list-style-type: none"> Increase police enforcement for pedestrian, bicyclist and motorist actions Respond to special needs (such as seniors or school areas) 	\$-\$	+	+	+	+	+	+	N	N	N	+

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



D. On-Street Alternatives

DESIGN ELEMENT 1: BICYCLE BOULEVARDS

Description: Bicycle boulevards are low-volume streets that have been optimized for bicycle travel through traffic calming and diversion, signage and pavement markings, and intersection crossing treatments. Bicycle boulevards are shared roadway facilities that are comfortable and attractive to cyclists with a wide range of abilities and ages but are less convenient as through routes for automobiles. Bicycle boulevards should be located on routes that serve major origins, destinations and travel corridors (often paralleling an arterial), and should be as direct and intuitive as possible. Residential roadways with already low vehicle volumes are often selected for bicycle boulevards.

Bicycle boulevards use a variety of traffic calming elements to achieve greater comfort and safety for bicyclists and pedestrians. For example, diverters can direct cars to main thoroughfares, while allowing bicycles and pedestrians to safely continue along the route. At some intersections, motorists may be restricted to a "right turn only", while pedestrians and bicyclists are allowed to travel straight. Barriers may restrict cars altogether, creating a cul-de-sac feel along part of the route. Traffic circles and speed humps can help to reduce vehicle speed through intersections.

At the very least, bike route signs can be used to indicate an alternative route that avoids bottlenecks or safety hazards on a given street, such as Monroe Avenue. The signs would allow identification of the boulevards in a way that would be easily understood by bicyclists but that would not encourage motorists to use the boulevards as shortcuts even if the automobile discouragement features are not fully implemented.

Bicycle boulevards typically consist of one or more of the following conditions:

- low traffic volumes (or bike lanes where traffic volumes are medium);
- discouragement of non-local motor vehicle traffic;
- free-flow travel for bikes by assigning the right-of-way to the bicycle boulevard at intersections wherever possible;
- traffic control to help bicycles cross major arterial roads; and
- a distinctive look and/or ambiance such that cyclists become aware of the existence of the bike boulevard and motorists are alerted that the roadway is a priority route for bicyclists.

Illustrations:



Source:

<http://www.bicyclinginfo.org>; <http://www.livablestreets.com>

Images: (L, R) David Baker & Partners Architects website, (C) City of Berkeley, CA website

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D. On-Street Alternatives

DESIGN ELEMENT 2: BICYCLE LANES/SPACE

Description: Bicycle lanes consist of a portion of the roadway that has been designated by striping, signing and pavement marking for the preferential or exclusive use by bicyclists. Striped bicycle lanes make the movements of both motorists and bicyclists more predictable. Bicycle-friendly cities such as Madison and Eugene have extensive bike lane networks. More recently, large cities such as Chicago, Philadelphia, and Seattle have begun to stripe bike lanes on their arterial and collector streets as a way of encouraging bicycle use. A number of cities, such as Washington D.C., provide two-way bike lanes between the curb and the parking lane. Some of the roads in adjacent municipalities have bike lanes, and these roadways would benefit from continuous striping. At the very minimum, edge line pavement markings with a four-foot curb offset could be provided in lieu of an identified bike lane.

In general, bicycle lanes should always be:

- one-way, carrying bicyclists in the same direction as the adjacent travel lane
- on the right side of the roadway
- located between the parking lane (if there is one) and the travel lane

Critical Dimensions - Bicycle lane width (AASHTO Guide):

- 4 feet: Minimum width of a bike lane on roadways with no curb, no gutter, and no on-street parking
- 5 feet: The recommended width for a bike lane under most circumstances (e.g. adjacent to a curb)
- 6 feet: Recommended bike lane width when adjacent to on-street parking
- 11 feet: Total width for shared bike lane and parking area, no curb face
- 12 feet: Shared bike lane and parking area with a curb face

Critical Dimensions - Bicycle lane stripe width:

- 6-inch: solid white line separating bike lane from motor vehicle lane (possibly increased to 8-inches where emphasis is needed)
- 4-inch: optional solid white line separating the bike lane from parking spaces

Illustrations:



Source: <http://www.bicyclinginfo.org>, Images: (L) City of Richmond, BC, Canada website, (R) www.pedbikeimages.com - Dan Burden

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D. On-Street Alternatives

DESIGN ELEMENT 3: CURB EXTENSIONS

Description: Curb extensions—also known as bumpouts or neckdowns—extend the sidewalk or curb line out into the parking lane, which reduces the effective street width. Curb extensions significantly improve pedestrian crossings by reducing the pedestrian crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street. Curb extensions have been constructed throughout the greater Rochester area.

Curb extensions placed at an intersection essentially prevent motorists from parking in or too close to a crosswalk or from blocking a curb ramp or crosswalk. Motor vehicles parked too close to corners present a threat to pedestrian safety because they block sightlines, obscure visibility of pedestrians and other vehicles, and make turning particularly difficult for emergency vehicles and trucks. Curb extensions also provide an excellent place to locate stop signs that will be more visible since they cannot be easily blocked by parked cars. The restricted street width created by curb extensions sends a visual cue to motorists to travel more slowly. Turning speeds at intersections can be reduced with curb extensions (curb radii should be as tight as is practicable).

Curb extensions must not extend into travel lanes, bicycle lanes, or shoulders (curb extensions should not extend more than 6 feet from the curb). The turning needs of larger vehicles, such as school buses, need to be considered in curb extension design.

A curb extension is designed to:

- Improve safety for pedestrians and motorists at intersections.
- Increase visibility and reduce speed of turning vehicles.
- Encourage pedestrians to cross at designated locations.
- Prevent motor vehicles from parking at corners.
- Shorten crossing distance and reduce pedestrian exposure.

Illustrations:



Source: www.walkinginfo.org

Images: www.pedbikeimages.org - Carl Sundstrom (L), Dan Burden (R)

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D. On-Street Alternatives

DESIGN ELEMENT 4: HIGH VISIBILITY CROSSWALKS

Description: A crosswalk is (a) the part of the roadway at an intersection between the sidewalks on opposite sides of the highway, measured from the curbs or, in the absence of curbs, from the edges of the traversable roadway, or (b) any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface. There are marked and unmarked crosswalks.

Marked crosswalks highlight the right-of-way where motorists can expect pedestrians to cross and designate a stopping location. They can also indicate optimal or preferred locations for pedestrians to cross. Marked crosswalks should be installed in conjunction with other enhancements that physically reinforce crosswalks and reduce vehicle speeds, particularly at uncontrolled locations and on major roads. Other enhancements include advance vehicle stop lines, curb extensions, and refuge (crossing) islands. An unmarked crosswalk is merely the part of a roadway that is included within the extensions of the sidewalk lines between opposite sides of the roadway at an intersection.

Although the MUTCD provides options for crosswalk markings, the continental design is recommended because research indicates that it is the most visible to drivers. The ladder design is created with white longitudinal lines at a 90-degree angle to the line of the crosswalk. The lines should be approximately 12 to 24 inches wide and spaced 12 to 24 inches apart. The continental design can also be installed so that the primary paths for vehicular tires are between the crosswalk markings, this helps to reduce wear and maintenance. Use of the continental design for crosswalk markings also improves crosswalk detection for people with low vision and cognitive impairments. It is important to note that crosswalks can also create a false sense of security for pedestrians.

Crosswalks should not be slippery, create tripping hazards, or be difficult to traverse. Tape is one of the best materials for marking crosswalks because it is highly reflective, long lasting, slip-resistant, and does not require a high level of maintenance if installed properly. Although initially more costly than paint, both inlay tape and thermoplastic are more cost-effective in the long run. Inlay tape is recommended for new and resurfaced pavement, while thermoplastic may be better on rougher pavement surfaces. Tape and thermoplastic are more visible and less slippery than paint when wet.

To maintain the continuity of the pedestrian network along main streets, the Town should also consider adding stop bars and crosswalks (high visibility or otherwise) on intersecting residential streets.

Illustrations:



Source: www.walkinginfo.org; <http://www.fhwa.dot.gov/environment/sidewalk2/sidewalks208.htm>

Images: (L) www.neighborhoodaccess.org, www.pedbikeimages.com - Dan Burden (C), Carl Sundstrom (R)

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D. On-Street Alternatives

DESIGN ELEMENT 5: REFUGE ISLANDS

Description: A refuge island, also known as a crossing island, center island, median refuge area, pedestrian island, or median slow point, is a raised island placed in the street at an intersection or mid-block to separate crossing pedestrians from motor vehicles. Center refuge islands allow pedestrians to deal with only one direction of traffic at a time, enabling them to stop partway across the street to wait for an adequate gap in traffic before crossing the second half of the street.

Where mid-block or intersection crosswalks are installed at uncontrolled locations (i.e. where no traffic signals or stop signs exist), refuge islands should be considered as a supplement to the crosswalk. They are also appropriate at signalized crossings, though they should never be used to create a two-phased pedestrian crossing at a signalized intersection (don't leave pedestrian stuck on a crossing island between moving lanes of traffic). If there is enough width, center crossing islands and curb extensions can be used together to create a highly improved pedestrian crossing, but care should be taken to maintain bicycle access. Detectable warnings are needed at cut-throughs.

This kind of facility has been demonstrated to significantly decrease the percentage of pedestrian crashes. The factors contributing to pedestrian safety include reduced conflicts, reduced vehicle speeds approaching the island (the approach can be designed to force a greater slowing of cars, depending on how dramatic the curvature is), greater attention called to the existence of a pedestrian crossing, opportunities for additional signs in the middle of the road, and reduced exposure time for pedestrians. Refuge islands have been successfully used throughout the region.

The FHWA recommends raised medians (or pedestrian refuge islands) be considered in curbed sections of multi-lane urban roadways, particularly where pedestrians, high traffic volumes (exceeding 12,000 average daily trips per day), and intermediate or high travel speeds occur together. Medians/refuge islands should be at least 6 feet wide, but preferably 8 feet for pedestrian comfort and safety. They should also be of adequate length to allow the anticipated number of pedestrians to stand and wait for gaps in traffic before crossing the second half of the street. Maintenance concerns, such as snow removal, can be a concern.

Illustrations:



Sources: www.livablestreets.com, www.walkinginfo.org
Images: www.pedbikeimages.org / Dan Burden

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D. On-Street Alternatives

DESIGN ELEMENT 6: ROAD DIET

Description: A road diet is a treatment given to an urban roadway in which the number of lanes is reduced, and the freed space converted to parking, bike lanes, landscaping, walkways, or medians. Road diets are implemented to provide additional pavement and safety for bicyclists and pedestrians, reduce speeding, and to make room for parking. Monroe County has successfully implemented other road diets in the area, including one on Dewey Avenue in the Town of Greece. A road diet is recommended for sections of Monroe Avenue, where the Level of Service is anticipated to conform to standards set by the Monroe County DOT.³ An illustration of this concept can be seen (later in the report) in [Figure 25](#). The final design may differ slightly.

Road diets are anathema to traditional traffic engineering principles because they tend to reduce roadway capacity. However, in practice, road diets can cause vehicle speeds to readjust to a more optimal speed, increasing the throughput of vehicles per lane. For this reason, road diets sometimes reduce congestion, and generally always increase safety for all users of the roadway. The need for road diets comes from the fact that multi-lane urban roads are built to handle large volumes of traffic during the morning and evening rush hours. Generally, during the other 22 hours of the day, the road is larger than necessary. This abundance of pavement encourages speeding, and places bicyclists and pedestrians at far higher risk than a typical two-lane road.

The most frequent type of conversion is from four lanes to three, with the middle lane serving as a two-way turn lane (TWTL). Alternatively, the middle "lane" can be a raised median with breaks or left turn pockets for turns. Road diets involving streets serving up to 20,000 vehicles per day can substantially improve safety without significantly reducing roadway capacity. Most road diet projects result in the same or greater traffic volumes, but at a slower speed.

Dependent on the number of turning movements, the capacity of a three-lane road can be almost equivalent to that of a four-lane road, because it operates more efficiently, and because left-turning vehicles are removed from the flow of traffic, reducing delay. Three-lane roads are inherently safer because the most prudent driver sets the speed, there is only a single lane of on-coming traffic to monitor when turning left, and the two directions are separated by the TWTL or median.⁴

Illustrations:



Sources: www.livablestreets.com, www.walkinginfo.org; Images: www.pedbikeimages.org / Dan Burden

³ MCDOT Level of Service Expectations for Signalized Intersections: LOS of "D" or better for the overall intersection and each approach, LOS of "E" or better for each individual movement, and v/c ratios less than 1.00 for each individual movement.

⁴ Burden, Dan and Peter Lagerwey. *Road Diets: Fixing the Big Roads*. Walkable Communities. 1999.

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E. Off-Street Alternatives

DESIGN ELEMENT 1: ADA ACCESSIBLE BUS STOPS

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



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

Sources: http://wwwadata.org/adaportal/Facility_Access/ADAAG/Special_Occupancies/ADAAG_10.html

Images: <http://www.fhwa.dot.gov>, <http://dotlibrary.dot.gov>

DESIGN ELEMENT 2: BICYCLE PARKING

Description: More than 1.5 million bicycles are reported stolen every year in the United States, and fear of bicycle theft is recognized as a significant deterrent to bicycle use. The availability of safe and convenient parking is as critical to bicyclists as it is for motorists and yet it is frequently overlooked in the design and operation of shops, offices, schools, and other buildings.

Bicycle parking needs to be visible, accessible, easy to use, convenient, and plentiful. Racks need to support the whole bike (not just one wheel) and enable the user to lock the frame and wheels of the bike with a cable or U-shaped lock. Parking should preferably be covered, well lit, and in plain view without being in the way of pedestrians or motor vehicles. And if any of these criteria aren't met, there's a good chance cyclists won't use what is provided and will park wherever they think their bicycle will be safe.

Bicycle parking facilities are sometimes classified into Class 1 and Class 2 facilities; Class One being lockers or racks in enclosed areas (providing protection from theft), and Class Two being stands or racks in unsupervised areas. However, most communities divide parking facilities into those that provide acceptable long-term or short-term parking. Short-term bicycle parking is usually defined as being two hours or less, such as might be necessary outside a store, or for visitors to an office building or park. Long term parking usually suggests that the bicyclist is leaving the bike all day, or overnight, or for an even longer duration.

Visibility to bicyclists is critical, and when there is bicycle parking, it should be publicized. The racks can be painted in bright colors so that pedestrians and bicyclists can see them easily. Signs can be used to direct cyclists to the

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parking area. A bicycle logo can be painted on the rack or on the ground. The availability and location of bicycle parking can be publicized in marketing, advertising and informational pamphlets.

Wherever possible, bicycle parking should be covered to protect the bike from rain, snow and other elements, particularly with the weather patterns of Western New York. Covered parking areas should have at least six or seven feet of clearance, but not so high as to allow rain and snow to easily blow under the roof.

2A. BICYCLE LOCKERS

Obviously the level of security and protection from the elements needs to be greater, but the immediate convenience of the parking facility may not be as important. For secure, all-day or overnight parking, for instance, the Portland guide assumes that riders will be willing to walk a short distance (e.g. 750 feet) to or from their destination.

Long-term parking options include:

- Lockers, individual lockers for one or two bicycles
- Racks in an enclosed, lockable room
- Racks in an area that is monitored by security cameras or guards (within 100 feet)
- Racks or lockers in an area always visible to employees

Perhaps the easiest solution is the bicycle locker. Generally they are as strong as the locks on the door. They are designed to be secure for individual bikes with panniers, computers, lights, etc, left on the bike. Some bike lockers are designed to be stacked so there is twice as much parking density. Good protection from the weather is another benefit. Bike lockers tend to be used most for long-term parking in areas without a lot of continuous oversight. On the downside, if lockers have coin-operated locks, they can be a target of theft, and may attract various non-intended uses.

Illustrations:



Images: http://www.transport.wa.gov.au/cycling/images/cycling_lockers.jpg, <http://www.mcclellanparktma.org>

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2B. BICYCLE RACKS

Racks need to be sited and installed appropriately for them to be well used. Racks that are too close to the wall, or which don't have enough room between them, will end up sitting empty while nearby railings, trees and light poles continue to be used by bicyclists. Racks need to be clearly visible and accessible, yet shouldn't interfere with pedestrians or street furniture. Here are some considerations that have been identified by other municipalities. Racks should be:

- Installed in public space within municipal limits, usually on a wide sidewalk (ten feet wide or more) with five or more feet of clear sidewalk space remaining.
- Placed to avoid conflicts with pedestrians. They are usually installed near the curb and away from building entrances, crosswalks, fire hydrants, curb ramps, etc.
- Installed in bus stops or loading zones only if they do not interfere with boarding or loading patterns and there are no alternative sites.
- Visible to the cyclist.
- Only installed in concrete, as they cannot be securely anchored in asphalt. Racks cannot be installed on heated, vaulted, or architectural sidewalks.
- Within 50 feet of the main entrance to the building, or entrances that are used by cyclists.
- Well distributed (i.e., it is typically better to have four or five racks spread out along one city block rather than a group of four or five racks mid-block).
- Located in areas of high pedestrian activity to discourage would-be thieves.

Racks offer an opportunity for public art, but first and foremost must be functional for cyclists. Some municipalities specify that the inverted U-type bike rack is the required bicycle rack, although other racks may be proposed if they meet certain performance requirements. Every other current publication on bicycle parking follows essentially the same approach. Racks should:

- Support the frame of the bicycle and not just one wheel
- Allow the frame and one wheel to be locked to the rack when both wheels are left on the bike
- Allow the frame and both wheels to be locked to the rack if the front wheel is removed
- Allow the use of either a cable or U-shaped lock
- Be securely anchored
- Be usable by bikes with no kickstand
- Be usable by bikes with water bottle cages
- Be usable by a wide variety of sizes and types of bicycle

Illustrations:



Sources: <http://www.ibike.org/engineering/parking.htm>, <http://www.bicyclinginfo.org>
Images: (L) <http://www.cyclesafe.com>, (C) <http://gothamist.com>, (R) <http://www.bikeride.com>

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E. Off-Street Alternatives

DESIGN ELEMENTS 3 & 4: SIDEWALKS AND BUFFER AREAS

Description: Sidewalks are pedestrian lanes that provide people with space to travel within the public right-of-way that is separated from vehicles in the roadway. They also provide places for children to walk, run, skate, ride bikes, and play. Sidewalks are associated with significant reductions in pedestrian collisions with motor vehicles. Such facilities also improve mobility for pedestrians and provide access for all types of pedestrian travel: to and from home, work, parks, schools, shopping areas, transit stops, etc. Buffer areas can be developed in association with sidewalks to provide a pleasant and inviting walking area, and make sidewalks safer.

FHWA recommends a minimum width of 5 feet for a sidewalk, which allows two people to pass comfortably or to walk side-by-side. Wider sidewalks of six feet or more should be installed near schools, at bus stops, in commercial areas, or anywhere high concentrations of pedestrians exist. Sidewalks should be continuous along both sides of a street and sidewalks should be fully accessible to all pedestrians, including those in wheelchairs. Utility poles, street furnishings or other obstructions should not be placed in the sidewalk, and uneven surfaces, such as grates, should be minimized. New or improved sidewalks are recommended in corridor zones where there is a high potential for walking but a pedestrian-oriented human scale environment is lacking.

A buffer area of six to eight feet is desirable along most corridors and should be provided to separate pedestrians from the street. Eight feet is the minimum for large mature street trees. The buffer area will vary somewhat depending on the character of the roadway corridor. In commercial districts, a sidewalk amenity zone is more appropriate. Parked cars and/or bicycle lanes can provide a functional buffer area, but neither offers the aesthetic improvements provided by vegetation. In residential areas, a landscape strip is more suitable. Careful planning of sidewalks is important in order to provide adequate safety and mobility. For example, there should be a flat sidewalk provided in areas where driveways slope to the roadway.

Illustrations:



Sources: <http://www.walkinginfo.org>

Images: Town of Greece Dewey Avenue Corridor Study, 2007

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E. Off-Street Alternatives

DESIGN ELEMENT 5: PEDESTRIAN-SCALE LIGHTING

Description: Good quality and placement of lighting can enhance an environment as well as increase comfort and safety. Pedestrians often assume that motorists can see them at night; they are deceived by their own ability to see the oncoming headlights. Without sufficient overhead lighting, motorists may not be able to see pedestrians in time to stop.

In commercial areas with nighttime pedestrian activity, streetlights and building lights can enhance the ambiance of the area and the visibility of pedestrians by motorists. Lighting can signify a pedestrian and cyclist area and fill gaps between streetlights. It is best to place streetlights along both sides of arterial streets and to provide a consistent level of lighting along a roadway. Nighttime pedestrian crossing areas may be supplemented with brighter or additional lighting. This includes lighting pedestrian crosswalks and approaches to the crosswalks.

In commercial areas, specialty pedestrian-level lighting may be placed over the sidewalks to improve pedestrian comfort, security, and safety. Mercury vapor, incandescent, or less expensive high-pressure sodium lighting is often preferred as pedestrian-level lighting. Low-pressure sodium lights are low energy, but have a high level of color distortion. Pedestrian-scale lighting should be implemented in conjunction with the sidewalk amenity zones.

Purpose:

- Enhance safety of all roadway users, particularly pedestrians
- Enhance commercial districts
- Improve nighttime security

Considerations:

- Ensure that pedestrian walkways and crosswalks are well lit.
- Install lighting on both sides of wide streets and streets in commercial districts.
- Use uniform lighting levels.

Illustrations:



Source: <http://www.walkinginfo.org>

Images: <http://www.pedbikeimages.org> / Dan Burden

ALTERNATIVES TOOLBOX

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



E. Off-Street Alternatives

DESIGN ELEMENT 6: SHARED ACCESS DRIVEWAYS

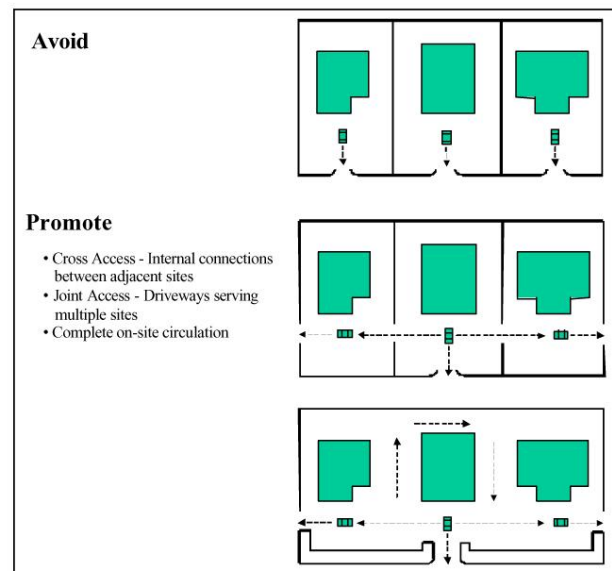
Description: Driveway spacing and driveway density are important considerations in managing access. When driveways are spaced too closely together or the number of driveways per block or mile becomes too large, a significant increase in traffic accident rates occurs. Traffic also tends to become congested more quickly in such situations. This is a concern on Monroe Avenue, where a high number of access drives introduce conflict and a lack of continuity for pedestrians.

A shared driveway is when two or more adjacent properties use the same driveway for ingress and/or egress. Shared driveways are very common in newer commercial areas, for instance at strip malls, regional shopping centers, and office parks. Sharing driveways is good design practice since conflict points caused by motorists entering and leaving the businesses are reduced. This will, in turn, tend to reduce traffic accidents associated with turning traffic and improve the traffic flow on the main road.

Joint and cross access are formal, legal methods of ensuring that adjacent properties can share driveways. In the case of joint access, two adjacent property owners share a driveway along their common property line. In the case of cross access, one property owner has the legal right to access and use a driveway that is on the adjacent property owner's land. Joint and cross access can be built into private real estate titles through easements. They can also be encouraged or required in local planning or design standards or in municipal and county ordinances.

Sharing driveways is most valuable as an access management strategy when property frontages are short. For example, when the number of commercial properties along a typical 400 to 500 foot block face is more than three or four. A rule of thumb on driveway sharing in an urban or suburban area might be that properties with less than 50 to 60 feet of frontage along an arterial street should not have individual driveways. These properties would share driveways with neighboring properties. Three to four commercial driveways per block face is a desirable maximum standard for an urban or suburban arterial street. This means that when there are more than three or four parcels or commercial buildings on a block face, driveway sharing and cross access should be strongly encouraged. When the number of parcels and potential driveways along a block face is small, driveway sharing and joint and cross access are not needed.

Illustration:



Source: <http://www.ctre.iastate.edu/research/access/toolkit/14.pdf>
Images: <http://www.ctre.iastate.edu/research/access/toolkit/14.pdf>

ALTERNATIVES TOOLBOX

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



E. Off-Street Alternatives

DESIGN ELEMENT 7: SIDEWALK AMENITY ZONE

Description: The beauty and livability of a community depends greatly on the design of its streets. The character and quality of the space between the curb and the face of a building has a lot to do with the way people walking in the community feel about it. Creating comfort for the pedestrian is an important way to generate positive economic activity on the streets.

Streetscape is composed of two elements: the clear walking area - the pedestrian zone - and the area between the curb and the sidewalk – the amenity zone. These zones are typically distinguished by a change in materials, from hard materials to greenery, though in areas of high pedestrian traffic the amenity zone may include less planting and more paving.

The purpose of the amenity zone is to ensure that the pedestrian zone will be free of obstacles. Depending on the design of the sidewalk corridor, the amenity zone may or may not be paved. On sidewalk corridors where the sidewalk is set back from the street, such as when a planting strip is provided, the amenity zone consists of the width of the unpaved area. On sidewalks that are paved from the curb to the property line, the amenity zone is not as clearly defined.

Elements that should be located in the amenity zone include: street trees, streetlights, street furniture (benches, fountains, etc), trash receptacles, kiosks, utility poles, and parking meters. The average size recommended for a sidewalk amenity zone is eight feet wide, not including the sidewalk. Sidewalk amenity zones should be used where high pedestrian volumes are likely, and when possible, in combination with on-street parking.

Illustrations:



Sources: Downtown Jacksonville, FL Master Plan, <http://www.fhwa.dot.gov/environment/sidewalk2/sidewalks204.htm>
Images: <http://www.pedbikeimages.org> / Dan Burden

E. Off-Street Alternatives

DESIGN ELEMENT 8: PEDESTRIAN AND BICYCLE-ORIENTED PARKING LOTS

Description:

The physical layout of a development, particularly the parking lot, can often make the difference in a person's choice to walk between stores or to adjacent developments. Careful attention should be given to the location of buildings as well as the configuration of parking lots. Site plan review standards should be developed for commercial properties to accommodate bicycles and pedestrians between the street and the storefront. [Figure 35: Pedestrian and Bicycle Oriented Parking Lot](#) provides a diagram of good parking lot practices. Several provisions can ensure a better walking environment in commercial and office developments.

Building Setbacks. Buildings should not automatically be separated from the street by parking lots—this discourages pedestrian access and primarily serves those who arrive by automobile. A maximum setback requirement of 15 to 25 feet can help to encourage pedestrian activity. Parking, driving, and maneuvering areas should not be located between the main building entrance and the street. Parking lots should be located on the side and rear yards of the property whenever possible.

Building Orientation and Facades. Main building entrances should be oriented to face the street designated as a bus route. Entrances and paved walkways should lead directly to a bus stop. Visual interest is very important to pedestrians—long, blank walls with no openings onto the street discourage walking. Building facades should maintain continuity of design elements such as windows, entries, storefronts, rooflines, materials, pedestrian spaces and amenities, and landscaping. Parking garages on streets with bus service should have ground-floor street frontage developed for office, retail, or other pedestrian-oriented uses.

On-site Walkways. For developments with multiple buildings and/or outparcels, all building entrances on the site should be connected by walkways to encourage walking between buildings and to provide a safe means of travel for pedestrians. Sidewalks between the building edge and parking lots should allow pedestrians safe and convenient access to building entrances without having to walk within driving aisles of parking lots.

Pedestrian Access Between Adjacent Developments. To encourage walking instead of driving between uses, sidewalks should connect those uses to adjacent activity centers. Barriers such as fences or vegetation should not be placed so as to hinder access between developments.

Lighting. Pedestrian-scale lighting should be designed to light the walkway, thereby increasing pedestrian safety. Pedestrian lighting should be used in addition to lighting provided for motorists' safety. Time-Saver Standards for Landscape Architecture includes an excellent chapter on desirable lighting levels for pedestrian facilities.

Improvements Between the Building and the Street. Design elements in the area between the building and the street are critical to successful pedestrian spaces. The streetscape should provide visual interest for the pedestrian. The area should be landscaped if project budgets allow.

Bicycle Parking. Provision of bicycle parking at destinations is crucial—without it, bicycling becomes far less convenient. Bicycle parking ordinances can help to improve the situation. Bicycle parking could be provided in the form of bicycle racks, bicycle lockers, or bicycle corrals. In warmer months, a bicycle corral is a great solution where one automobile parking space is converted into temporary bicycle parking. Please see image on the right on the following page for an example of a bicycle corral.

ALTERNATIVES TOOLBOX

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Parking Lot Design. Parking lots with 50 or more spaces should be divided into separate areas with walkways and landscaped areas in between that are at least 10 feet in width. Pedestrian paths should be designed with minimal direct contact with traffic. Where pedestrian paths cross the traffic stream, raised speed tables that slow cars while providing an elevated pedestrian walkway should be provided. Additional recommendations for pedestrian-oriented parking lots include:

1. **Location.** Keep parking on one or two sides of the shopping center, away from the side that will generate the most pedestrian access. This pedestrian access point could be an office park, outparcel shopping or restaurant, or a residential area.
2. **Direct Pedestrian Paths.** Provide a direct pedestrian path from parking lots and parking decks to the buildings they serve. Clearly delineate this path by striping, using different paving materials, or situating the path through the center of a series of strategically placed parking islands.
3. **Use of Landscaping.** Landscaping can be used to channel and organize the traffic flow in parking lots as well as to provide pedestrian refuge areas. Avoid open parking lots that allow cars to move in any direction.

Illustrations:



Source: U.S. DOT Federal Highway Administration <http://www.tfhrc.gov/safety/pedbike/pubs/05085/chapt5.htm>

Images: <http://www.pedbikeimages.org> / Dan Burden

Bike Walk Brighton



Chapter 7: Recommendations

RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



A. Overall Network Recommendations

BikeWalkBrighton recommends a comprehensive approach to enhancing active transportation in the Town. Core concepts guiding the recommendations include:

1. Improving safety through implementation of infrastructure improvements, programs and policies.
2. Providing a balanced approach that addresses the needs of pedestrian and bicyclists of all ability levels.
3. Emphasizing links and connections between existing active transportation assets to support the growth of a safe, attractive and identifiable **BikeWalkBrighton** network.
4. Identifying partnerships and collaborations that foster the growth of active transportation in Brighton and surrounding communities.
5. Making best use of existing infrastructure and opportunities to provide a cost-effective and sustainable Active Transportation System.

The infrastructure recommendations include intersection improvements, sidewalk additions, bicycle boulevards, new shared-use trails, and “hybrid trails” which blend different facility types into a continuous route. Concept projects take advantage of existing infrastructure and opportunities, address the need for new east-west routes, and provide connectivity to community resources. Taken together, implementation of the recommended projects will provide an expanded grid for active transportation in Brighton, and improved connectivity to the growing regional system. Input from the general public and the Task Force guided the development of the recommendations. See **Figure 15**.

Special consideration was given to students, who may be walking and bicycling to school facilities, as well as senior citizens, who have active transportation needs to get to community services and health care providers. Bicycle and pedestrian facilities are particularly important to both of these groups. In addition to the core concepts listed above, all of the proposed recommendations were designed with the following considerations in mind:

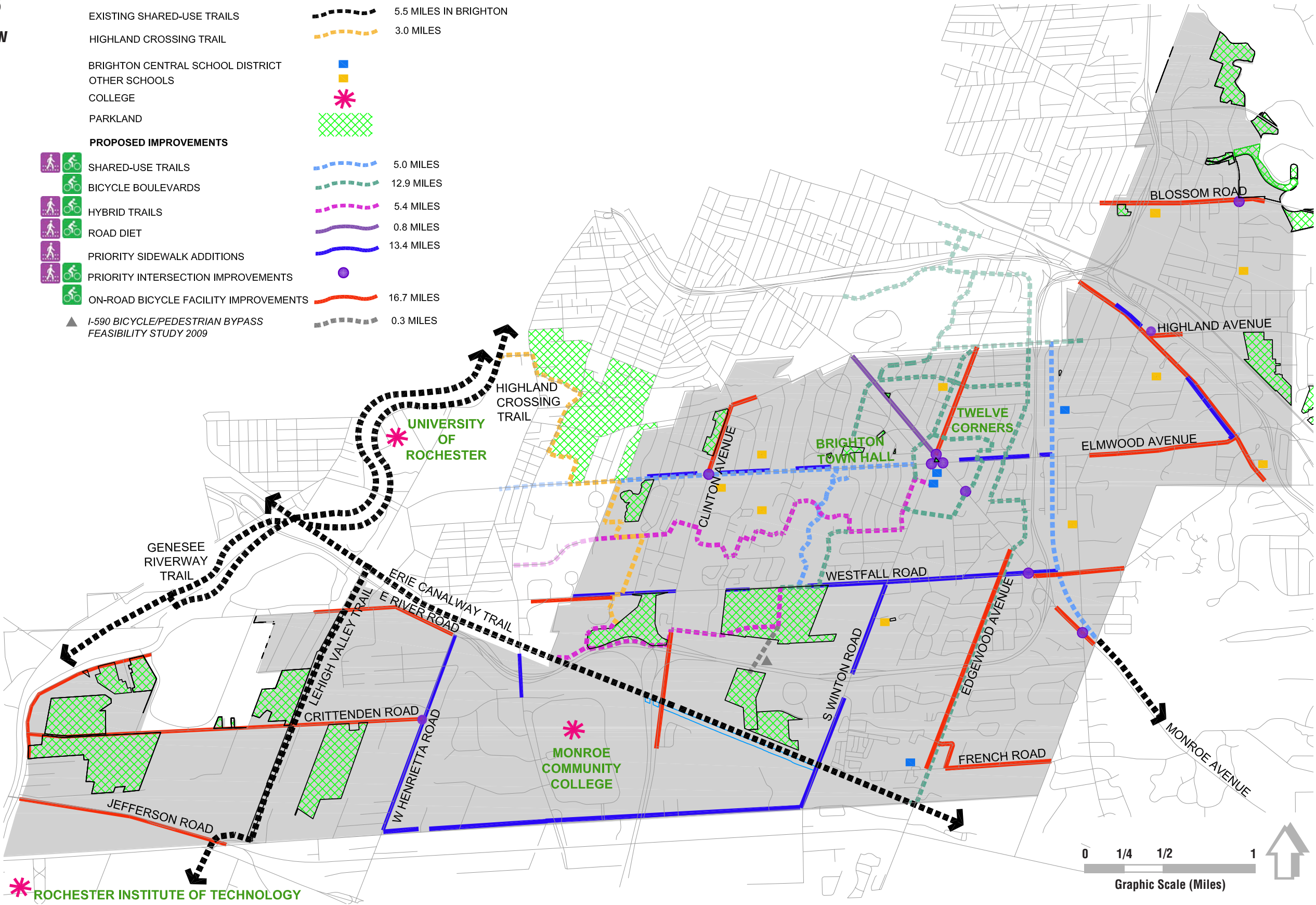
- Compliance with design guidance from AASHTO, MUTCD, ADAAG;
- Potential funding eligibility; and
- Support from the public.

It is important to note that additional study and operational analysis is required for each of the recommendations prior to implementation. Consultation and concurrence from facility owners is required prior to implementation. Access agreements from landowners or property acquisition are necessary prior to implementation.

RECOMMENDATIONS



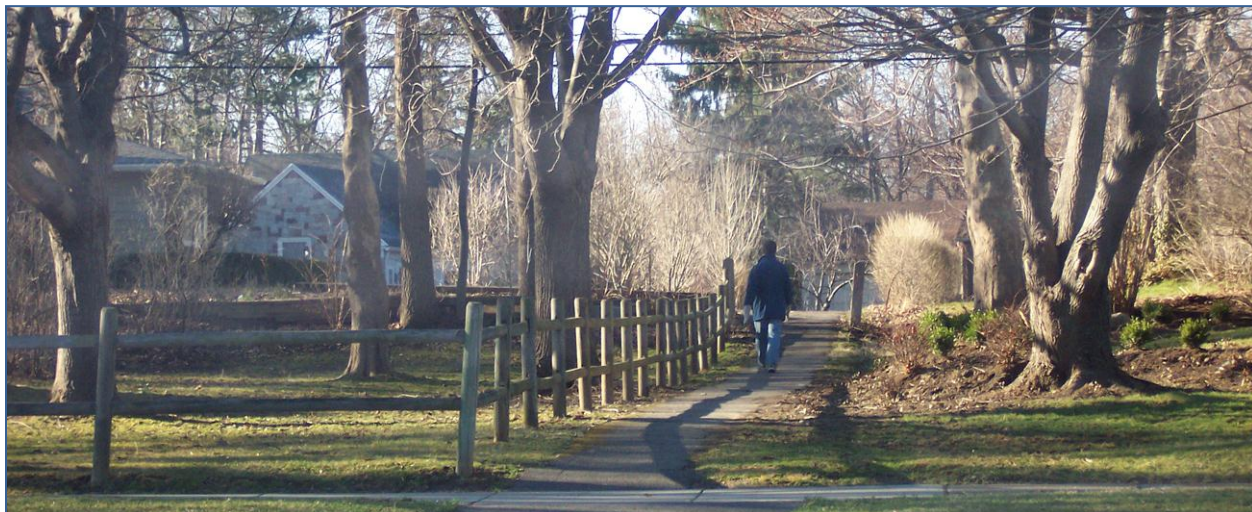
Figure 15
Overview



Note: Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.

RECOMMENDATIONS

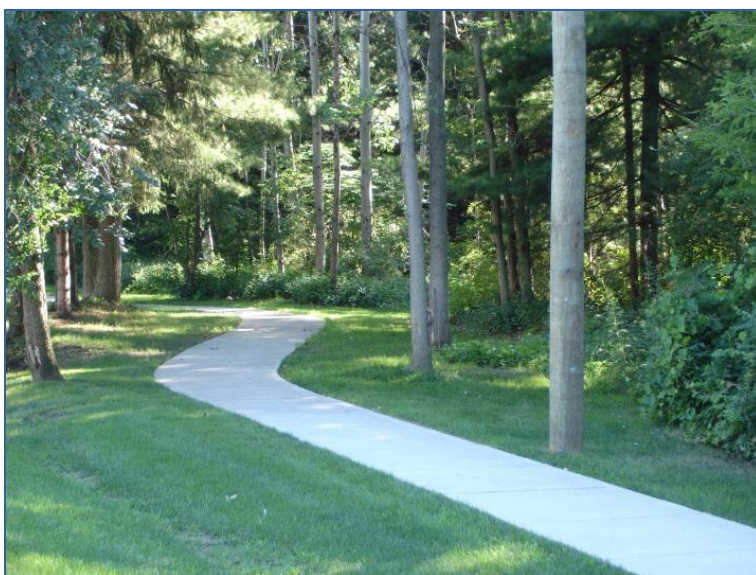
A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



B. Sidewalk Additions

One important task of [BikeWalkBrighton](#) was to identify gaps in the existing sidewalk network, and recommend priority sidewalk additions to help close the gaps. The long-term goal of the Town is to have sidewalks on both sides of all arterial and collector roads. It is recognized that local streets with low traffic volumes can often provide a safe pedestrian environment without a full sidewalk system. In certain locations, new sidewalk construction can also serve as off-street neighborhood connections to enhance walkability. The existing Edgemoor-Ashbourne connector is a good example.

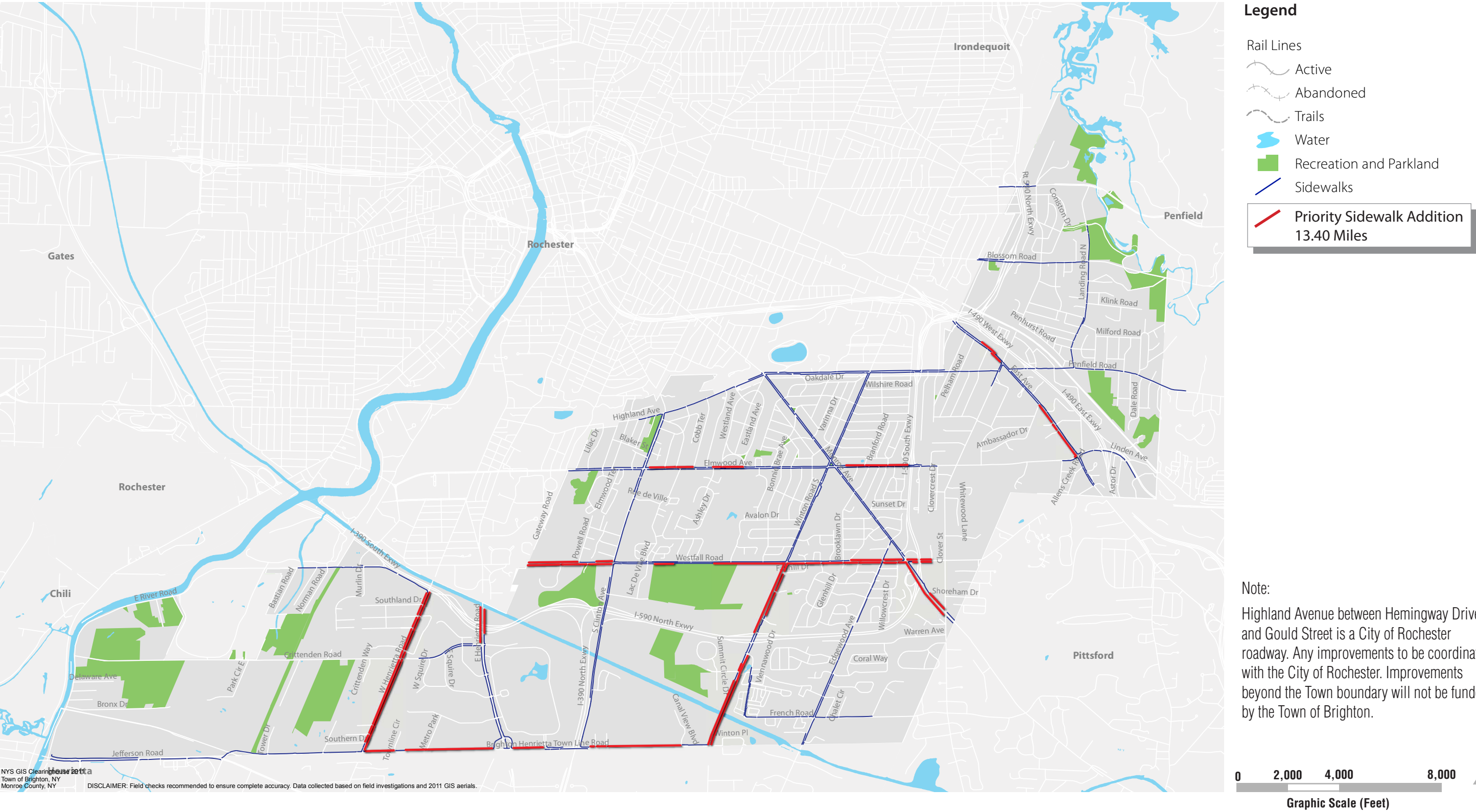
The inventory of existing conditions mapped the current sidewalk system in Brighton, and identified existing gaps. Priority sidewalk additions address gaps that are in close proximity to community destinations, show a history of pedestrian safety issues, and improve overall connectivity of the pedestrian network. [BikeWalkBrighton](#) recommends 13.4 miles of Priority Sidewalk additions. Please see [Figure 16](#).



RECOMMENDATIONS



Figure 16
System Map of Sidewalks - Priority Sidewalk Additions



RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



C. Priority Intersection Improvements

Project resources allowed for a maximum of ten intersections in the Town to be selected for detailed study. The Priority Intersections received safety assessments and recommendations for improvements. The intersections were selected based on proximity to priority locations, 10 year history of crashes involving pedestrians and bicyclists, and input from the [BikeWalkBrighton](#) Task Force, Town Staff and residents. Please refer to [Figure 14](#) (provided earlier in the plan) for the locations of Priority Intersections.

The Priority Intersections serve as prototypes, or case studies, which highlight improvement strategies that can be applied over time to other intersections in Brighton. Please see [Figure 17](#), sheets 1-8 for illustrations of the priority intersection improvements. Please note that currently, NYSDOT does not support use of high visibility crosswalks at signalized intersections. However, Monroe County DOT utilizes high visibility crosswalks at signalized intersections. A consistent and uniform approach to crosswalks in Brighton is recommended.

Priority Intersection improvements are recommended for the Twelve Corners, but additional enhancements were also identified as a vision that the Town of Brighton can work towards. Please see [Figure 18](#) for an illustration of the next level of improvements that are recommended in this location. Both NYSDOT and Monroe County DOT reviewed the proposed enhancements, but were concerned about cost related to contrasting pavement. Figure 18 proposes a vision that would need to go through further review to develop a concept that was acceptable to all parties.



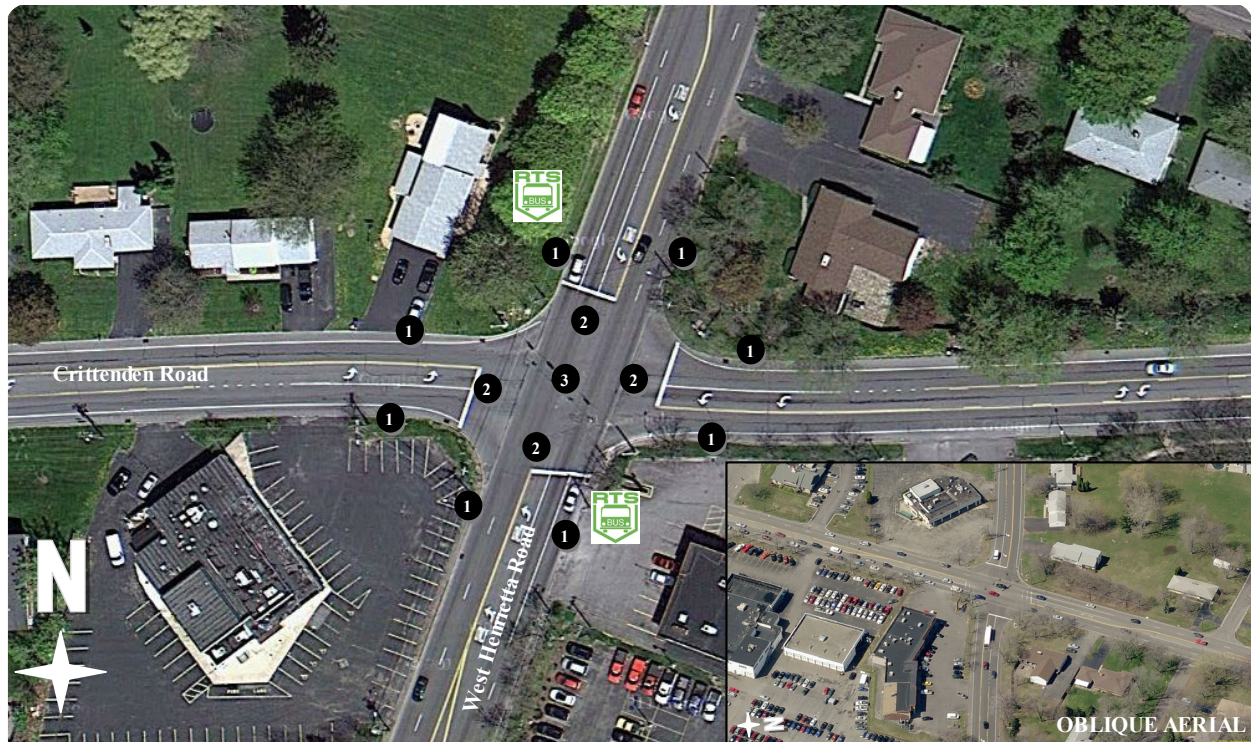
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 8

Priority Intersection Improvements: West Henrietta Road & Crittenden Road



Context

- Residential area north of intersection
- Pedestrian generators (i.e. restaurant, convenience store)
- Auto dealerships
- Transit stops
- Walk Score: 43 - Car Dependent

Issues & Concerns

- No marked crosswalks
- No curb ramps
- No sidewalks
- Possible driveway location interference with pedestrians
- Gaps for pedestrians to cross if needed
- Limited shoulder space
- High volumes of traffic

Alternatives

1. Install sidewalks
2. Install high visibility crosswalks
3. Install pedestrian countdown signals w/push button actuation / ADA compliant pedestrian crossings

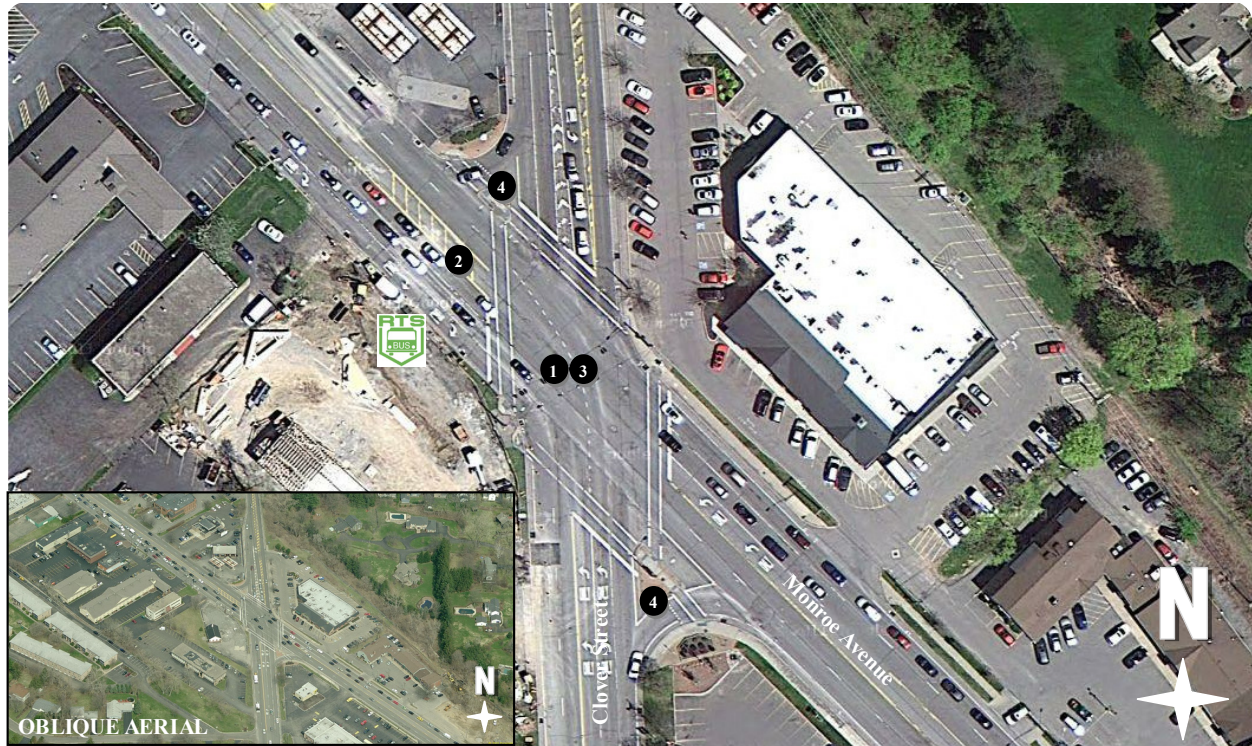
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 7

Priority Intersection Improvements: Monroe Avenue & Clover Street



Context

- Retail centers
- Bike lanes; Bike Route
- Employment centers
- Transit stop
- Walk Score: 68—Somewhat Walkable

Alternatives

1. Install all high visibility crosswalks
2. Install raised median pedestrian refuge
3. Install pedestrian countdown signals
4. Relocate pedestrian crossing closer to approach end of right turn island

Issues & Concerns

- Skewed intersection—long pedestrian crossings
- Pedestrian crossing distance
- Future intersection reconstruction projects should consider upgrading to the latest ADA guidelines for pedestrian crossings

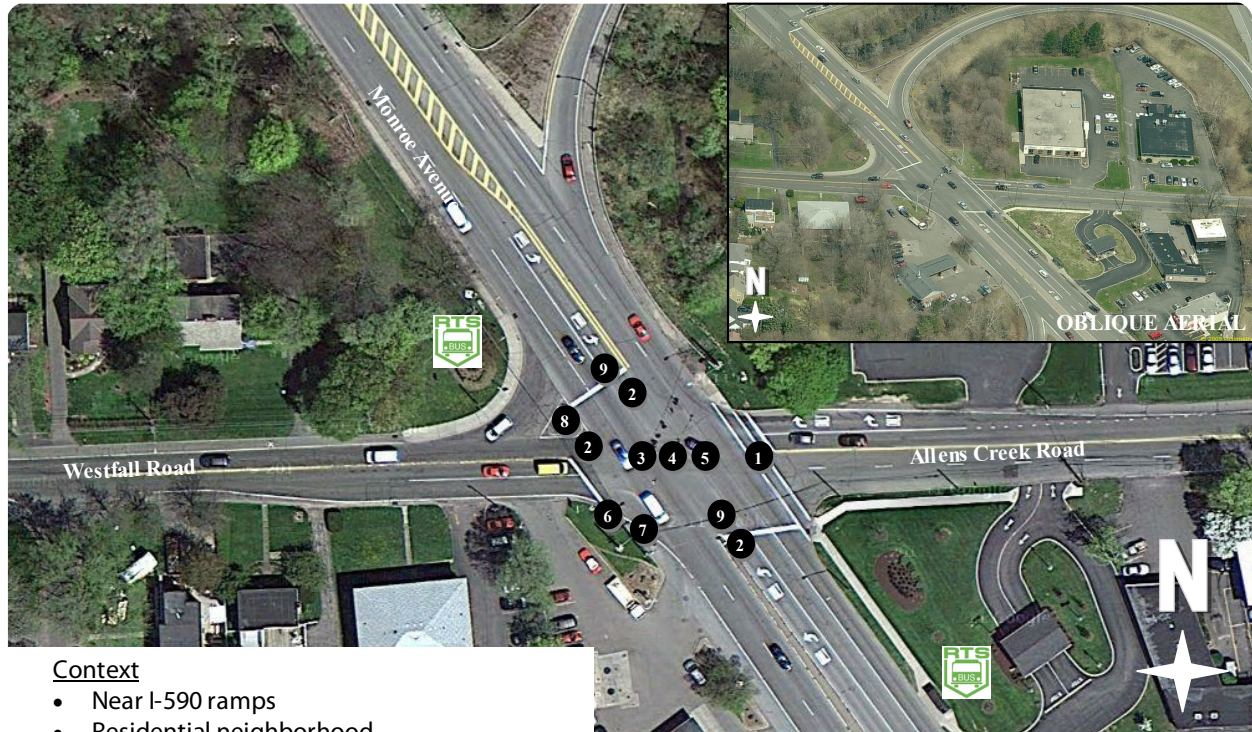
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 6

Priority Intersection Improvements: Westfall Road & Monroe Avenue



Context

- Near I-590 ramps
- Residential neighborhood
- Transit stops
- Walk Score: 60 - Somewhat Walkable

Issues & Concerns

- Skewed intersection
- Lack of sidewalks, marked crossings, and curb ramps
- Pedestrians not clearly directed to crossing points
- Driveway locations too close to intersection
- No pedestrian signals
- No turning restrictions
- High volume of traffic/close to on-ramp
- Crossing distance is long, but there is a channelized island

Alternatives

1. Install high visibility crosswalks
2. Install new crosswalks across Monroe Avenue and Westfall Road
3. Install all new pedestrian countdown signals
4. Advanced stop bars on all approaches
5. Install ADA compliant pedestrian crossings
6. Install smaller radius on southwest corner
7. Install pedestrian apron area on southwest corner
8. Modify right turn island to provide space for a pedestrian refuge
9. Install Yield to Pedestrian blank out signs for permissive left turns off of Monroe Avenue

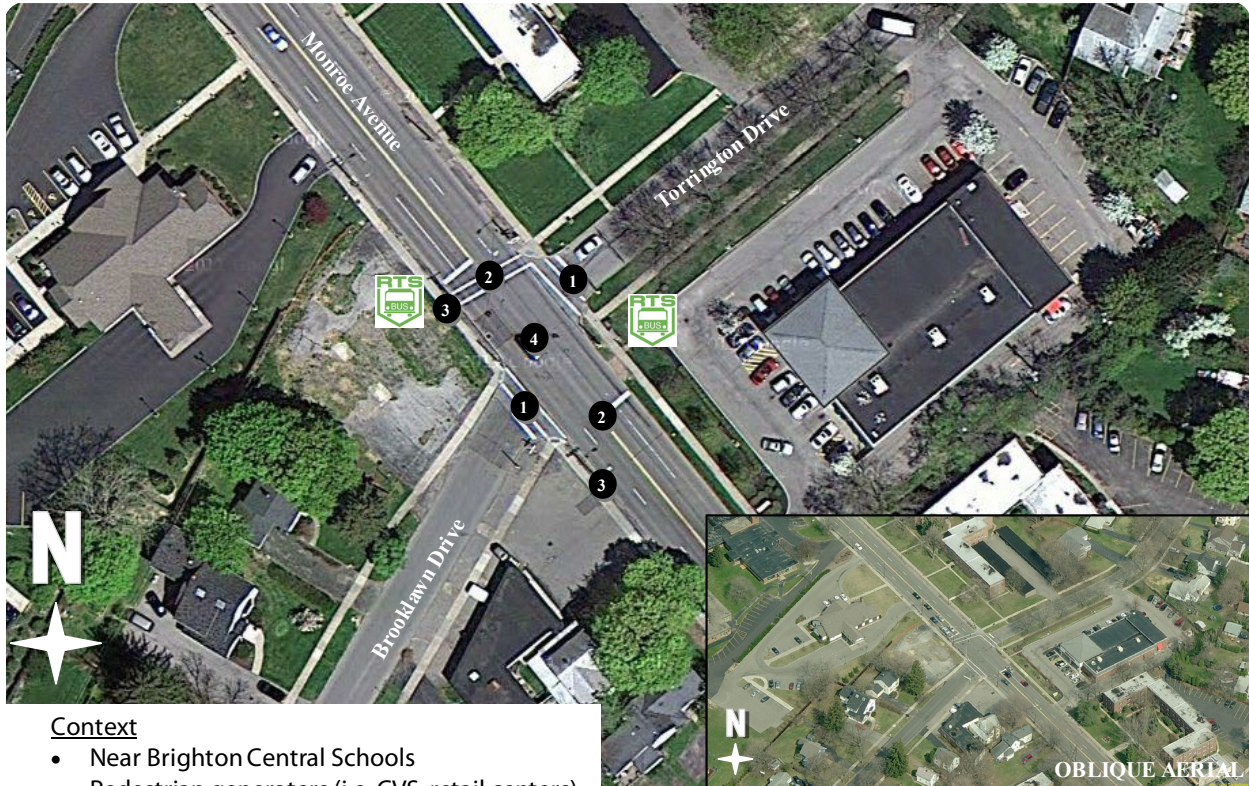
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 5

Priority Intersection Improvements: Monroe Avenue & Brooklawn Drive



Context

- Near Brighton Central Schools
- Pedestrian generators (i.e. CVS, retail centers)
- Residential neighborhoods
- Transit stops
- Walk Score: 68 - Somewhat Walkable

Issues & Concerns

- Offset intersection
- Sidewalk conditions may not be conducive to all users; small landing area at curb ramps
- Buffer space along Monroe Avenue on western side is not wide enough; pedestrians are splashed by water during wet roadway conditions
- Future intersection reconstruction projects should consider upgrading to the latest ADA guidelines for pedestrian crossings

Alternatives

1. Install high visibility crosswalks on side roads
2. Install textured crosswalks across Monroe Avenue
3. Enlarge buffer space (depending on ROW)
4. Install pedestrian signals on Brooklawn Drive and Torrington Drive approaches

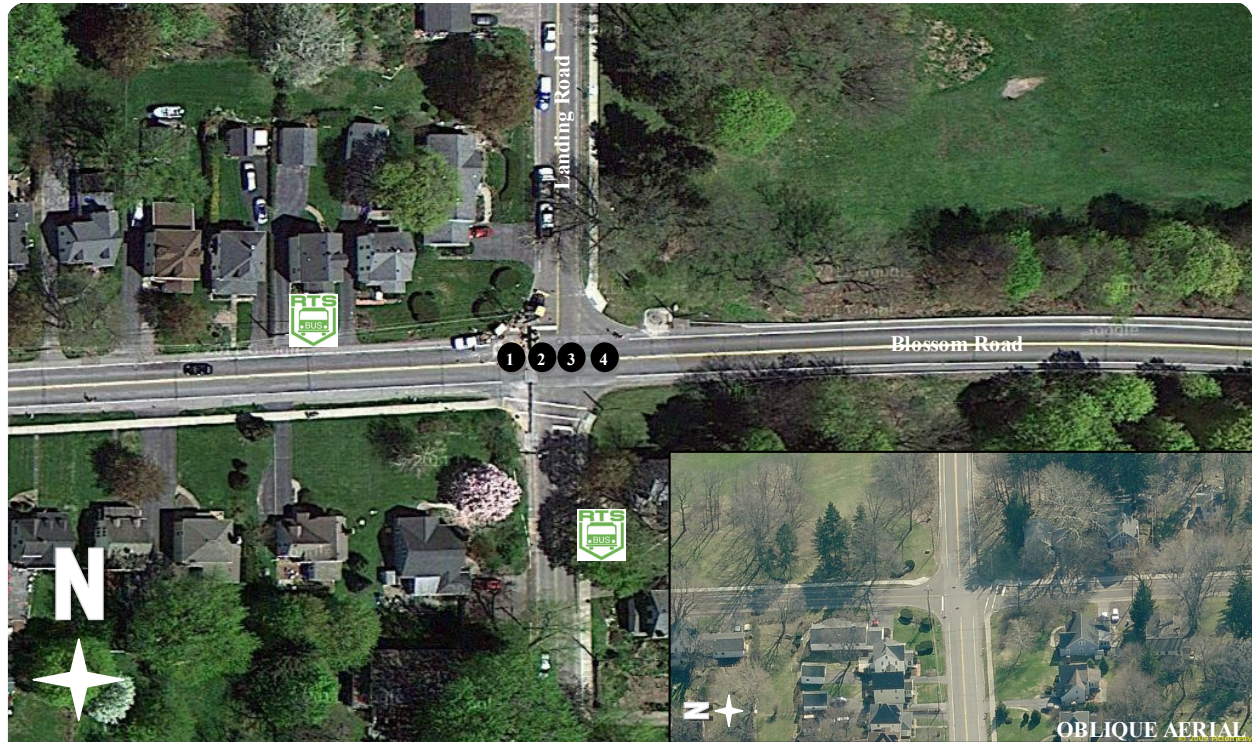
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 4

Priority Intersection Improvements: Landing Road & Blossom Road



Context

- Residential neighborhoods
- Recreational parkland
- Transit stops
- Walk Score: 20 - Car Dependent

Issues & Concerns

- Limited crosswalks (only on south leg)
- Pedestrians are directed to crossing points without crosswalks (north side)
- No overhead lighting
- Sight line with grade changes on westbound, eastbound and southbound approaches
- Crossings are not ADA compliant

Alternatives

1. Install high visibility crosswalks on the northbound and westbound approaches
2. Install overhead lighting
3. Install ADA compliant pedestrian crossings
4. Consider an urban compact roundabout for future

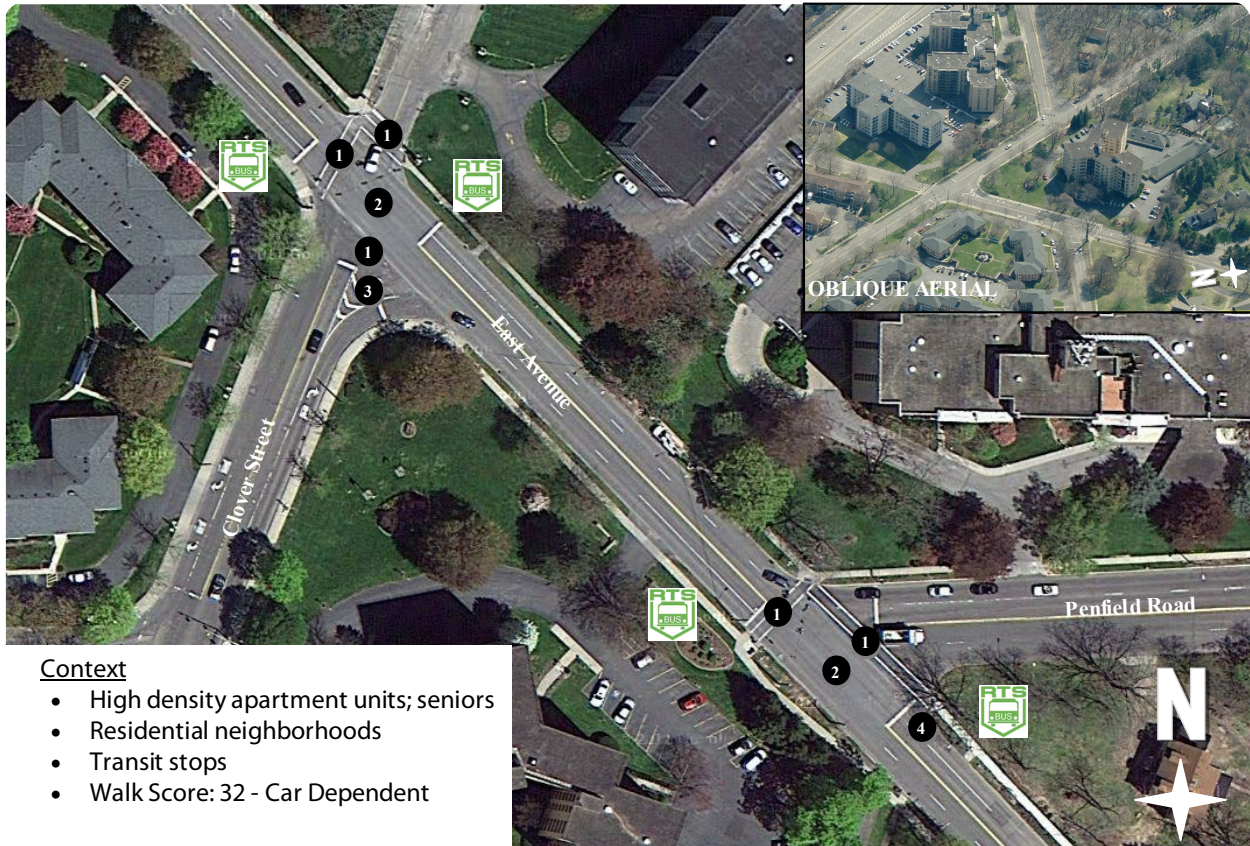
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 3

Priority Intersection Improvements: East Avenue, Clover Street, & Penfield Road



Context

- High density apartment units; seniors
- Residential neighborhoods
- Transit stops
- Walk Score: 32 - Car Dependent

Issues & Concerns

- Skewed Intersections—long crossings
- Pedestrian crossing time
- Lighting at both intersections
- Skewed intersections, higher turning speeds
- High turning traffic volumes
- High residential density mostly seniors
- Future intersection reconstruction projects should consider upgrading to the latest ADA guidelines for pedestrian crossings

Alternatives

1. Install high visibility crosswalks
2. Install pedestrian countdown signals
3. Raised island vs. painted channelized area on Clover
4. Relocate stop bar prior to crosswalk

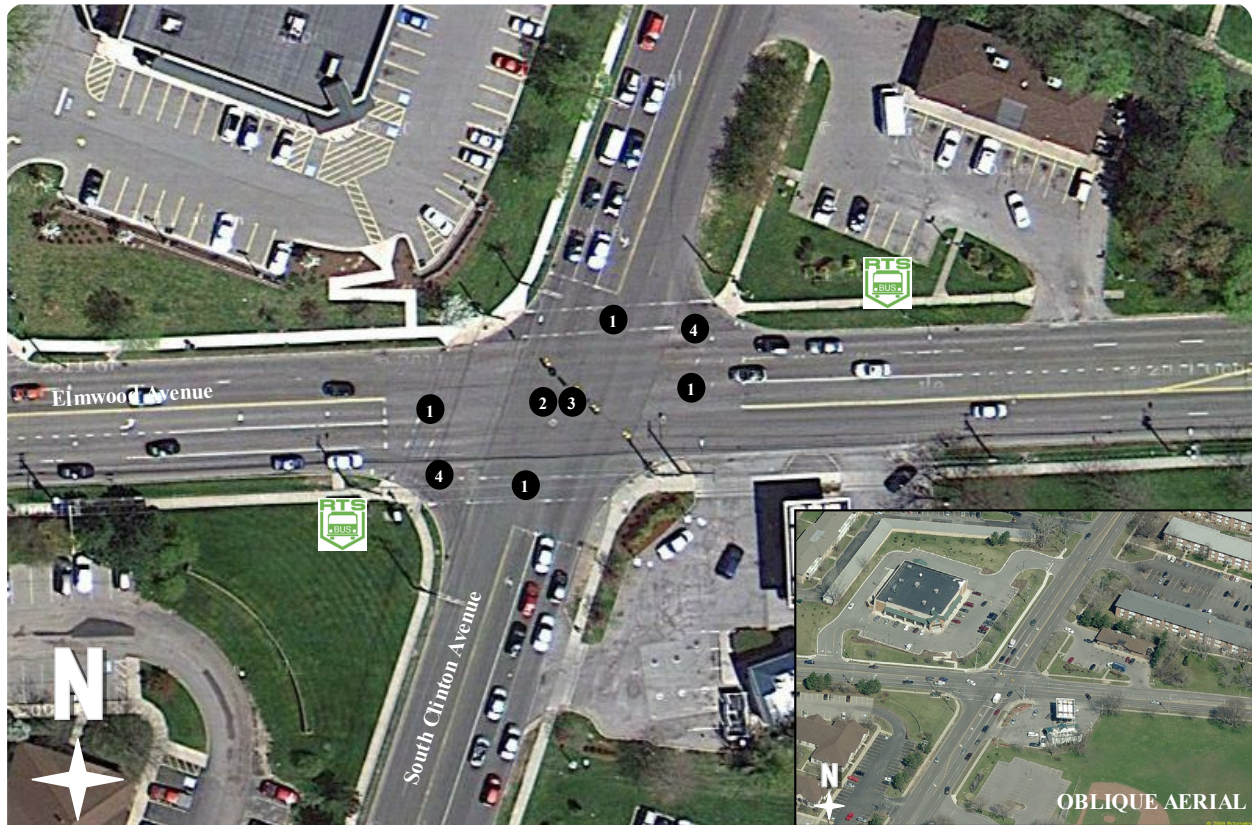
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 2

Priority Intersection Improvements: South Clinton Avenue & Elmwood Avenue



Context

- Pedestrian generators (i.e. Walgreen's, convenience stores)
- McQuaid Jesuit High School
- Employment centers
- Transit stops
- Walk Score: 54 - Somewhat Walkable

Issues & Concerns

- Skewed intersection
- Curb ramps and crossings not ADA compliant

Alternatives

1. Install textured crosswalks
2. Upgrade pedestrian crossings to latest ADA compliancy codes (i.e., separated curb ramps, separated pedestrian push button locations)
3. Advanced or staggered stop bar for improved sight lines between crossing pedestrians and right turning motorists
4. Reduce higher speed right-turns (NE & SW corners) with right turn channelized islands (further consideration)

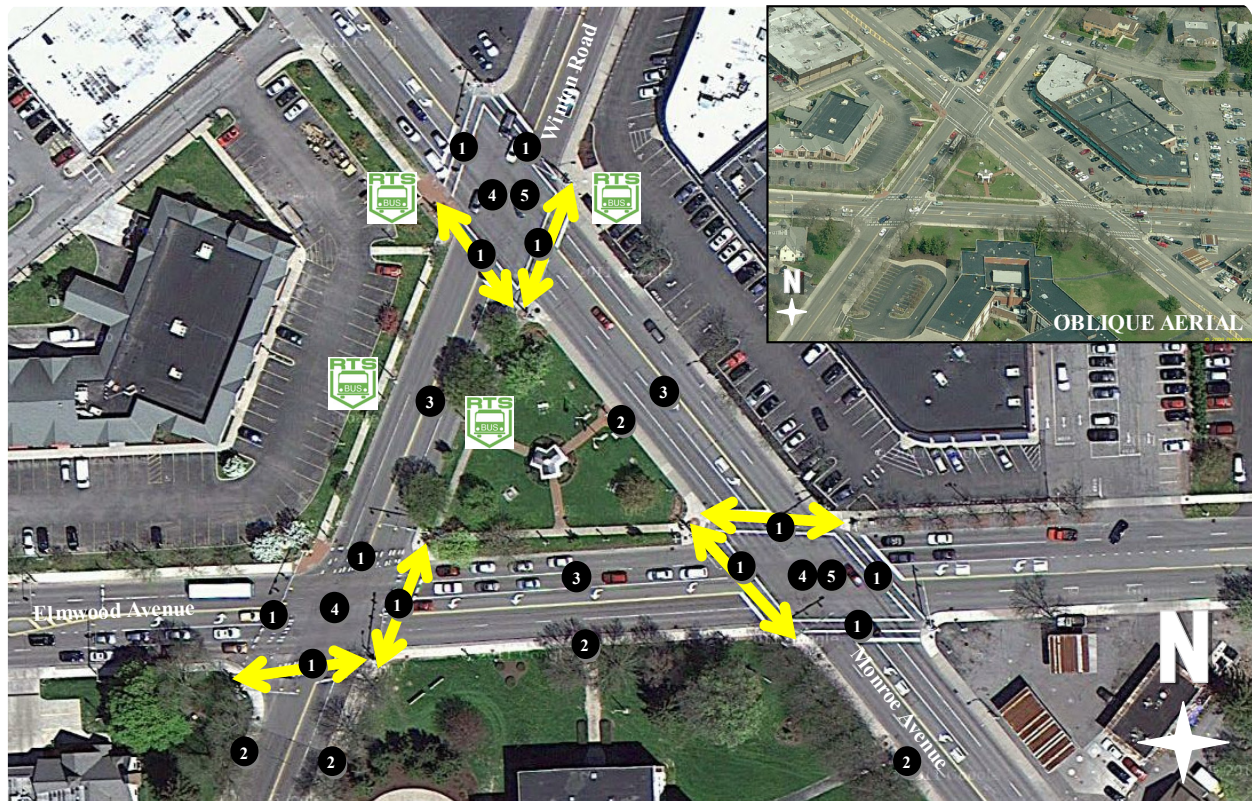
RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 17: Sheet 1

Priority Intersection Improvements: Twelve Corners



Context

- Near Brighton Central Schools
- Employment centers
- Pedestrian generators (i.e. retail, food)
- Transit stops
- Walk Score—83: Very Walkable

Issues & Concerns

- Skewed intersections
- High volume of traffic in proximity to school
- Lack of buffer space along Elmwood Avenue (south side), Winton Road (south of Elmwood Avenue) and Monroe Avenue (both sides)
- Future intersection reconstruction projects should consider upgrading to the latest ADA guidelines for pedestrian crossings

Alternatives

1. Install all high visibility crosswalks
2. Increase buffer space / install green space
3. Install contrasting pavement color treatment around the entire triangle
4. Install RT / Yield to Pedestrian blank out signs at:
NB Winton / Elmwood
EB Elmwood / Monroe
WB Elmwood / Monroe
EB Monroe / Winton
5. Install pedestrian countdown signals at:
Monroe / Winton
Monroe / Elmwood



Denotes primary pedestrian movements

RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Figure 18

Twelve Corners Pedestrian Zone Concept



Not to scale

Issues & Concerns

- Skewed intersections increase pedestrian crossing distance.
- High volume of traffic in proximity to schools.
- Lack of buffer space along Elmwood Avenue (south side), Winton Road (south of Elmwood Avenue) and Monroe Avenue (both sides).
- Future intersection reconstruction projects should consider upgrading to the latest ADA guidelines for pedestrian crossings.

Enhancements

- 1 CONTRASTING PAVEMENT**
Colored and/or textured pavement to identify pedestrian zone and calm traffic.
- 2 HIGH VISIBILITY CROSSWALK MARKINGS**
Enhanced visibility to provide safe pedestrian street crossings.
- 3 INSTALLATION OF SIGNAGE WHERE APPLICABLE**
'Right turning/yield to pedestrians' blank out signs will allow pedestrians the right of way when crossing the street. 'Left turning vehicles yield to pedestrians' signs will be used on the southbound approach of S Winton Road at Monroe Avenue.
- 4 EXPANDED SHARED-USE TRAIL**
10' wide shared-use trail on school grounds to accommodate pedestrians and bicyclists. Traffic separated from pathway by 8' buffer zone.
- 5 REVISED PATHWAY AND EXPANDED PLAZA**
Revised pathway shape, width, and access throughout triangular park and gazebo. Direct connection between intersection and gazebo. Expanded plaza around gazebo to provide an enhanced pedestrian gathering space with additional seating.
- 6 ADDITIONAL STREET TREES**
Air quality enhancements, increased shade, traffic calming and improved visual quality.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



D. On-Street Bicycle Facility Improvements

Based on existing conditions and roadway geometries, each study network segment is classified into one of several recommended bicycle facility improvement categories.⁵ One of five potential outcomes has been identified for each of the analyzed roadway segments. These outcomes include the following:

1. No Recommended Improvement (existing bicycle facility);
2. Roadway Restripe Candidate (reduction of existing lane widths to create space for bike lanes);
3. Road Diet Candidate (reduction of the number of lanes to create space for bike lanes);
4. Add or Widen Paved Shoulders; and
5. Detailed Corridor Study Needed/Shared Lane Markings Candidate.

Each recommendation type is discussed in more detail within this section. Please see [Figure 19](#) for an illustration of the recommended improvements, and Table 7.1 for more detail. The roadway network study area included all arterials and collectors in the Town of Brighton, a total of 43.6 miles.

1. Existing Bicycle Facilities

One of the primary purposes of this plan is to identify locations for new on-road bicycle facilities. Accordingly, the first step in the facility recommendation process is to identify and filter out those study network segments where a bicycle facility already exists. For the purposes of this analysis, an existing bicycle facility is constituted by any designated bike lane or paved shoulder at least four feet wide (with a striped edge line) that is not clearly intended for on-street parking. Segments meeting these criteria have been identified as having an existing bicycle facility for this plan's purposes; the analysis of all other segments continued into the next step. 24 segments, representing approximately 28% of the network's total mileage, currently have existing on-road bicycle facilities. In addition, most of Brighton's local streets are likely to provide acceptable bicycling conditions as shared lanes due to low volumes and speeds.

2. Roadway Restripe Candidates

Among strategies commonly used to improve bicycling conditions, roadway restriping is frequently considered the most desirable solution. This is because of the very low (or effectively non-existent, if performed in concert with scheduled resurfacing) associated cost and the existence of excess lane width on many streets. For this reason, roadway restriping was the first option analyzed for the study network after those segments with existing bicycle facilities were filtered out of the process.

Town specifications use a minimum lane width of 10 feet.⁶ The analysis spreadsheet was programmed accordingly to determine whether the total pavement width (TPW) of each roadway segment is sufficient to leave space for four feet of bicycle facility in each direction of travel while preserving the minimum lane width for all other travel lanes, turn lanes, and on-street parking. Based on these criteria, 12 segments (approximately 18% of the study network) are roadway restriping candidates. Many of these segments already include a narrow paved shoulder on one or both sides of the road, such that the restriping would widen those shoulders to an appropriate width for bicycle travel.

3. Road Diet Candidates

While the removal of travel lanes to create bicycle facilities (i.e., a road diet) is also relatively inexpensive to implement,⁷ restriping is typically a less noticeable change to a roadway and should generally be considered first. Road diets are frequently considered when a preliminary analysis indicates that sufficient capacity exists to

⁵ The facility recommendation for all segments of the study network without full sidewalk coverage is to add sidewalks.

⁶ Lane widths of 11 feet are considered desirable for the outside lanes of 4-lane streets, but the 10-foot minimum has nonetheless been used for this initial screening.

⁷ Road diets are frequently performed in concert with a previously scheduled micropaving or resurfacing project; such projects do have significant costs, but the restriping elements of the road diet to create bike lanes remain relatively inexpensive.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



effectively accommodate motor vehicle traffic for the foreseeable future with a reduced number of lanes. Such preliminary planning-level analyses have been performed for this project to identify road diet candidates. Significantly more detailed operational analyses should be carried out for individual sections before moving forward with any of the identified projects.

Planning-level estimates of future year motor vehicle capacity are feasible through the use of generalized level of service tables, which are based upon default values using the *Highway Capacity Manual*. The Florida DOT has developed a set of generalized motor vehicle level of service tables⁸ that are widely utilized throughout the United States. The tables use default values for different area types for many traffic variables such as K-factor, D-factor, peak hour factor, and g/C ratio. The lookup tables produce a level of service result based on roadway class (determined through average signal spacing, which was field-collected), traffic volume, and number of lanes.

To identify road diet candidates, the number of lanes was hypothetically reduced (e.g., 4-lane to 2-lane) to determine the resulting motor vehicle level of service. The results were compared against the identified motor vehicle level of service standard of "D" to see where excess capacity exists.

Five segments of Monroe Avenue, East Avenue, and East River Road, totaling approximately six miles, are identified as road diet candidates. Collectively, the restripe candidates and road diet candidates show a significant potential for making Brighton much more accommodating for bicyclists inexpensively (and potentially quickly depending on established roadway resurfacing cycles). However, only portions of Monroe Avenue were selected as final road diet candidates.

4. Add Paved Shoulders Candidates

At this point in the process, remaining roadway segments were examined to determine the feasibility of adding or widening paved shoulders, which could be designated as bike lanes or bike space, at the edge of the existing pavement. While more expensive than roadway restriping and road diet projects, constructing paved shoulders on the outside of the existing edge of pavement is still much less expensive than projects that involve reconstruction of the roadway. However, paved shoulders can add impacts to adjacent properties. For a network segment to be considered a candidate for adding paved shoulders, it must have an open shoulder (i.e., not curb-and-gutter) cross-section. Another ten study network segments (17% of the study network mileage), some of which already have narrow paved shoulders, meet this criterion. It should be noted that some of these paved shoulder candidate segments have flat roadside profiles, while others have swales that would require more expensive re-grading and possibly piping of ditches.

5. Detailed Corridor Study Needed/Shared Lane Markings Candidate

Many study segments present minimal opportunity for improving bicycling conditions through the identified roadway retrofit strategies discussed above. Specific bicycling-related improvements to these segments (representing the remaining 34% of the study network) will require extensive and detailed operational-level investigations of the constraints and opportunities along these corridors. Options for these roads include sidepaths (shared use paths adjacent to the road), bike boulevards,⁹ and Shared Lane Markings, or "sharrows."

Shared lane markings are intended to assist bicyclists with lateral positioning in the lanes, outside the door zone on streets with on-street parallel parking and away from the curb in lanes too narrow to share with a motor vehicle. Shared Lane Markings alert motorists to the position bicyclists are likely to occupy within the lane, encourage safe

⁸ 2009 *Quality/Level of Service Handbook*, Florida Department of Transportation.

⁹ A local street or series of contiguous street segments that have been modified to provide enhanced accommodation as a through street for bicyclists while discouraging through automobile travel.

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passing of cyclists by motorists and reduce incidence of wrong-way bicycling. Research also suggests they reduce the incidence of sidewalk riding.

There is no research at this time indicating that Shared Lane Markings significantly positively influence bicyclists' sense of safety and comfort (i.e., level of service). However, given the other benefits and the relatively low cost and time associated with implementation, Shared Lane Markings should be considered as an interim solution for all study network segments in the Detailed Corridor Study Needed category. It should be noted that the *Manual on Uniform Traffic Control Devices* recommends that Shared Lane Markings should be used on roads with a posted speed limit of 35 mph or lower, but does not prohibit their use on higher speed roads. Only three segments in this category, portions of West Henrietta Road and Winton Road¹⁰, have a posted speed limit above 35 mph; nothing suggests that Shared Lane Markings would be inappropriate in those locations.

E. Bicycle Facilities at Destinations

Bicycle theft is a significant problem, and for some, a deterrent to bicycle use. Providing safe and convenient bicycle parking at community destinations is critical to increasing bicycle usage. Bicycle parking needs to be accessible, visible, convenient and abundant. Section E of the Alternatives Toolbox provides a detailed overview of bicycle racks and bicycle lockers. The U.S. Green Building Council provides the following suggestions for the amount of bicycle parking to provide for users:

- For bicyclists using commercial or industrial buildings:
 - Provide bicycle racks or storage for 5 percent or more of building users.
 - Provide showers and changing facilities for 0.5% of full-time equivalent staff.
- For bicyclists using residential buildings:
 - Provide covered bicycle storage for 15 percent or more of building occupants.
- For bicyclists using school buildings:
 - Provide bicycle racks or storage for 5 percent or more of school staff or students above the third grade level.
 - Provide showers and changing facilities for 0.5% of full-time equivalent staff.

BikeWalkBrighton has identified bicycle parking at all schools in the Town as a priority. In addition to the guidelines provided above, different communities and organizations have taken varying approaches to the provision of bicycle parking:

- Ann Arbor, Michigan: Provide 5 spaces per classroom.
- Bend, Oregon: Provide 1 covered space for every 10 students.
- Madison, Wisconsin: Provide 1 space per every 4 employees, plus 1 space per 4 students.
- Safe Routes to School Rule of Thumb: A typical school should expect to provide one bike parking spot for every 10-15 students.



No matter which approach is used, the provision of bicycle parking at schools and other destinations will remove a perceived barrier to safe and convenient bicycle use.

¹⁰ The west side of Winton Road immediately south of the 590 expressway may be an ideal side path candidate, given its abundant right-of-way and infrequent side street interruptions, but may require utility coordination.

RECOMMENDATIONS



Figure 19
On-Street Bicycle Facility Recommendations

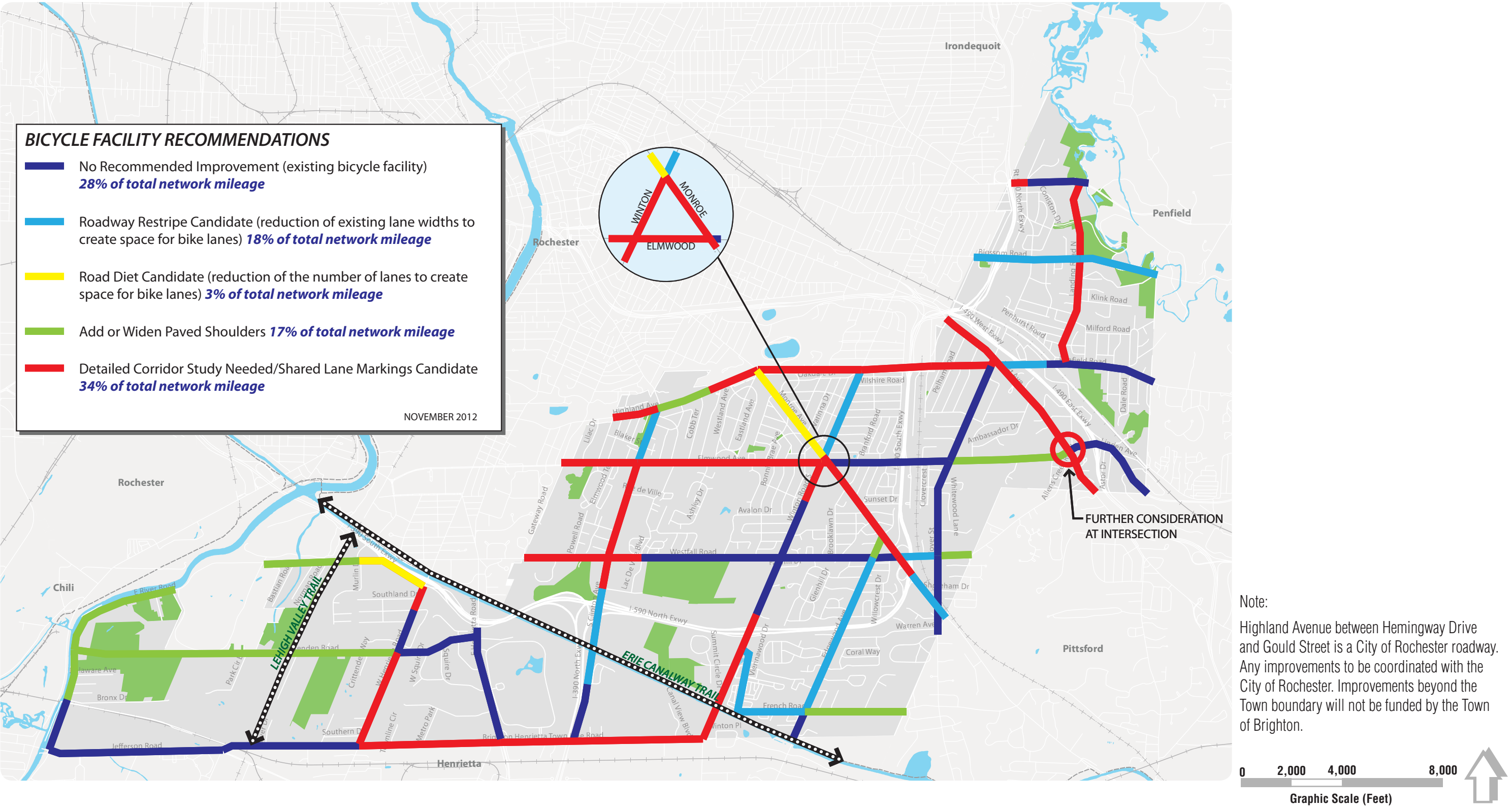





TABLE 7.1: BICYCLE FACILITY RECOMMENDATIONS

Segment ID	ROAD NAME	FROM	TO	RECOMMENDED ACTION
1	Allens Creek Rd	Monroe Ave	Clover St	Roadway Restripe Candidate
2	Allens Creek Rd	Clover St	Town Line East	Add/Widen Paved Shoulders Candidate
3	Blossom Rd	Town Line West	590 Expressway	Roadway Restripe Candidate
4	Blossom Rd	590 Expressway	Landing Rd	Roadway Restripe Candidate
5	Blossom Rd	Landing Rd	Town Line East	Roadway Restripe Candidate
6	Brighton-Henrietta Town Line Rd	Winton Rd	Clinton Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
7	Brighton-Henrietta Town Line Rd	Clinton Ave	E Henrietta Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
8	Brighton-Henrietta Town Line Rd	E Henrietta Rd	W Henrietta Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
9	Brighton-Henrietta Town Line Rd	W Henrietta Rd	Jefferson Rd	Existing Bicycle Facility
10	Brighton-Henrietta TL Rd/Jefferson Rd	John St	East River Rd	Roadway Restripe Candidate
11	Browncroft Blvd	Town Line West	Knollbrook Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
12	Browncroft Blvd	Knollbrook Rd	Town Line East	Existing Bicycle Facility
13	Clinton Ave	Brighton-Henrietta Town Line Rd	Woodsmeadow Ln	Existing Bicycle Facility
14	Clinton Ave	Woodsmeadow Ln	Senator Keating Blvd	Roadway Restripe Candidate
15	Clinton Ave	Senator Keating Blvd	Westfall Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
16	Clinton Ave	Westfall Rd	Rue de Ville	Detailed Corridor Study Needed/Shared Lane Markings Candidate
17	Clinton Ave	Rue de Ville	Elmwood Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
18	Clinton Ave	Elmwood Ave	Highland Ave	Roadway Restripe Candidate
19	Clover St	Town Line East	Monroe Ave	Existing Bicycle Facility
20	Clover St	Monroe Ave	Allens Creek Rd	Existing Bicycle Facility
21	Clover St	Allens Creek Rd	Elmwood Ave	Existing Bicycle Facility
22	Clover St	Elmwood Ave	Highland Ave	Existing Bicycle Facility
23	Clover St	Highland Ave	East Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
24	Crittenden Rd	East River Rd	W Henrietta Rd	Add/Widen Paved Shoulders Candidate
25	Crittenden Rd	W Henrietta Rd	E Henrietta Road	Existing Bicycle Facility
26	East Ave	Town Line West	Clover St	Detailed Corridor Study Needed/Shared Lane Markings Candidate
27	East Ave	Clover St	Linden Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
28	East Ave	Linden Ave	Town Line East	Detailed Corridor Study Needed/Shared Lane Markings Candidate
29	East River Rd	Jefferson Rd	Riverside Dr	Existing Bicycle Facility
30	East River Rd	Riverside Dr	Crittenden Rd	Add/Widen Paved Shoulders Candidate
31	East River Rd	Crittenden Rd	500 ft past Idle Rd.	Add/Widen Paved Shoulders Candidate
32	East River Rd	Genesee Valley Park	Kendrick Rd	Add/Widen Paved Shoulders Candidate
33	East River Rd	Kendrick Rd	W Henrietta Rd	Road Diet Candidate
34	Edgewood Ave	Town Line South	French Rd	Existing Bicycle Facility
35	Edgewood Ave	French Rd	Westfall Rd	Roadway Restripe Candidate
36	Edgewood Ave	Westfall Rd	Monroe Ave	Add/Widen Paved Shoulders Candidate
37	Elmwood Ave	Town Line West	Clinton Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
38	Elmwood Ave	Clinton Ave	Winton Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
39	Elmwood Ave	Winton Rd	Monroe Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
40	Elmwood Ave	Monroe Ave	Clover St	Existing Bicycle Facility
41	Elmwood Ave	Clover St	East Ave	Add/Widen Paved Shoulders Candidate
42	French Rd	Town Line East	Edgewood Ave	Add/Widen Paved Shoulders Candidate

	TABLE 7.1: BICYCLE FACILITY RECOMMENDATIONS			
	ROAD NAME	FROM	TO	RECOMMENDED ACTION
Segment ID				
43	French Rd	Edgewood Ave	Winton Rd	Roadway Restripe Candidate
44	E Henrietta Rd	390 Expressway	Crittenden Rd	Existing Bicycle Facility
45	E Henrietta Rd	Crittenden Rd	Brighton-Henrietta Town Line Rd	Existing Bicycle Facility
46	W Henrietta Rd	Sunnyside Dr	East River Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
47	W Henrietta Rd	Brighton-Henrietta Town Line Rd	Sunnyside Dr	Existing Bicycle Facility
48	Highland Ave*	Clover St	Kimberly Dr	Detailed Corridor Study Needed/Shared Lane Markings Candidate
49	Highland Ave*	Kimberly Dr	Winton Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
50	Highland Ave*	Winton Rd	Monroe Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
51	Highland Ave*	Monroe Ave	Town Line North	Detailed Corridor Study Needed/Shared Lane Markings Candidate
52	Highland Ave*	Town Line North	Clinton Ave	Add/Widen Paved Shoulders Candidate
53	Highland Ave*	Clinton Ave	Town Line West	Detailed Corridor Study Needed/Shared Lane Markings Candidate
54	Landing Rd	Penfield Rd	Blossom Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
55	Landing Rd	Blossom Rd	Browncroft Blvd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
56	Linden Ave	East Ave	490 Expressway	Existing Bicycle Facility
57	Linden Ave	490 Expressway	Linden Ave	Existing Bicycle Facility
58	Linden Ave	Linden Ave	Town Line East	Existing Bicycle Facility
59	Monroe Ave	Town Line North	Winton Rd	Road Diet Candidate
60	Monroe Ave	Winton Rd	Elmwood Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
61	Monroe Ave	Elmwood Ave	Westfall Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
62	Monroe Ave	Westfall Rd	590 Expressway	Detailed Corridor Study Needed/Shared Lane Markings Candidate
63	Monroe Ave	590 Expressway	Clover/City Limits	Roadway Restripe Candidate
64	Penfield Rd	Town Line East	Cheswell Way	Existing Bicycle Facility
65	Penfield Rd	Cheswell Way	East Ave	Roadway Restripe Candidate
66	Westfall Rd	Town Line West	Sawgrass Dr	Add/Widen Paved Shoulders Candidate
67	Westfall Rd	Sawgrass Dr	Clinton Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
68	Westfall Rd	Clinton Ave	Lac de Ville	Detailed Corridor Study Needed/Shared Lane Markings Candidate
69	Westfall Rd	Lac de Ville	Winton Rd	Existing Bicycle Facility
70	Westfall Rd	Winton Rd	Edgewood Ave	Existing Bicycle Facility
71	Westfall Rd	Edgewood Ave	Monroe Ave	Existing Bicycle Facility
72	Winton Rd	Brighton-Henrietta Town Line Rd	1000 ft. N of canal	Existing Bicycle Facility
73	Winton Rd	1000 ft. N of canal	French Rd	Detailed Corridor Study Needed/Shared Lane Markings Candidate
74	Winton Rd	French Rd	590 Expressway	Detailed Corridor Study Needed/Shared Lane Markings Candidate
75	Winton Rd	590 Expressway	Westfall Rd	Existing Bicycle Facility
76	Winton Rd	Westfall Rd	Newton Dr	Existing Bicycle Facility
77	Winton Rd	Newton Dr	Greenwich Ln	Detailed Corridor Study Needed/Shared Lane Markings Candidate
78	Winton Rd	Greenwich Ln	Elmwood Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
79	Winton Rd	Elmwood Ave	Monroe Ave	Detailed Corridor Study Needed/Shared Lane Markings Candidate
80	Winton Rd	Monroe Ave	Town Line North	Roadway Restripe Candidate

* Note: Portions of Highland Avenue are located in the City of Rochester. These improvements will require intermunicipal coordination. Improvements beyond the Town boundary will not be funded by the Town of Brighton.

RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



F. Bicycle Boulevards

Description: Bicycle Boulevards are low-volume neighborhood streets that can provide reasonable alternatives to less bike-friendly high traffic corridors. [BikeWalkBrighton](#) recommends five Bicycle Boulevards for implementation, totaling 12.9 miles. Prototypic bicycle boulevards are recommended for the following locations:

- Bicycle Boulevard 1: Buckland Park to Highland Avenue (2.75 miles)
- Bicycle Boulevard 2: Erie Canalway Trail to Cobbs Hill Park (4.86 miles)
- Bicycle Boulevard 3: Brighton Library/Town Hall to Highland Avenue (2.10 miles)
- Bicycle Boulevard 4: Brighton Library/Town Hall to East Avenue Bicycle Route (1.50 miles)
- Bicycle Boulevard 5: Twelve Corners Bypass (1.70 miles)

Opportunities: Brighton has a centrally located and well-established grid of neighborhood streets that are safe and attractive for bicyclists. The [BikeWalkBrighton](#) Bicycle Boulevard concepts make good use of this existing Town infrastructure to provide enhanced connectivity between community destinations. The intention is that two of the five recommended Bicycle Boulevards be implemented as pilot projects, with additional boulevards to be phased in over time. The improvements suggested are modest and low-cost; pavement markings, wayfinding signage and mapping that can be distributed by electronic and conventional methods. Both MUTCD and AASHTO provide some guidance for the development of Bicycle Boulevards.

Challenges: The wayfinding signage and pavement marking system would need to strike a balance between MUTCD/AASHTO design guidance and streetscape aesthetics acceptable to the Town of Brighton. Concurrence from facility owners would need to be obtained prior to implementation. Low-volume neighborhood roads are preferred, and County roads with higher traffic volumes are less preferable. In some cases, however, County roads were used to make connections, but more detailed review and operational analysis should be undertaken. Bicycle Boulevard 5 is an unconventional bicycle boulevard with several short-distance jogs. The desire to provide a safe route around the Twelve Corners presented a unique challenge, which was met by an unorthodox solution.

Please see [Figures 20 through 24](#).

RECOMMENDATIONS



Figure 20
Bicycle Boulevard 1 Concept
Buckland Park to Highland Avenue

- 2.75 Miles
- Destinations
- Coordinate with neighboring municipalities

Bicycle Boulevards are typically established on neighborhood streets with low traffic volumes that provide cyclists with safe and convenient alternatives to high-traffic corridors.



Avalon Drive

Bicycle Boulevards should connect important community destinations, and provide routes that are reasonably direct and easy to navigate.



Westfall Road

Bicycle Boulevards are cost effective because they utilize existing infrastructure. The street network in Brighton provides numerous opportunities to establish safe and convenient Bicycle Boulevards.



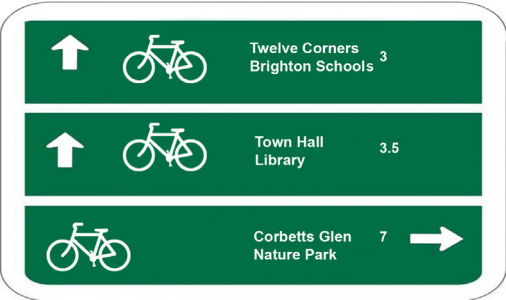
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BICYCLE BOULEVARDS

- Low speed streets optimized for bicycle traffic
- Shared roadway intended for through-moving bicyclists
- Accessible for cyclists of all ages and abilities
- Limited to local motorized traffic by geometric design

SIGNAGE & ROAD MARKINGS

MUTCD Wayfinding signage: D1-3c



Implementation of a Bicycle Boulevard system can be as simple as selecting routes, distributing information, and identifying Bicycle Boulevards in the community with an integrated system of signage and pavement markings. Concurrence from the facility owner to be obtained prior to implementation. Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.



RECOMMENDATIONS

Figure 21
Bicycle Boulevard 2 Concept
Erie Canal to Cobbs Hill Park



Bicycle Boulevards are typically established on neighborhood streets with low traffic volumes that provide cyclists with safe and convenient alternatives to high-traffic corridors.



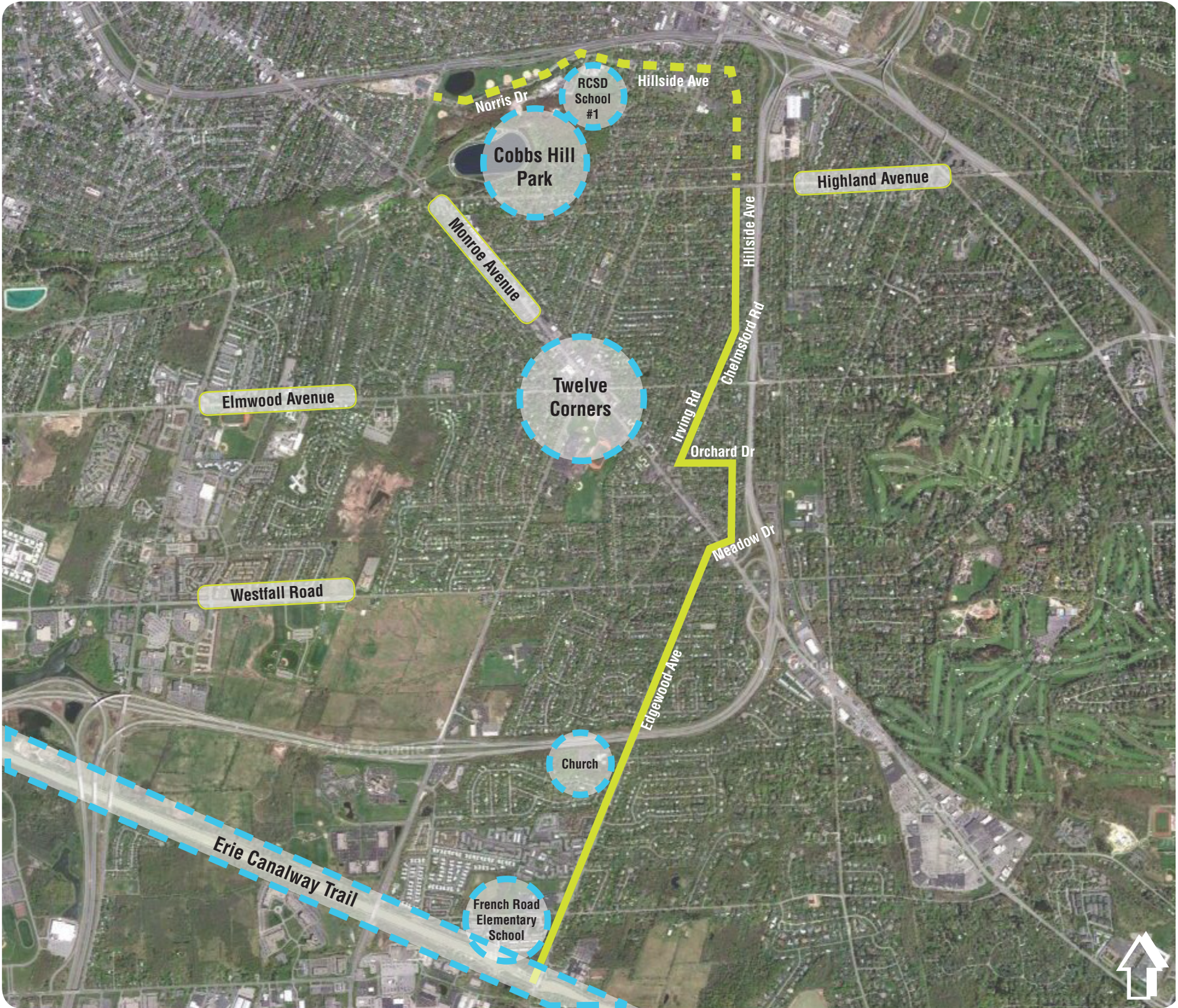
Irving Road

Bicycle Boulevards should connect important community destinations, and provide routes that are reasonably direct and easy to navigate.



Orchard Drive

Bicycle Boulevards are cost effective because they utilize existing infrastructure. The street network in Brighton provides numerous opportunities to establish safe and convenient Bicycle Boulevards.



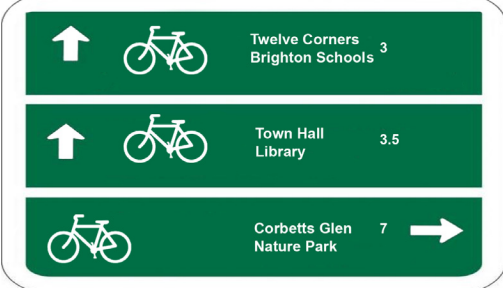
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BICYCLE BOULEVARDS

- Low speed streets optimized for bicycle traffic
- Shared roadway intended for through-moving bicyclists
- Accessible for cyclists of all ages and abilities
- Limited to local motorized traffic by geometric design

SIGNAGE & ROAD MARKINGS

MUTCD Wayfinding signage: D1-3c



Implementation of a Bicycle Boulevard system can be as simple as selecting routes, distributing information, and identifying Bicycle Boulevards in the community with an integrated system of signage and pavement markings. Concurrence from the facility owner to be obtained prior to implementation. Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.



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Figure 22
Bicycle Boulevard 3 Concept
Brighton Library & Town Hall to
Highland Avenue

- 2.10 Miles
- Destinations
- Coordinate with neighboring municipalities

Bicycle Boulevards are typically established on neighborhood streets with low traffic volumes that provide cyclists with safe and convenient alternatives to high-traffic corridors.



Claybourne Road

Bicycle Boulevards should connect important community destinations, and provide routes that are reasonably direct and easy to navigate.



Highland Avenue

Bicycle Boulevards are cost effective because they utilize existing infrastructure. The street network in Brighton provides numerous opportunities to establish safe and convenient Bicycle Boulevards.



Not to scale

BICYCLE BOULEVARDS

- Low speed streets optimized for bicycle traffic
- Shared roadway intended for through-moving bicyclists
- Accessible for cyclists of all ages and abilities
- Limited to local motorized traffic by geometric design

SIGNAGE & ROAD MARKINGS

MUTCD Wayfinding signage: D1-3c

↑		Twelve Corners Brighton Schools 3
↑		Town Hall Library 3.5
		Corbette Glen Nature Park 7 →

Implementation of a Bicycle Boulevard system can be as simple as selecting routes, distributing information, and identifying Bicycle Boulevards in the community with an integrated system of signage and pavement markings. Concurrence from the facility owner to be obtained prior to implementation. Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.



RECOMMENDATIONS



Figure 23

Bicycle Boulevard 4 Concept
Brighton Library & Town Hall to East Avenue Bicycle Route

- 1.50 Miles
- Destinations
- Coordinate with neighboring municipalities

Bicycle Boulevards are typically established on neighborhood streets with low traffic volumes that provide cyclists with safe and convenient alternatives to high-traffic corridors.



Oakdale Drive

Bicycle Boulevards should connect important community destinations, and provide routes that are reasonably direct and easy to navigate.



Cobbs Hill Drive

Bicycle Boulevards are cost effective because they utilize existing infrastructure. The street network in Brighton provides numerous opportunities to establish safe and convenient Bicycle Boulevards.



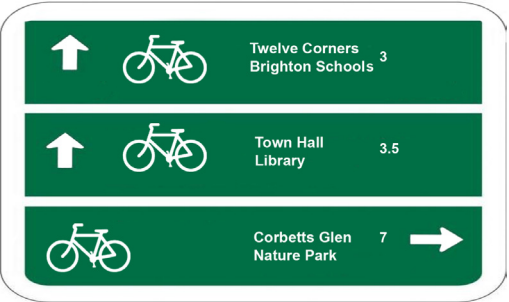
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BICYCLE BOULEVARDS

- Low speed streets optimized for bicycle traffic
- Shared roadway intended for through-moving bicyclists
- Accessible for cyclists of all ages and abilities
- Limited to local motorized traffic by geometric design

SIGNAGE & ROAD MARKINGS

MUTCD Wayfinding signage: D1-3c



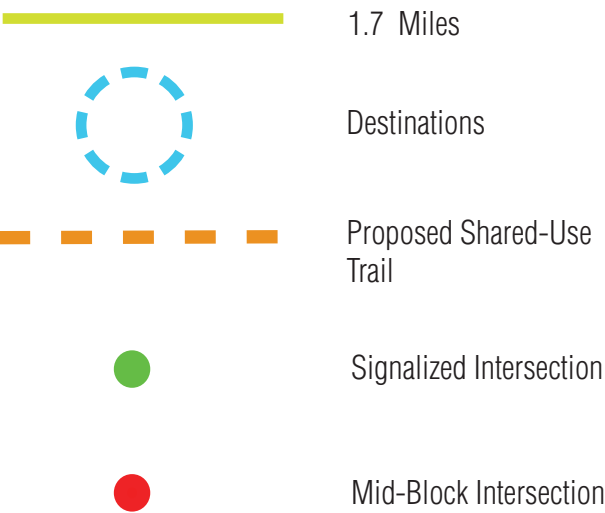
Implementation of a Bicycle Boulevard system can be as simple as selecting routes, distributing information, and identifying Bicycle Boulevards in the community with an integrated system of signage and pavement markings. Concurrence from the facility owner to be obtained prior to implementation. Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.



RECOMMENDATIONS



Figure 24
Bicycle Boulevard 5 Concept
Twelve Corners Bicycle Bypass



Hollywood Avenue



Branford Road



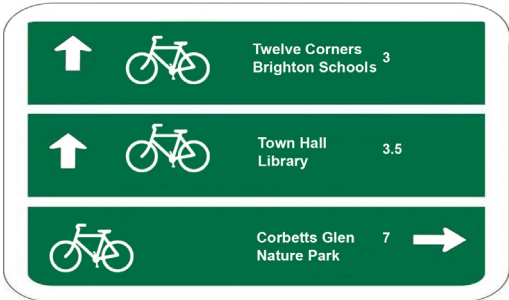
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BICYCLE BOULEVARDS

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- Accessible for cyclists of all ages and abilities
- Limited to local motorized traffic by geometric design

SIGNAGE & ROAD MARKINGS

MUTCD Wayfinding signage: D1-3c



Implementation of a Bicycle Boulevard system can be as simple as selecting routes, distributing information, and identifying Bicycle Boulevards in the community with an integrated system of signage and pavement markings. Concurrence from the facility owner to be obtained prior to implementation. Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.



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G. Monroe Avenue Road Diet

Monroe Avenue is a heavily traveled corridor with vehicular traffic volumes and speeds that are not conducive to bicycle or pedestrian traffic. The roadway is currently striped for four travel lanes (two per direction) at 10 feet each, leaving no room for on-street bicycle traffic and resulting in a bicycle level of service “D”, which is undesirable.

The corridor was reviewed from Highland Avenue to the Twelve Corners, and from the Twelve Corners to Edgewood Avenue, to determine the feasibility of a road diet for the two areas. Upon detailed investigation and discussions with NYSDOT, it was determined that a road diet is feasible for the section from Highland Avenue to the Twelve Corners. However, at this time, a road diet is not feasible for the section from Twelve Corners to Edgewood Avenue.

Monroe Avenue will be reduced from five lanes (two travel lanes in each direction with a center two-way left turn lane) to three lanes (one 14' travel lane in each direction with a 12' center two-way left turn lane) between Highland Avenue and Twelve Corners. The road diet will improve safety for all road users by reducing vehicle speeds, reducing pedestrian crossing distances, adding left turn lanes, and eliminating the potential for “courtesy gap” accidents which can occur when there are two travel lanes in one direction. The narrowing of the vehicular travel lanes will also provide an opportunity to install sharrows in both directions, which indicate that motorists must share their wider travel lane with bicyclists.

The intersection of Monroe Avenue and Highland Avenue will operate at level of service “D” or better on all approaches during the PM peak hour, which is consistent with current operating conditions. All other signalized intersections along Monroe Avenue between Highland Avenue and Twelve Corners will operate at LOS “C” on the side roads and LOS “A” on Monroe Avenue. The anticipated level of service conforms to Monroe County DOT’s standards.¹¹ Please see [Figure 25](#) for an illustration of a road diet on Monroe Avenue. Please see [Appendix G](#) for more information regarding calculations for this recommended solution, and [Appendix H](#) for an alternate concept that was considered for Monroe Avenue. This alternate concept was presented and reviewed, but not accepted at this time. However, this solution might be appropriate for a different road segment at a different point in time.

¹¹ MCDOT Level of Service Expectations for Signalized Intersections: LOS of “D” or better for the overall intersection and each approach, LOS of “E” or better for each individual movement, and v/c ratios less than 1.00 for each individual movement.

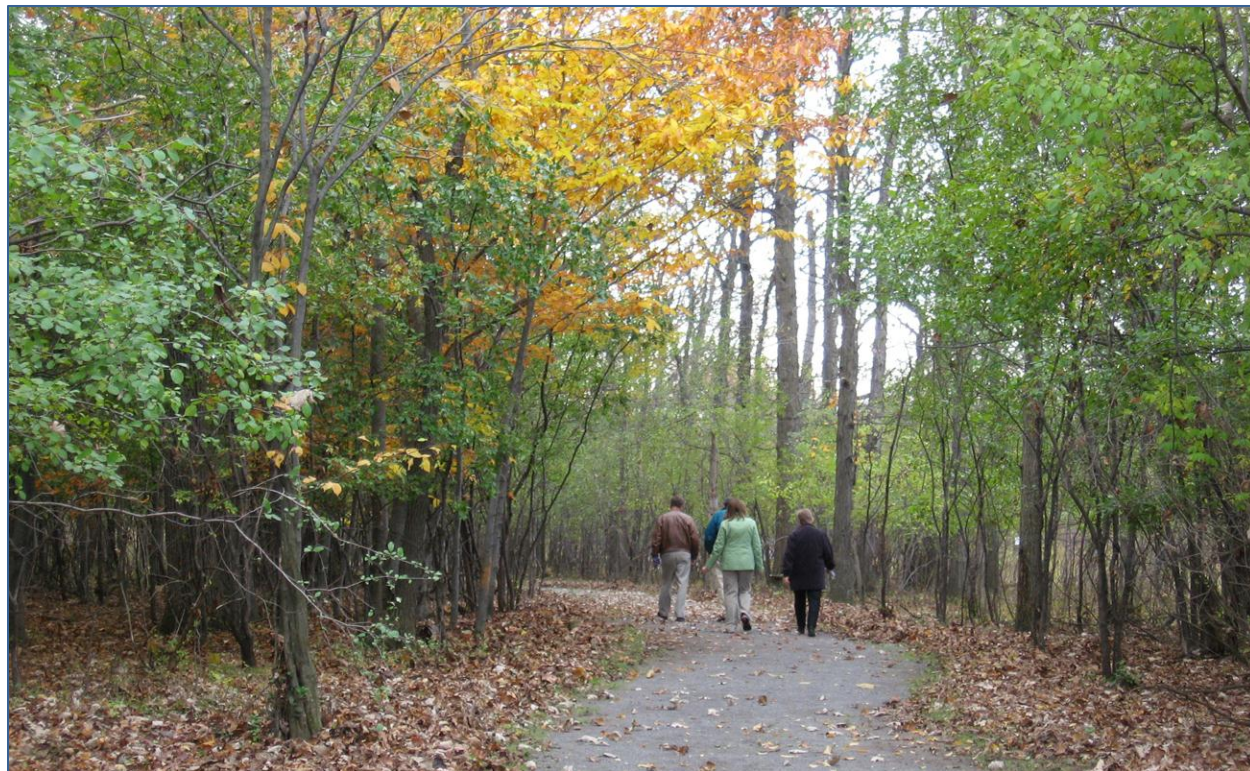
RECOMMENDATIONS

Figure 25
Monroe Avenue Road Diet Concept



RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



H. Concept Projects

1. Brighton Farash Parcel Trail Concept

Description: The Farash Parcel is approximately 72 acres of undeveloped open space between Elmwood Avenue and Westfall Road. Property dimensions are roughly 4400' north-south and 1000' east-west. The Town of Brighton is currently in the final stages of acquiring the property. The Farash Parcel Trail concept proposes approximately 0.8 miles of new shared-use trail on the parcel. Please see [Figure 26](#).

Opportunities: A shared-use trail on the Farash parcel would provide a valuable off-road connection between the Town Hall/Library complex on Elmwood Ave and Buckland Park on Westfall Road. The proposed trail would offer a wealth of healthy outdoor opportunities to neighbors. The north-south Farash Parcel Trail concept also intersects with the east-west U of R Hybrid trail concept and the Elmwood Avenue Side Path concept. The synergy between the concept projects could greatly enhance the Active Transportation network in Brighton.

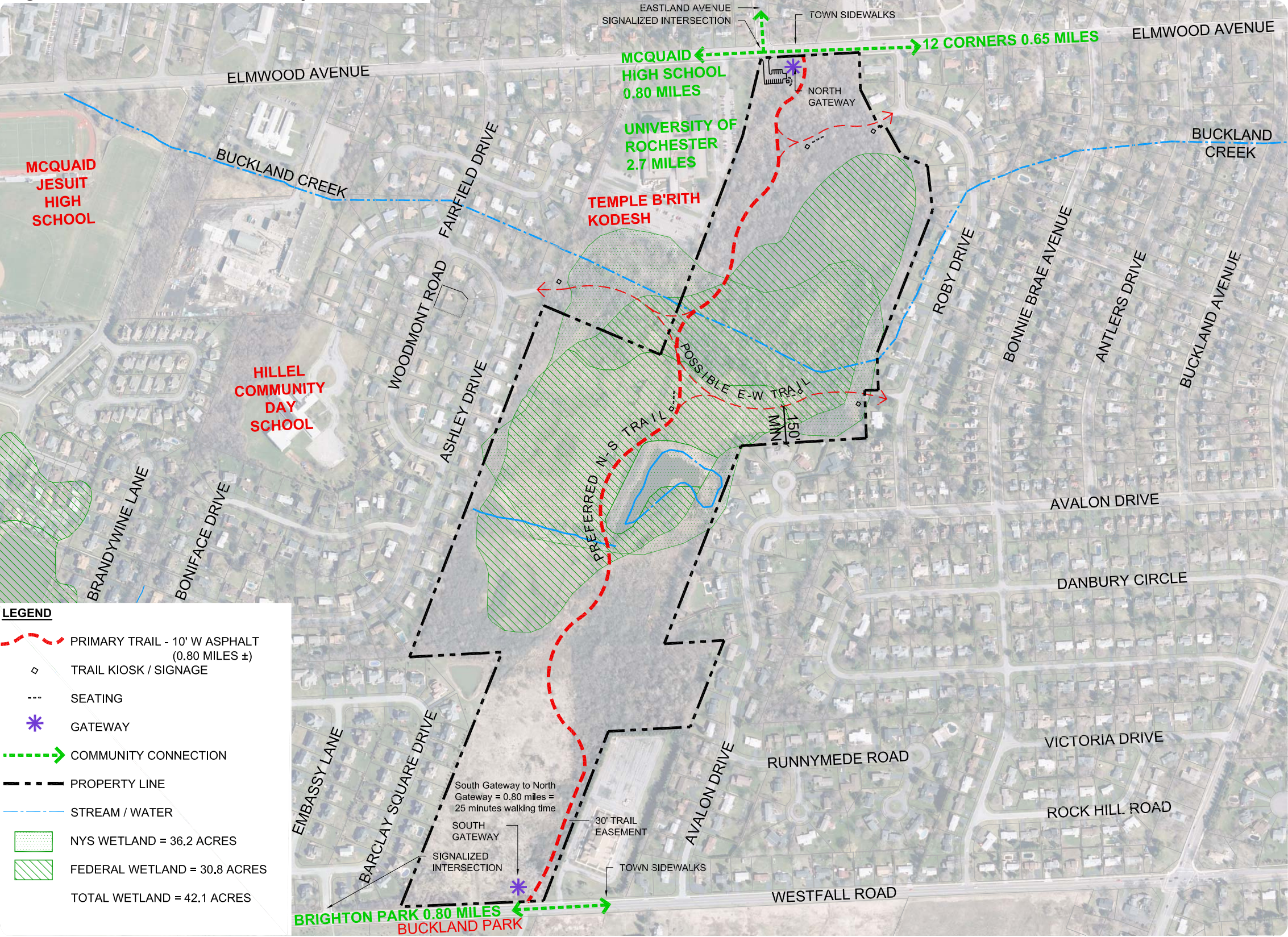
Challenges: Over 40 acres of the property are indicated as wetlands on state and federal mapping. The parcel is an environmentally sensitive area. Trail alignments, materials and construction methods would need to respond to sensitive ecologies and minimize site impacts. Permitting would be required from state and federal agencies. Depending on impacts of the final design, some level of wetland mitigation may be required. Buckland Creek is a significant stream that would require a bridge crossing set above flood level. The site is surrounded by residential properties, and trail alignments must respect privacy concerns. The design indicates a minimum 150' buffer between property lines and the new trail.

Example Shown in Photo: Meridian Centre Park Trails

RECOMMENDATIONS



Figure 26
Brighton Farash Parcel Trail Concept



Benefits

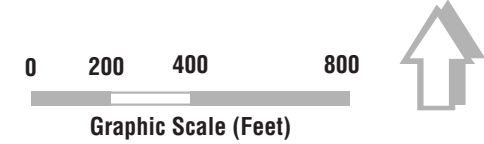
CONNECTIVITY to community resources, adjacent neighborhoods, existing parks and trail systems, public transportation, and local campuses.

CONSERVATION and enhancement of existing habitats and ecosystem services.

RECREATION health and fitness opportunities for residents and visitors.

SAFETY for all user groups.

ACTIVE TRANSPORTATION benefits that enhance economic, social, and environmental sustainability in Brighton.



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2. Brighton Auburn Trail Concept

Description: The Brighton Auburn Trail is an abandoned railroad right of way, 0.7 mile east of Twelve Corners. The corridor runs north-south between Clover Street and Highland Avenue. Overall distance is 1.87 miles, about 50 minutes walking time, or about 10 minutes by bike. Please see [Figures 27 and 28](#).

Opportunities: The abandoned rail corridor in Brighton is already cleared and graded, which will reduce the cost of new trail construction. The corridor is currently used by residents as an informal trail. The Auburn Trail is an established regional trail system that runs through parts of Monroe and Ontario Counties. The Brighton Auburn Trail was identified by the GTC as a near-term recommendation in the 2002 Regional Trails Initiative.

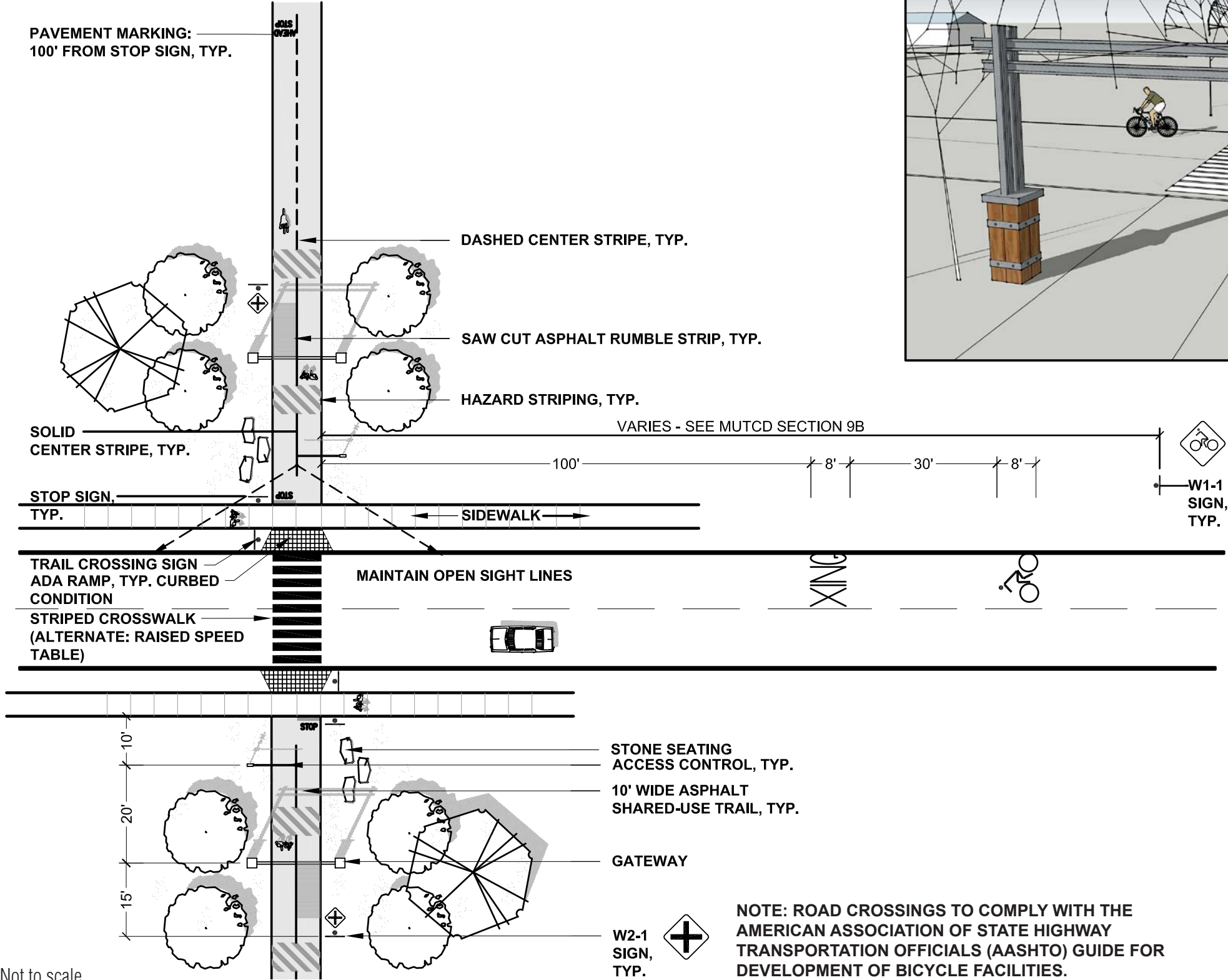
The proposed trail would provide direct connectivity to Council Rock Elementary School, the Harley School, businesses along Monroe Avenue, destinations and bike lanes in the City of Rochester, and the existing Auburn Trail south of Brighton. The project would potentially have strong synergy with the planned Green Infrastructure improvements along Monroe Avenue, and would also achieve some of the objectives set forth in the 2011 Monroe Avenue Corridor Community Vision Plan. The Brighton Auburn Trail would intersect with [BikeWalkBrighton](#) priority sidewalk additions, and with proposed Bicycle Boulevard #3.

Challenges: The property is currently owned by RG&E and provides maintenance access to overhead utility lines. Consultation and access agreements with RG&E would need to be established prior to design development. As precedent, RG&E has been receptive in the past to allowing trail construction on certain of their properties. The proposed trail alignment would include (4) non-signalized at grade road crossings. Informal assessment indicates that the establishment of acceptable road crossings appears feasible. Further analysis including gap analysis and site distance measurements would need to be conducted as part of design developments. Road crossing design and safety measures would follow guidance from 2012 AASHTO Guide for the Development of Bicycle Facilities. Preliminary concepts for at-grade crossings are indicated in [Figure 29](#). In addition, please see [Appendix J](#) for data on the economic benefits of trails.



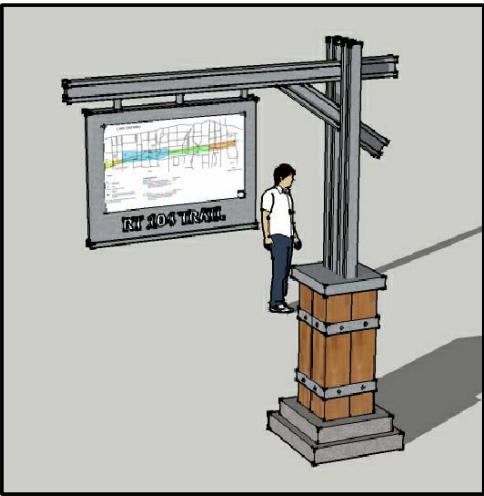
RECOMMENDATIONS

Figure 29
Brighton Auburn Trail Concept Details
AT-GRADE CROSSING ENHANCEMENTS



Not to scale

GATEWAYS AND SIGNAGE



Trail gateways and signage displays identify the Brighton Auburn Trail as public space and draw attention to at-grade crossings. The design vocabulary highlights the adaptive re-use of an old railroad corridor. Gateways and sign posts are constructed of salvaged railroad ties, steel rails and tie plates.

RECOMMENDATIONS



Figure 28
Brighton Auburn Trail Concept Graphic

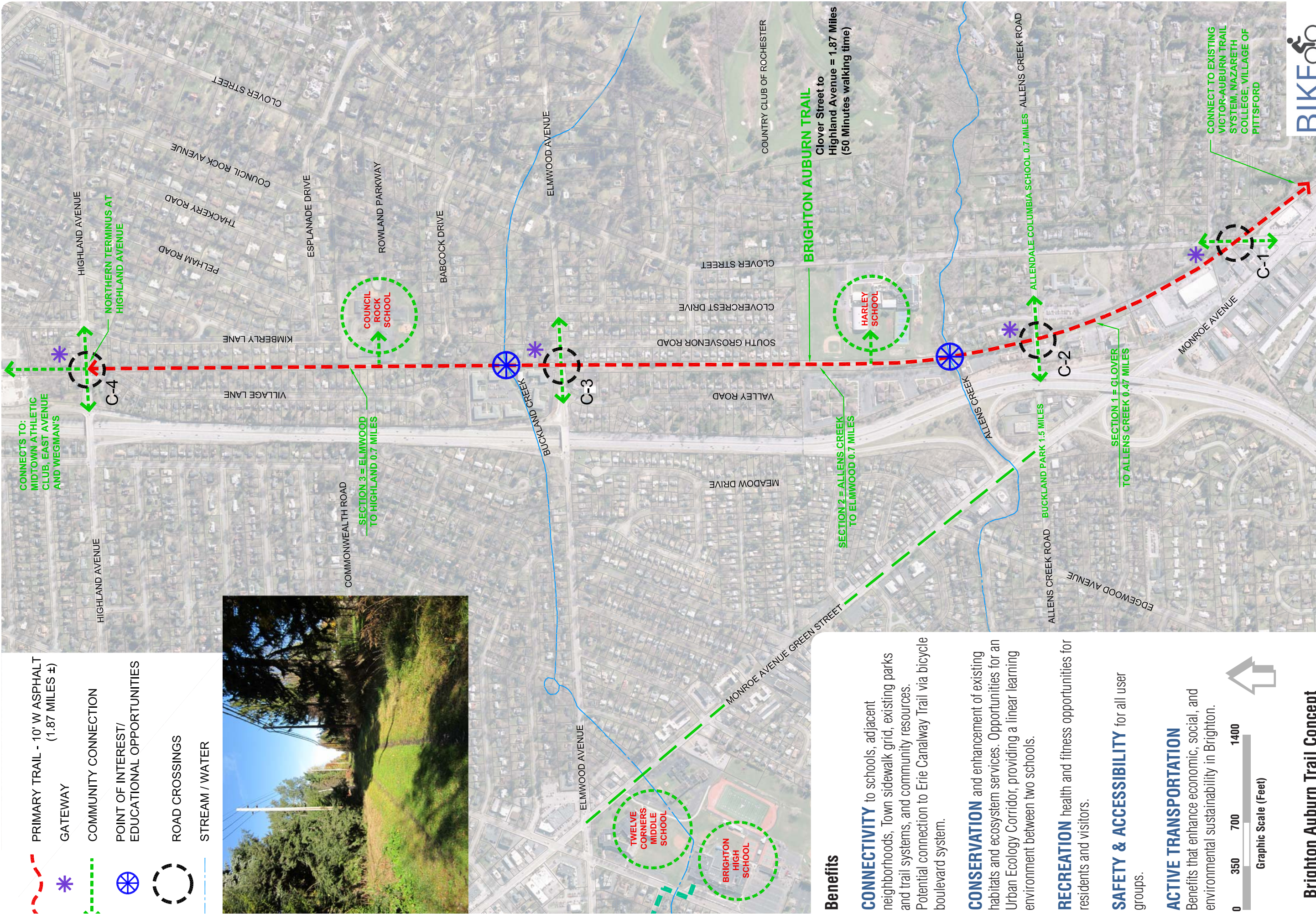


Existing Conditions

Enhancements

- ① **10' WIDE SHARED-USE TRAIL**
Asphalt, compliant with ADA and AASHTO standards.
- ② **RESTING POINTS**
Located every 300 yards (approximately a 5 minute walk).
- ③ **BRIGHTON TRAIL BANNERS**
Located on existing utility poles.
- ④ **NATIVE SHRUB MASSES**
Provide buffer, screening, increased biodiversity, habitat enhancement, and year-round visual interest.

Not to scale



Benefits

CONNECTIVITY to schools, adjacent neighborhoods, Town sidewalk grid, existing parks and trail systems, and community resources. Potential connection to Erie Canalway Trail via bicycle boulevard system.

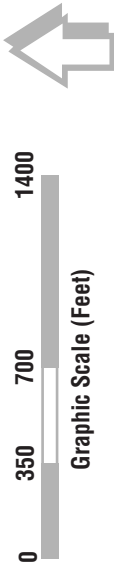
CONSERVATION and enhancement of existing habitats and ecosystem services. Opportunities for an Urban Ecology Corridor, providing a linear learning environment between two schools.

RECREATION health and fitness opportunities for residents and visitors.

SAFETY & ACCESSIBILITY for all user groups.

ACTIVE TRANSPORTATION

Benefits that enhance economic, social, and environmental sustainability in Brighton.



Brighton Auburn Trail Concept

RECOMMENDATIONS

Figure 27

RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



3. Buckland Park Hybrid Trail

Description: This concept recommends a Hybrid Trail system to establish an active transportation route between Buckland Park and the Canal Trail at Brighton Town Park. Shared use trail would be constructed from Buckland Park to the east end of Senator Keating Boulevard. Existing sidewalk along SK Blvd would be expanded into a 10' wide side path. South Clinton Avenue is crossed at a signalized intersection. Planned improvements on South Clinton Avenue will safely convey users a short distance to a new section of shared-use path along the south side of the Brighton Town Park pond. The new trail will link to the existing trails in Brighton Town Park and the Canal Trail. Total length of the proposed Buckland Hybrid Trail is 1.65 miles. Please see [Figure 30](#).

Opportunities: The Buckland Park Hybrid Trail would provide connectivity between Buckland Park, Brighton Town Park and the Canal Trail. There is productive synergy with planned improvements on South Clinton Avenue and on Westfall Road. This concept would link with other recommended [BikeWalkBrighton](#) concept projects including the Farash Parcel Trail and Bicycle Boulevard #1.

Challenges: The Buckland Hybrid trail has relatively few significant challenges to implementation. Coordination would be required between Town of Brighton, MCDOT and NYSDOT. Because they are made up of different facility types, Hybrid Trails require special consideration in regards to wayfinding signage.



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Figure 30
Buckland Park Hybrid Trail Concept
Erie Canalway Trail System Connection to
Brighton Park & Buckland Town Park

1.65 Miles

Destinations

Key

Existing Trail System

10' Wide Concrete Side-Path (Expanded Sidewalk on North Side of Senator Keating Boulevard, meeting ADA and AASHTO guidelines)

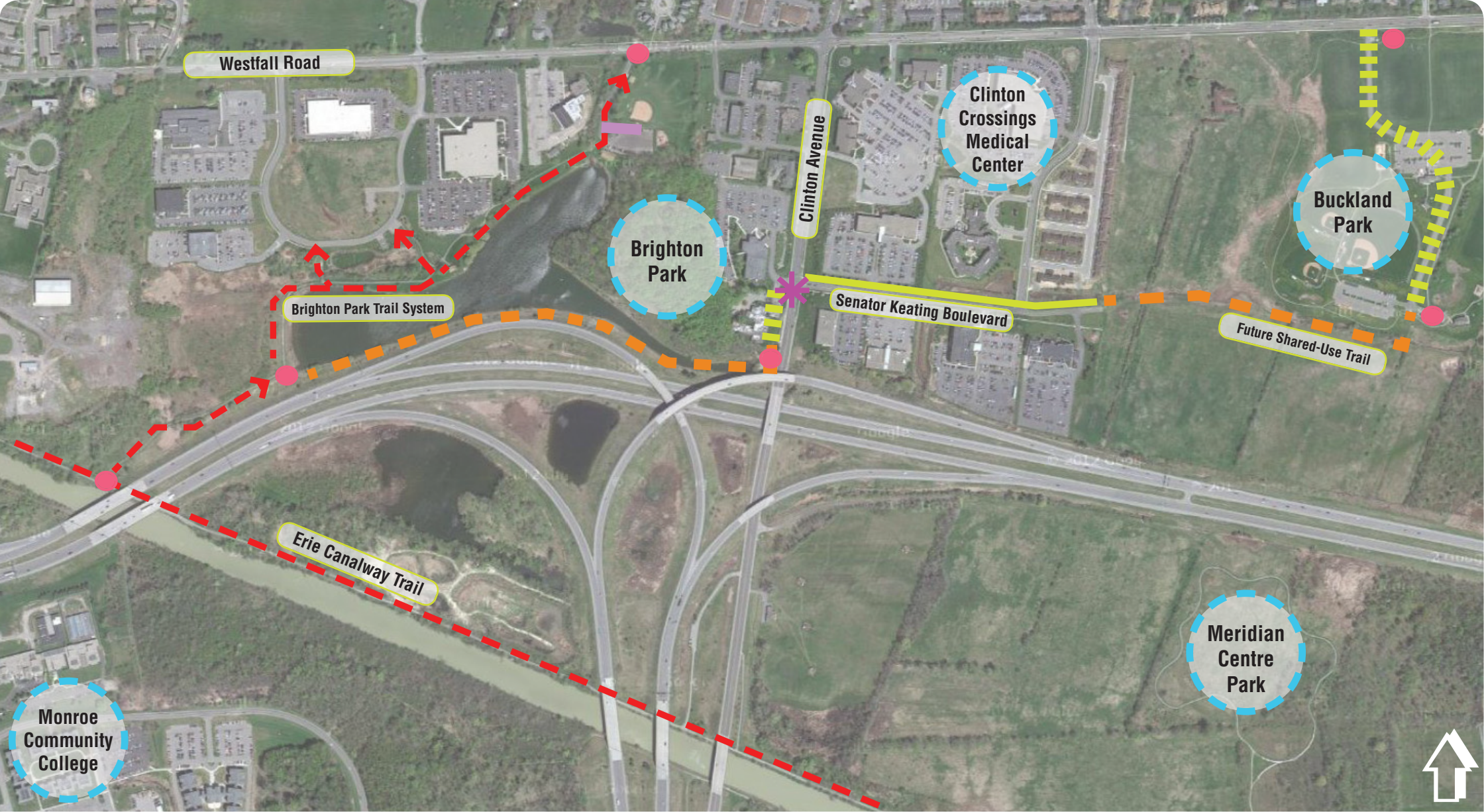
10' Wide Shared-Use Trail (meeting ADA and AASHTO guidelines)

Proposed Wayfinding Signage

Existing Signalized Intersection

Existing Striped Shoulder & Sidewalk

Proposed Connection of Existing Trail to Park Access Road



Not to scale



Erie Canalway Trail



Brighton Park - Location for Proposed 10' Wide Shared-Use Trail



Senator Keating Boulevard - Location for Proposed 10' Wide Side Path



Brighton Park

RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



4. *University of Rochester Hybrid Trail*

Description: A hybrid trail combines bike boulevards, sidewalk additions and new pathway construction to provide a continuous route between destinations. The U of R Hybrid Trail would provide an additional east-west route between the core of Brighton and the University of Rochester in the City. Total length of the proposed trail would be 4.5 miles. Please see [Figure 31](#).

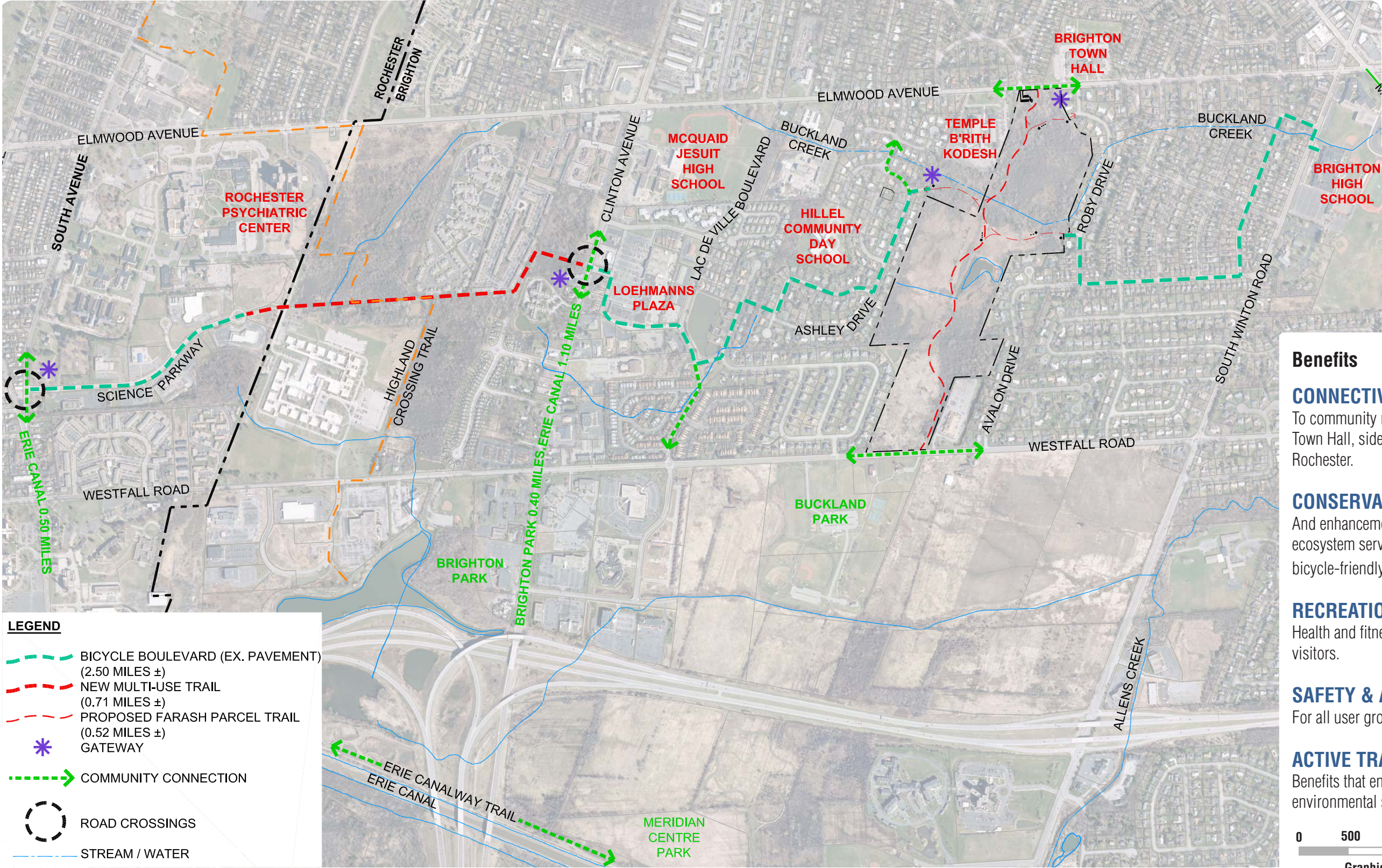
Opportunities: The bike boulevard portions of this project make good use of existing bike-friendly streets. The on-road segments would be connected by new shared-use trails constructed in undeveloped open space. The U of R Hybrid Trail would connect to both the Highland Crossing Trail and the proposed Farash Parcel Trail. East-west connectors suggested in the Farash Parcel Trail project would allow the U of R Hybrid Trail to extend east via bicycle boulevards to Brighton High School. Further connections could be made in the City of Rochester, and should be coordinated with the City of Rochester and the University of Rochester.

Challenges: The suggested Hybrid Trail is somewhat circuitous and would need to be supported by a strong wayfinding system. Open space connections indicated would need to be evaluated for environmental sensitivities. Implementation of this concept would require further operational analysis, consultation with land owners, and design development based on current best practices.

RECOMMENDATIONS



Figure 31
University of Rochester Hybrid Trail Concept



Note: Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.

Benefits

CONNECTIVITY

To community resources, adjacent neighborhoods, Town Hall, sidewalk grid, and the University of Rochester.

CONSERVATION

And enhancement of existing habitats and ecosystem services. Makes good use of existing bicycle-friendly infrastructure.

RECREATION

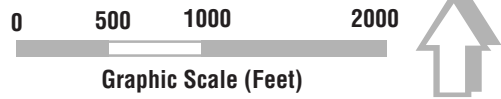
Health and fitness opportunities for residents and visitors.

SAFETY & ACCESSIBILITY

For all user groups.

ACTIVE TRANSPORTATION

Benefits that enhance economic, social, and environmental sustainability in Brighton.



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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



5. Elmwood Avenue Side Path Concept

Description: The Elmwood Avenue Side Path concept addresses the need for better east-west active transportation routes in Brighton. Analysis indicates that conditions are challenging for the provision of on-road bicycle facilities along Elmwood Avenue. The Side Path could provide an alternative approach that would improve existing conditions for pedestrians and cyclists. AASHTO defines a Side Path as “a specific type of shared use path that runs adjacent to a roadway, where right-of-way and other physical constraints dictate.” This concept suggests using space in and adjacent to the ROW along the south side of Elmwood Avenue to provide a continuous shared use pathway between the Brighton Town Hall and the University of Rochester. Expanding the existing sidewalk to a 10’ width is proposed, along with improvements to provide a more attractive and sustainable environment for pedestrians and bicyclists. The total length of the Side Path would be 2.3 miles. Please see [Figure 32](#).

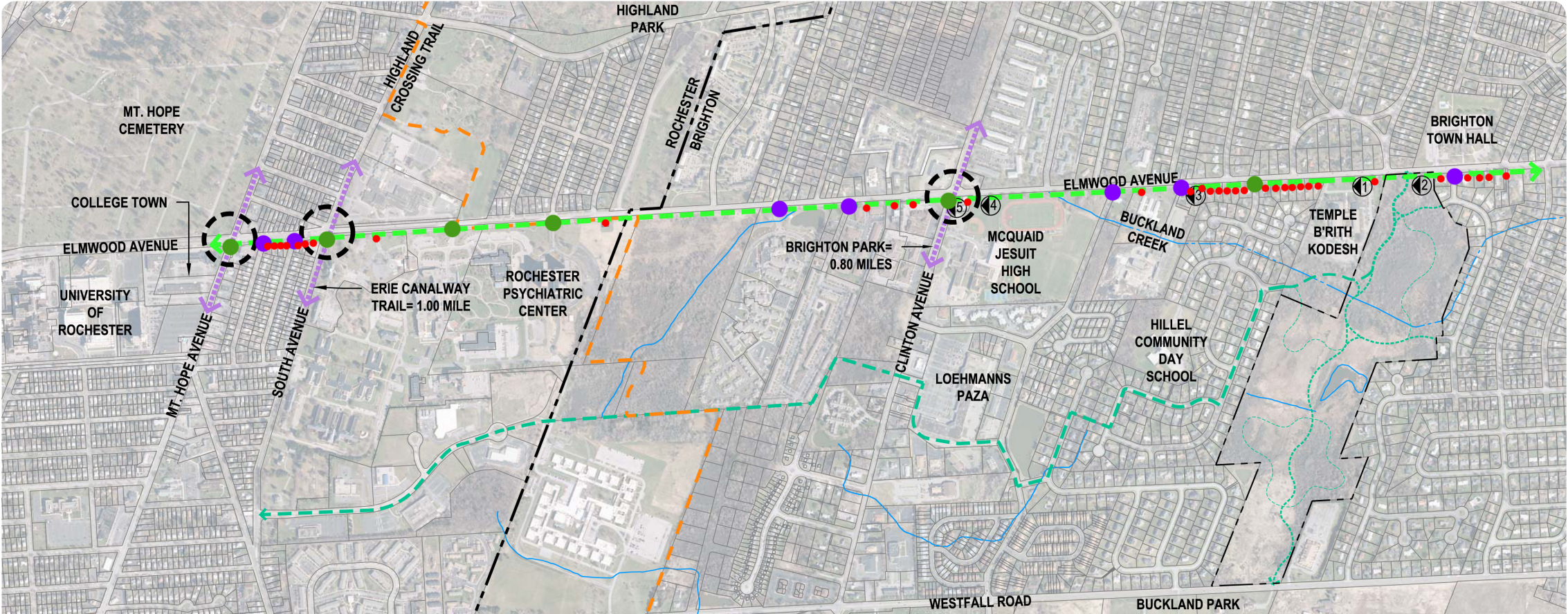
Opportunities: The concept plan calls for doubling the existing 5’ wide concrete sidewalk to create a 10’ wide shared use pathway. The concept makes efficient use of the existing sidewalk and buffer space, connects several destinations, and would intersect with the proposed Farash Trail concept, the Highland Crossing Trail, and planned improvements along Mount Hope Avenue in the City of Rochester. With cooperation from the City of Rochester, the Side Path could connect to the Genesee Riverway Trail. The Elmwood Avenue Side Path could help transform the Elmwood Avenue corridor into a Complete Street better serving various modes of transport. See [Figure 33](#).

Challenges: Side Paths require careful consideration of conflict points such as of road crossings and driveways. There are 32 properties along the proposed alignment in Brighton. The highest concentration of conflict points occurs in the residential blocks to the east and west of Fairfield Drive. Due to the lack of on-road facilities, bicycle use of the sidewalk along Elmwood Avenue is not uncommon. If properly designed and constructed, the proposed Elmwood Avenue Side Path could provide significant improvement over existing conditions. East of the Town Hall, there is not enough space to continue the Side Path along Elmwood, but two bicycle boulevards are proposed to begin/end at the Town Hall. Implementation of this concept would require further operational analysis, consultation with land owners, and design development based on current best practices.

RECOMMENDATIONS



Figure 32
Elmwood Avenue Side Path Concept



LEGEND

PROPOSED SIDE PATH (10'W) ± (2.30 MILES)

COMMUNITY CONNECTION

STREAM / WATER

HIGHLAND CROSSING TRAIL (3.00 MILES ±)

(POTENTIAL) UofR HYBRID TRAIL (BWB concept) (2.45 MILES ±)

(POTENTIAL) FARASH PARCEL TRAIL (BWB concept) (1.32 MILES ±)

TOWNLINE

ROAD CROSSING

SIGNALIZED ROAD CROSSING = 6

UN SIGNALIZED ROAD CROSSING = 7

DRIVEWAY = 34

PHOTO LOCATION

BENEFITS

CONNECTIVITY between the 12 Corners, the Town Hall, the University of Rochester, and adjacent neighborhoods. Provides a much needed east-west Active Transportation Corridor north of the Canalway Trail. Links the evolving Brighton active transportation system to the implementation of the City of Rochester Bicycle Master Plan.

CONSERVATION and enhancement of existing habitats and ecosystem services. Makes good use of existing sidewalks and available space adjacent to the ROW.

RECREATION health and fitness opportunities for residents and visitors.

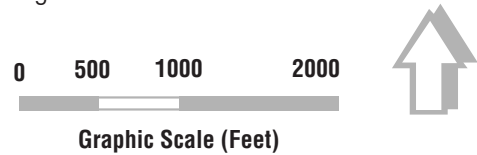
SAFETY & ACCESSIBILITY for all user groups. Provides an off-road side path suitable for bicyclists and pedestrians of all mobility levels.

ACTIVE TRANSPORTATION benefits that enhance economic, social, and environmental sustainability in Brighton.

PRELIMINARY SPATIAL ANALYSIS

Affected Parcels
Rochester = 13
Brighton = 32
Total = 45

Note: Any improvements outside the Town of Brighton to be coordinated with the neighboring municipalities. Improvements beyond the Town boundary will not be funded by the Town of Brighton.



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Figure 33
Elmwood Avenue Side Path Concept Graphics



IMAGE SKETCH, at Cobb Terrace, not to scale

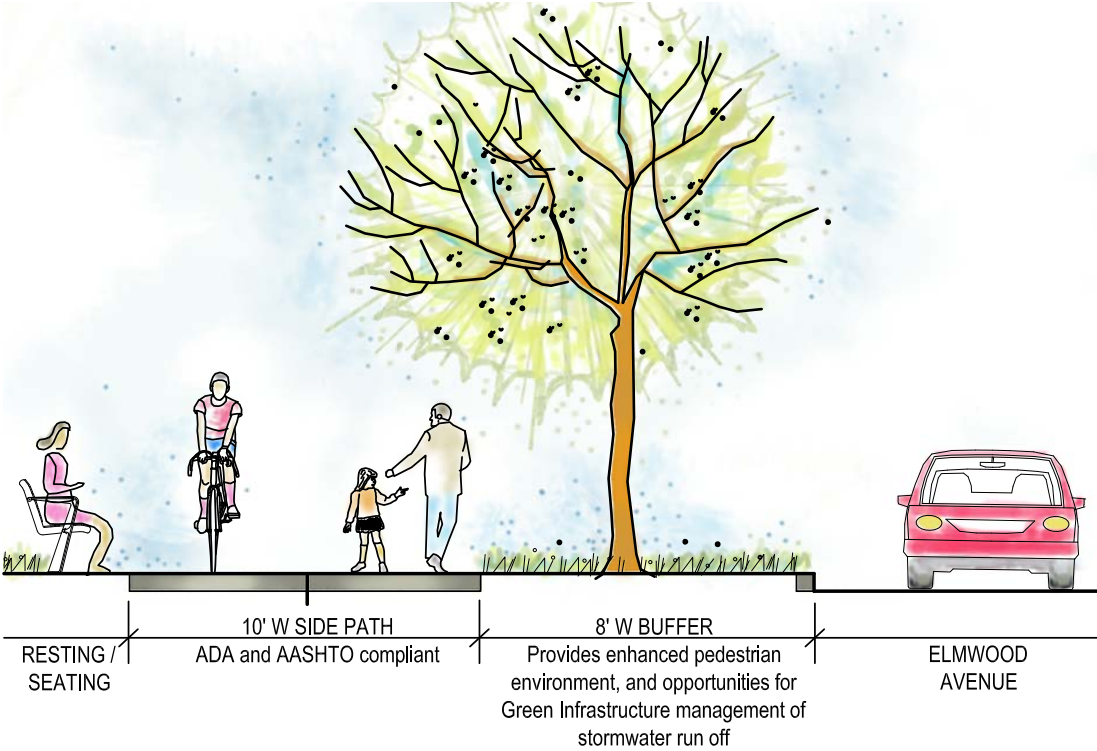


IMAGE SKETCH, at Howland Avenue, not to scale

Enhancements

- ① **EXISTING SIDEWALK**
5' wide concrete pavement.
- ② **EXPANDED SHARED-USE TRAIL**
Add 5' of new pavement width to create 10' wide ADA-accessible and AASHTO compliant side path. Suitable for less advanced cyclists and pedestrians of all mobility levels.
- ③ **CENTER STRIPE**
Expanded pavement width and center stripe visually distinguish side path from conventional sidewalk.
- ④ **BUFFER STRIP**
8' minimum width preferred.
- ⑤ **ADDITIONAL STREET TREES**
Air quality enhancements, increased shade, traffic calming and improved visual quality.
- ⑥ **EXISTING SIDEWALK**
In some locations on north side of Elmwood Avenue.
- ⑦ **RESTING AND SEATING AREAS**
Located every 300 yards (maximum interval) approximately a 5 minute walk. Enhances accessibility for lower mobility levels.

Typical Cross Section, Not to Scale



Note: Typical ROW width on Elmwood Avenue between Mt. Hope Avenue and East Avenue varies between 50'-100'

RECOMMENDATIONS

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



6. Rochester Multiversity Concept

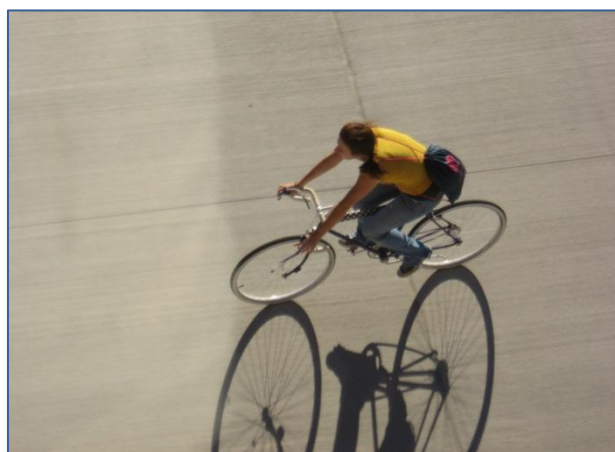
The "Rochester Multiversity" concept boasts linking the three largest schools in the Rochester area – University of Rochester (U of R), Rochester Institute of Technology (RIT) and Monroe Community College (MCC) – by bicycle connections. The schools are home to 80,000 students, most within biking distance of one another. The distance from U of R to MCC and from RIT to U of R is about 2.5 miles, and the distance from MCC to RIT is about 3 miles.

Specific proposals related to this concept include:

- Linking MCC to Brighton and U of R by turning the hiking trail which runs from MCC to the Erie Canal into a multi-use walking and biking trail going west to South Clinton Avenue and east to the East Henrietta Road bridge. The trail would need to include ramps from the Erie Canalway Trail to bike lanes to allow riders to cross and go north to the City of Rochester, or west along the Canalway to U of R and western suburbs.
- Linking U of R to RIT by improving the Lehigh Valley Trail, which connects the Erie Canalway Trail at U of R to Brighton-Henrietta Townline Road. The trail is currently somewhat rough and is poorly marked, but could be easily repaired.

Developing this concept would encourage active transportation to a large and growing portion of Rochester's population, resulting in better utilization of available funding. For example, the University of Rochester plans to spend over \$150 million on 8 structured parking lots, at a cost of \$20,000 per spot (RCA, 2012). By encouraging active transportation, less funding would be needed for parking infrastructure and could be used for other purposes.

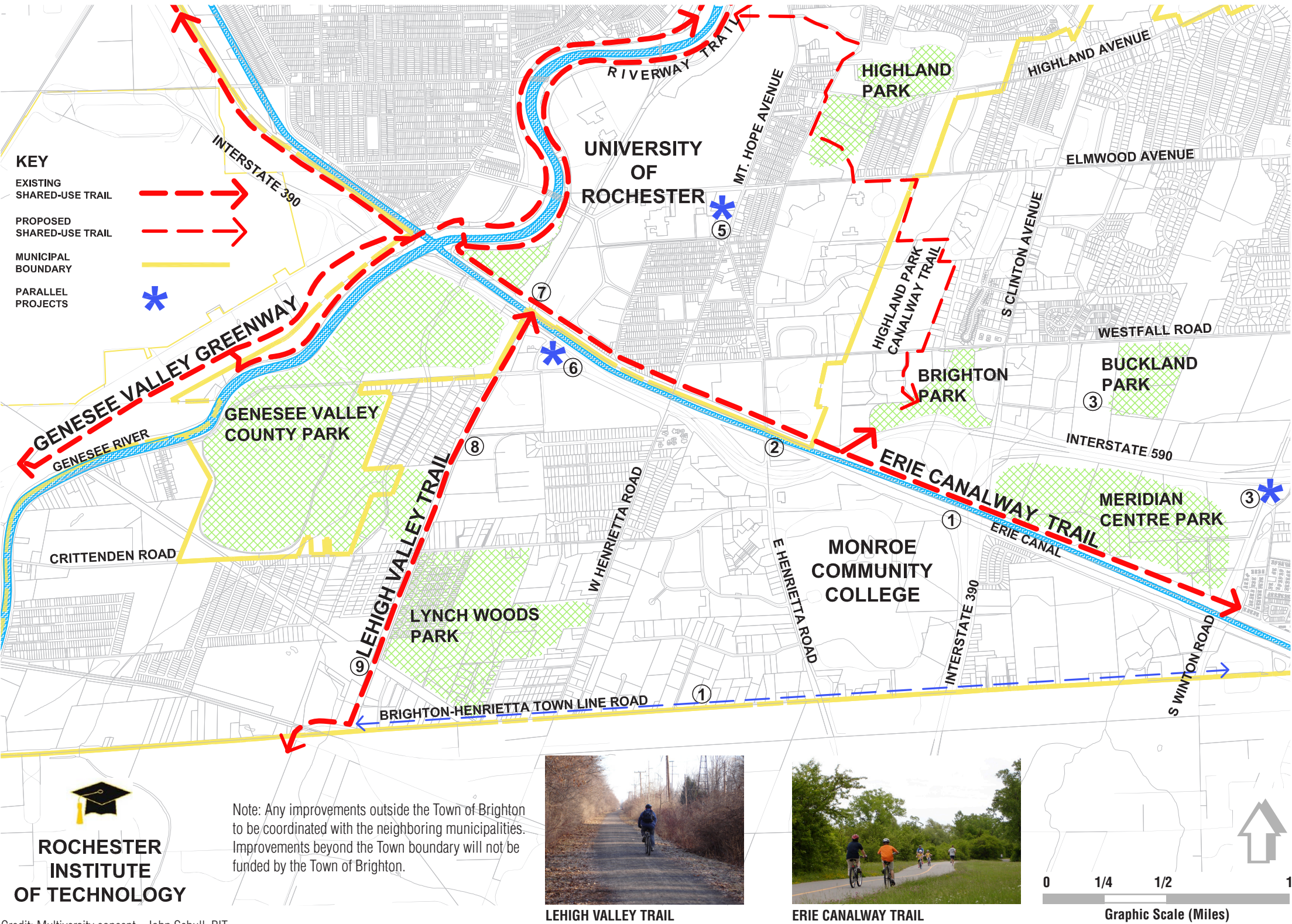
Please see [Figure 34](#) for an illustration of this concept, envisioned by Professor Jon Schull of the Rochester Institute of Technology.



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Figure 34

Rochester Multiversity Concept
Campus-Community Connections



Credit: Multiversity concept - John Schull, RIT

Improvements

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



I. Programs and Policies to Encourage Bicycle and Pedestrian Activity

In addition to site-specific projects and improvements, the Town should also consider programs and policies that can be implemented on a Town-wide basis to improve the Active Transportation network. Programs and policies that were considered include: zoning, engineering standards, outreach, education, maintenance, program effectiveness measures, and enforcement.

1. Zoning

Significant portions of **BikeWalkBrighton** advance the accommodation of bicycling and walking in the transportation network's public right-of-way. However effective this initiative, confined to the public rights-of-way, it may not be enough to successfully encourage people to use active transportation for commuting or other utilitarian transportation. This effort will fall short of its goals unless it is coupled with private sector partnerships. These partnerships can be stimulated through changes in Brighton's regulations, as well as private sector incentives. A quarter century of nationwide research, opinion and behavioral surveys, as well as local experience, underscores this. The private sector's role in the encouragement of active transportation, particularly by providing end of trips facilities for commuting, is highlighted herein.

Existing Development Regulations. In the Town of Brighton's Comprehensive Development Regulations, the following provisions are made for bicyclists and pedestrians in Chapter 217 – Planning Board:

- Section 7.2 states that "office, industrial, commercial and multifamily uses shall provide bicycle racks, and shall also provide sidewalks, marked crosswalks, and other pedestrian pathways to and within parking lots, when required to do so by the Planning Board."
- Section 12 states that the content of a preliminary site plan should include "the location and arrangement of proposed means of access, egress, and circulation for vehicles, bicycles, and pedestrians, including sidewalks, marked crosswalks and pedestrian pathways to and within parking lots, sidewalks along street frontages, driveways, and other paved areas," as well as "the location of proposed bicycle racks and other facilities to support bicycle access."
- Section 15 states that "Sidewalks shall be provided along street frontages, and sidewalks, marked crosswalk and pedestrian pathways shall be provided to and within the parking lots of office, industrial, commercial and multifamily uses, when required by the Planning Board."
- Section 15 also states that "Bicycle racks shall be provided by office, industrial, commercial and multifamily uses when required by the Planning Board."

The references in Sections 7.2 and 15 specifically state that these requirements are at the discretion of the Planning Board. This allows the Town some flexibility in their review process. Additional standards and guidelines relative to active transportation could add consistency to the development of infrastructure for pedestrians and bicyclists.

Section 12 lists a number of pedestrian and bicycle facilities that should be identified on the preliminary site plans. There are currently no specifics to guide a proposal. Among other considerations, standards and guidelines could provide guidance on quantity (e.g. number of bicycle racks with respect to building size or type), placement (e.g. location of pathways with respect to parking lots), and provision of associated amenities (e.g. benches, shade, or signage). Please see **Appendix F** "Peer City Review" for examples of standards from other communities.

The Town also has incentive zoning included in the current Comprehensive Development Regulations. The purpose of this type of zoning is "to offer incentives to applicants who provide amenities that assist the Town (in implementing) specific physical, cultural, and social policies in the Comprehensive Plan."¹² Active transportation facilities and amenities could be listed in this section, if the Town wishes to more intentionally incentivize their construction.

¹² Town of Brighton Comprehensive Development Regulations, Chapter 209, Incentive Zoning

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



The Town of Brighton should consider establishing clear standards and guidelines to guide future development proposals. The following sections provide additional recommendations, as well as associated private sector incentives. Several of the recommendations refer to a Technical Memorandum prepared in 2007 by the Genesee Transportation Council (GTC), *Bicycle and Pedestrian Supportive Code Language*.

Encouraging and Protecting Bicyclists and Pedestrians. Some solutions can address both bicyclists and pedestrians at the same time. The design and placement of parking lots is a critical piece of infrastructure that can be improved.

Automobile Parking to Include Pedestrian Accommodations. Parking lots can often present a safety hazard to bicyclists and pedestrians. Commercial developments often require pedestrians to negotiate a parking area between a public sidewalk and the building entrance. One solution to this concern is to design parking lots that incorporate pedestrian-friendly features. See [Figure 35](#) for an illustration of a pedestrian and bicycle-oriented parking lot.

The GTC report notes, “Communities that wish to promote pedestrian and bicycle-sensitive parking lot design can do so by including the desired design elements within their off-street parking code language. Doing so will provide developers with examples of expected design features at an early stage in the site planning process.” Specific requirements identified by other communities (e.g. the Town of Warwick, NY) include:

1. breaking up large parking lots into smaller parking groves and parking courts with a significant number of shade trees and surrounded by low hedges, stone walls or attractive fencing;
2. encouraging designs that avoid placing more than 15 parking spaces in a continuous row and more than 60 spaces in any single parking area as defined by landscaping;
3. promoting landscaping that delineates vehicular and pedestrian patterns;
4. providing clear and legible signs, differently colored and textured paving materials, raised or inverted areas, and other techniques to direct the flow of both vehicular and pedestrian traffic within the lot; and
5. providing separate pedestrian walkways in large parking lots to allow safe movement within the lots.

Additional design criteria specify – among other things – that pedestrian and bicycle amenities, such as benches, shade, human-scale lighting, and bicycle racks should be provided.

Automobile Parking Site Location. Pedestrian and bicycle access to a site can be dramatically affected by the location of automobile parking in relation to the building. The GTC reports notes, “Communities can direct parking to the rear of development sites and thereby support pedestrian utilization of commercial facilities located within their jurisdiction.” The report suggests that the location of parking facilities on a site can be controlled directly by: 1) parking to the side or rear of the primary use included within design criteria; and 2) parking to the side or rear of the primary use and on the same lot. “Including the location criteria for the parking lot within the parking regulations allows a more unified approach to managing the facilities by including criteria related to parking lot internal design within the same section of the zoning ordinance as parking lot location criteria.”

Encouraging and Protecting Bicyclists. Facilities for bicyclists at destination are an important part of an active transportation network. The two most influential facility types cited by North Americans in nationally prominent opinion surveys as affecting their choice to bicycle for transportation are bicycle parking availability (and convenience) and, for commuting, the provision of lockers/showers at their workplace. Recommended standards and guidelines have been outlined, and the provision of incentives is also possible.

Bicycle Parking. As outlined earlier in this section, the provision of bicycle parking is currently at the discretion of the Planning Board. The Town could consider including standards and guidelines for bicycle parking. One way to

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



accomplish this is to allocate an identified percentage of off-street parking for bicycle parking. For example, the provision of bicycle parking is required in the City of Rochester's Zoning Code, which states that "bicycle parking shall be provided equal to 10% of the vehicle parking requirements, for a minimum of two bicycles, for all multifamily housing (over 10 units), commercial and industrial uses." In order to encourage bicycle parking, the Town of Brighton could exempt bicycle parking facilities from the green space requirements in the code.

As noted in the GTC report, the Town should also consider including appropriate design criteria to ensure that damage to bicycles does not occur, and that bicycle parking is properly located on the site. The design specification for bicycle parking should stipulate that the parking be located in reasonable proximity to a building entrance and that the bicycle parking location be secure, covered, and at grade level. Please refer to [Appendix F](#) "Peer City Review" for examples of bicycle parking design guidelines from other communities.

In-building Bicycle Commuter Showers and Lockers. Workplace bicycle lockers, changing and/or shower facilities are not generally being constructed in this community. One way to encourage these facilities is by offering incentives that are tied to the Town's development regulations, specifically vehicular parking off-sets. Any incentive needs to be inviting enough for developers to take notice. Another strategy is to mandate the facilities. The first option – offering effective incentives – is recommended. Several approaches to this strategy follow.

Any investment by the Town in public bicycle transportation infrastructure can be complemented by developers and commercial property owners providing on-site showers and locker facilities. There are a number of incentives that can be offered to the (private) sector developing and managing commercial properties; many of these incentives can be offered at little or no actual expense to the Town.

There are two phases in which the incentives can be effective: upon initial land development and during tenant build-out and/or remodeling or renovation. Among the compelling incentives for the construction of bicycle locker/changing/shower facilities at initial land development (or during site re-development) are:

- During traffic impact assessments, including bicycle facilities in a site plan may reduce auto trip generation and traffic impacts. (e.g., up to five percent of total trip generation, depending on land use);
- Floor area bonus (equal to the space taken up by the bicycle commuter facility) for those districts and uses that specify maximum square footage;
- Reductions¹³ to required yard/setbacks (e.g., up to 20 percent for providing shower and locker facilities with capacity of serving up to five percent of employees);
- Possible reduction of green space requirement, based on the bike parking facilities being provided, (e.g., up to twenty times the building square footage dedicated to the bicycle facility).

As the Town transforms its transportation system in the public rights-of-way, concurrent partnerships with private sector entities will ensure the effectiveness of the public initiative. The end result will be increased opportunities for Brighton residents to choose bicycling for commuting and travel. Their choice will enhance workplace productivity and employee health, which will in turn improve the economic well-being and overall quality of life in Brighton.

Encouraging and Protecting Pedestrians. An effective and interconnected sidewalk system is one of the best facilities that a municipality can offer to pedestrians. There are two key locations where sidewalks can be pursued through land use regulations: adjacent to new residential development, and adjacent to existing development.

Sidewalks Adjacent to New Residential Development. "Providing sidewalks adjacent to new development is one way that communities can improve mobility for all users including the elderly, the young, people with disabilities, and

¹³ or internal (transfer) flexibility of required land use buffer yards

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



others without access to an automobile.”¹⁴ The GTC report states, “Sidewalks can be provided adjacent to new residential developments utilizing a code-based approach (within the Town’s subdivision regulations) or based on a comprehensive sidewalk policy that guides the implementation of the subdivision, site planning, and zoning ordinance.” Code language linked to roadway classification and adjacent land use may support pedestrian travel between neighborhoods, but is unlikely to support improved pedestrian facilities along local streets unless local streets are included in the requirements.¹⁵

The Town of Perinton is a local example of a municipality that uses a code-based approach, requiring sidewalks based on nearby land use. Sidewalks or pedestrianways must be constructed along land that fronts on both sides of a collector or arterial street within a Pedestrian Zone. The Town has an official map that identifies PED zones, which are defined as land within a 4,000 foot radius of the central point of a public school, public park, or active commercial area.¹⁶ This radius could be adjusted to fit the different needs of Brighton, but should be at least one-half mile.

The Town of Penfield provides an example of a community that has a policy-based approach. The Town’s comprehensive sidewalk policy requires that all new development approved by the Town must include sidewalks along both sides of all local roads. Developers may seek a waiver from the policy subject to the payment of a \$500 per dwelling unit fee placed in the sidewalk capital account specifically for the installation of sidewalks in locations identified by the Town Board.¹⁷

Other approaches might include requiring sidewalks based on residential density, or requiring sidewalks based on the roadway’s functional classification.

Sidewalks Adjacent to Existing Development. In most communities, gaps exist in the sidewalk network, as a result of new development that is constructed on a property that is not adjacent to existing sidewalks. The Town might consider developing specific codes and/or policies that address the process and financial details that will apply if they seek to improve the existing sidewalk system.¹⁸ The GTC Report notes that a policy-based approach that identifies and funds specific sidewalk improvements adjacent to existing development may be an appropriate solution.

The Town of Penfield’s sidewalk policy also applies to existing development. The policy identifies the Town’s intent to “Install sidewalks along all Minor Arterial, Major Collector, and Minor Collector roads to develop safe pedestrian mobility and enjoyment.” These roadways make up the primary sidewalk system. The installation of sidewalks along the primary sidewalk system is supported by the allocation of funds from the Town’s General Fund, by grants, and by the sidewalk waiver fees paid by developers. The Town keeps a Primary Sidewalk System Map to identify improvements that will be made on an annual basis, depending on resources.

Other approaches might include constructing sidewalks at the property owner’s expense, constructing sidewalks at the Town’s expense, or constructing sidewalks following a petition from the affected property owners, with the cost being shared by all property owners in that area.

Integration Into Existing Standards. The Town of Brighton should consider adopting the aforementioned land use regulations, but may wish to integrate by way of using guidelines or standards prior to adopting new zoning. An example of development standards designed to encourage active transportation can be seen in Table 7.2.

¹⁴ GTC Report

¹⁵ Ibid

¹⁶ Ibid

¹⁷ Ibid

¹⁸ Ibid

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Table 7.2: Development Standards for Active Transportation

As development proposals are evaluated by the Town of Brighton, the following checklist can be used to assess the proposal's impact on active transportation. Walking and bicycling have a myriad of economic, health, environmental, and social benefits, both for individuals and the broader community.

Yes	No	Buildings
<input type="checkbox"/>	<input type="checkbox"/>	1. Do the buildings and plantings form an attractive edge to the roadway?
<input type="checkbox"/>	<input type="checkbox"/>	2. Are distances between buildings/building clusters minimized to connect uses?
<input type="checkbox"/>	<input type="checkbox"/>	3. Is an interesting façade or window scheme used to create a pleasant pedestrian experience?
<input type="checkbox"/>	<input type="checkbox"/>	4. Are buildings facing the street and located appropriately within the setback?
<input type="checkbox"/>	<input type="checkbox"/>	5. Do the main entrance doors face the main street?
<input type="checkbox"/>	<input type="checkbox"/>	6. Are new buildings scaled down into smaller, human-scaled environments?
<input type="checkbox"/>	<input type="checkbox"/>	7. Are the buildings clustered, with internal open spaces, rather than arranged as single buildings separated by vast expanses of parking lots?
<input type="checkbox"/>	<input type="checkbox"/>	8. Do the ground-floor windows permit pedestrian views?
<input type="checkbox"/>	<input type="checkbox"/>	9. For buildings built to the sidewalk edge, is the entrance recessed, allowing the door to swing out without obstructing the sidewalk?
Yes	No	Traffic Calming
<input type="checkbox"/>	<input type="checkbox"/>	10. Are there clear vehicular movement patterns?
<input type="checkbox"/>	<input type="checkbox"/>	11. Are bump outs and pedestrian crossing signal lights used at key intersections?
Yes	No	Linkage and Curb Cuts
<input type="checkbox"/>	<input type="checkbox"/>	12. Are adjacent commercial areas planning to share parking areas and curb cuts?
<input type="checkbox"/>	<input type="checkbox"/>	13. Have curb cuts been avoided that would be too numerous or too close together?
<input type="checkbox"/>	<input type="checkbox"/>	14. Is back street access available as an alternative for vehicular traffic?
Yes	No	Pedestrian and Non-motorized Traffic
<input type="checkbox"/>	<input type="checkbox"/>	15. Are sidewalk areas scaled to pedestrians through carefully placed buildings and plantings?
<input type="checkbox"/>	<input type="checkbox"/>	16. Are sidewalks built to current standards for increased safety and accessibility for pedestrians, including the physically challenged?
<input type="checkbox"/>	<input type="checkbox"/>	17. Are sidewalks expanded near buildings to highlight the entry, link streets and parking lots, and provide safe and obvious pedestrian ways?
<input type="checkbox"/>	<input type="checkbox"/>	18. Are crosswalks highlighted by use of materials or prominent stripes?
<input type="checkbox"/>	<input type="checkbox"/>	19. Has non-motorized access been considered for commercial projects?
<input type="checkbox"/>	<input type="checkbox"/>	20. Have connections been created between a) existing and proposed trails and sidewalks, and b) residential neighborhoods and neighborhood services?
<input type="checkbox"/>	<input type="checkbox"/>	21. Have resting points for pedestrians been provided at reasonable intervals?
Yes	No	Parking
<input type="checkbox"/>	<input type="checkbox"/>	22. Are parking lots friendly to pedestrians? Are parking lanes oriented to building entrances and planting islands used to break up large parking areas?
<input type="checkbox"/>	<input type="checkbox"/>	23. Is parking located behind buildings, or along the side of the building?
<input type="checkbox"/>	<input type="checkbox"/>	24. Is the parking lot designed for average parking demand, not peak demand? Is the parking area as small as possible?
<input type="checkbox"/>	<input type="checkbox"/>	25. Do parking bays and driveways meet minimum and maximum widths to ensure safety and flow while avoiding excessive pavement?
<input type="checkbox"/>	<input type="checkbox"/>	26. Has the potential for shared or community parking been explored?

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Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Internal Circulation
<input type="checkbox"/>	<input type="checkbox"/>	27. Is internal circulation logically configured to serve the buildings?
<input type="checkbox"/>	<input type="checkbox"/>	28. Do the drive lanes provide pedestrian and vehicular connections to the public realm along existing frontage streets?
<input type="checkbox"/>	<input type="checkbox"/>	29. Do the main streets within a commercial project include pedestrian amenities such as curbing, trees, sidewalks, and lighting?
<input type="checkbox"/>	<input type="checkbox"/>	Transit
<input type="checkbox"/>	<input type="checkbox"/>	30. Have transit options been identified to reduce the number of automobile trips?
<input type="checkbox"/>	<input type="checkbox"/>	31. Have Park-and-Ride lots, bus shelters, or other commuter services been planned into the construction and rebuilding of larger commercial areas?
<input type="checkbox"/>	<input type="checkbox"/>	Landscaping and Street Trees
<input type="checkbox"/>	<input type="checkbox"/>	32. Will landscaping be included in parking areas?
<input type="checkbox"/>	<input type="checkbox"/>	33. Will planting islands be provided at a minimum of every 15 parking spaces?
<input type="checkbox"/>	<input type="checkbox"/>	34. Will the landscaping provide visual relief, shade, and a buffer between uses?
<input type="checkbox"/>	<input type="checkbox"/>	35. Are large areas of asphalt broken up by landscaping or other techniques?
<input type="checkbox"/>	<input type="checkbox"/>	36. Is a planting strip planned for the space between the walkway and the street?
<input type="checkbox"/>	<input type="checkbox"/>	37. Will street trees be planted in the space between the walkway and the street?
<input type="checkbox"/>	<input type="checkbox"/>	Open Space and Amenities
<input type="checkbox"/>	<input type="checkbox"/>	38. Will active and attractive pedestrian-oriented open spaces be created?
<input type="checkbox"/>	<input type="checkbox"/>	39. Are plazas, outdoor dining areas, fountains, sculpture or other amenities provided to create an attractive, "human-scale" sense of place for users in commercial projects?
<input type="checkbox"/>	<input type="checkbox"/>	40. Does the proposed development take advantage of opportunities to link new and existing open spaces?
<input type="checkbox"/>	<input type="checkbox"/>	Lighting
<input type="checkbox"/>	<input type="checkbox"/>	41. Are pedestrian-level light fixtures less than fifteen feet in height?
<input type="checkbox"/>	<input type="checkbox"/>	42. Does the pedestrian-level lighting consist of freestanding fixtures located along the sidewalks?
<input type="checkbox"/>	<input type="checkbox"/>	43. Are smaller light poles used in higher quantities to reduce intensity levels of individual fixtures?

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2. Engineering Standards

The *Town of Brighton Minimum Specifications for Dedication* has been reviewed with regard to pedestrian and bicycle facilities. The focus of the review of the *Specifications* is for comparison with AASHTO *Bicycle*¹⁹ and *Pedestrian Guides*²⁰ to identify any differences or recommended additions.

Overview of Current Guidance and Specifications. The *Town of Brighton Minimum Specifications for Dedication* includes the following information with respect to bicycle and pedestrian facilities:

- Requirement for 5-ft sidewalks to be installed in conjunction with all new street improvements.
- Requirements to comply with the Americans with Disabilities Act.
- Construction specifications for sidewalk materials and placement.
- Consideration of tree roots near sidewalk construction.
- Requirements for detectable warning surfaces.
- Construction specifications for warning surface materials and placement.
- Standard sheets showing sidewalk placement.
- Standard sheets for construction of sidewalks.
- Standard sheets for curb ramps.
- Standard sheet for driveways crossing sidewalks.
- Standard sheets for an asphalt park trail.
- Standard sheets for detectable warnings.

Comments on Pedestrian Facilities Guidance. The *Town of Brighton Minimum Specifications for Dedication* provides significant guidance for the provision, design, and construction of sidewalks. It requires concrete sidewalks with a minimum width of 5 feet be installed in conjunction with all new street improvement unless otherwise approved by the Commissioner of Public Works. The 5-foot minimum width is consistent²¹ with the AASHTO *Pedestrian Guide* with respect to basic sidewalk width. AASHTO desirable width is 5 feet. Buffers provided between the curb and sidewalk on Standard Sheets H1.1, H1.2, and H1.3 are consistent with AASHTO recommendations. On sheets H2.1, H2.2, H2.3, and H2.4 the buffer width is not specified, but can be calculated from the drawings as 9.5 ft, 9.5 ft, 5.5 ft, and 12 ft, respectively. Again, these are consistent with AASHTO.

¹⁹ AASHTO *Guide for the Development of Bicycle Facilities*, 2012.

²⁰ AASHTO *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, 2004.

²¹ In this review consistent is defined as meeting or exceeding recommendations of AASHTO.

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Specific observations include the following:

Note that some of the following comments with respect to pedestrian facilities reflect criteria from the ADA Draft Public Rights of Way Accessibility Guidelines (PROWAG) and are made in light of an FHWA guidance memorandum (2006) which states:

*The Draft Guidelines are not standards until adopted by the U.S. Department of Justice and the U.S. Department of Transportation. The present standards to be followed are the ADA Accessibility Guidelines (ADAAG) standards. However, the Draft Guidelines are the currently recommended best practices, and **can be considered the state of the practice that could be followed for areas not fully addressed by the present ADAAG standards.** (emphasis added)*

Page 20, PART 20 STREET LIGHTING – Consider adding a sentence stating “Sidewalk areas shall be lit to the same illumination levels as the adjacent roadway.” Roadway lighting often fails to consider the sidewalk area. This can result in insufficient lighting for the sidewalk areas. Insufficient lighting or shadowed areas can hide pedestrians from motorists who may be turning into driveways. Alternatively, pedestrians making street crossings may not be visible until they step into the roadway.

Standard Sheets H1.1, H1.2, H1.3, H2.1, H2.2, H2.3, H2.4, H5.1, H5.1.1, H5.1.2 – The ¼” per foot cross slope shown on the sidewalk, while consistent with the ADA Accessibility Guidelines, is slightly greater than the 2% cross slope specified as a maximum in the draft PROWAG.

Standard Sheet H5.2.1 – In some environments where there is significant longitudinal grade, a maximum slope of 1:12 may be difficult or impossible to achieve. The draft PROWAG states, “The running slope shall be 5 percent minimum and 8.3 percent maximum but shall not require the ramp length to exceed 4.5 m (15.0 ft)” (R303.2.1.1 Running Slope). A GENERAL NOTE could be added to this page to provide for the 15’ maximum required ramp length.

Standard Sheet H5.2.1 – The roadway cross sections do not provide for a sidewalk at the back of curb. Consequently, consider labeling the PARALLEL SIDEWALK RAMP TIGHT TO CURB drawing for conditions where the other drawings are infeasible.

Standard Sheet H5.2.2 – The PARALLEL CURB RAMP and the COMBINED PARALLEL/ PERPENDICULAR CURB RAMP should address how the back of sidewalk profile is matched to the existing grade. Provide smooth transition grade no greater than 1 to 4 maximum slope.

Standard Sheet H5.3 – Consider specifying a 2% max cross slope in the SECTION A-A drawing, or match the grade of existing walkways.

Standard Sheet H5.5.2 – This sheet is for Detectable Warning Details. However, some additional information regarding cut through islands should be provided; if not on this sheet then on another. For the DETECTABLE WARNINGS AT MEDIAN ISLANDS and DETECTABLE WARNING(S) AT ISLANDS, specify a minimum 5-ft x 5-ft passing area at the top of the ramps to be consistent with PROWAG. Additionally the minimum width for a pedestrian refuge is 6 feet. Consequently, if the NON-ELEVATED CROSSING is not 6 feet wide, detectable warnings shall not be installed.

Comments on Bicycle Facility Guidance. There is minimal design guidance for bicycle facilities in the *Town of Brighton Minimum Specifications for Dedication*. There is no text suggesting that bicycles must be considered in the design of Brighton’s roadways. It is recommended that at a minimum this document be revised to include a statement similar to AASHTO’s *Bike Guide*:

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All highways, except those where cyclists are legally prohibited, should be designed and constructed under the assumption that they will be used by cyclists. Therefore, bicycles should be considered in all phases of transportation planning, new roadway design, roadway reconstruction, and capacity improvement and transit projects.

Beyond this guidance, the *Town of Brighton Minimum Specifications for Dedication* could state that all bicycle facilities (on-street and shared uses paths) must be designed in accordance with the current AASHTO *Guide for the Development of Bicycle Facilities* and the most recent edition of the *Manual on Uniform Traffic Control Devices (MUTCD)*. The *MUTCD* reference could be applied to all traffic control devices placed on roadways due to become part of the infrastructure system. This is the minimum level of guidance we would recommend be included in this document.

The level of additional guidance that should be provided in the *Town of Brighton Minimum Specifications for Dedication* is dependent upon what types of facilities the town envisions being provided for bicyclists. If the facility of choice is bike lanes, then any guidance beyond what is in AASHTO should be discussed. This guidance should include the type of streets upon which bicycle facilities are to be provided, and the half-street cross sections should be updated accordingly. Additionally, it could include increased bike lane widths, preferred methods of marking bike lanes, whether or not signs are required, options for buffered bike lanes and striping templates for intersections. Alternative treatments (e.g., SHARED LANE MARKINGS and BIKES MAY USE FULL LANE signs) could be required for lower volume/speed streets.

Although addressed in AASHTO, specific shared use path criteria could also be included in this document. These might specify minimum shoulder widths, vertical clearance, spacing to drop-off hazards, turn radii, or the provision of amenities. Additional guidance could address mid-block crossings.

Specific bicycle-related observations on the existing *Town of Brighton Minimum Specifications for Dedication* include the following:

Standard Sheet H5.4 – Consider specifying a 2% max cross slope.

Standard Sheet H6.2 – Consider adding a note that if inlets are to be placed in a travel lane, bicycle-safe grates shall be used.

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3. Outreach & Education

The outreach and education recommendations included in this section aim to increase the number of Brighton pedestrians and bicyclists, while encouraging safe and appropriate behavior by pedestrians, bicyclists and motorists. The active transportation network will attract pedestrians and bicyclists of different skill levels and as, well as provide opportunities for interaction with motorists and each other. [BikeWalkBrighton](#) education and outreach programs must consider all of these different user groups.

When developing different programs, campaigns or information elements, it is important to make sure each group is addressed in multiple and suitable ways. For example, programs for young bicyclists should use age-appropriate curriculum and language to explain concepts and issues.

Educational programs should address the following objectives:

1. improving safety for bicyclists, pedestrians and motorists;
2. promoting awareness and usage of the bicycle and pedestrian network and amenities;
3. increasing community partnerships in providing resources for bicyclists and pedestrians; and
4. measuring and communicating user benefits and community impact.

Educational programs should be specific, measurable, and address identified problems.

One of the key things to keep in mind when planning outreach and education efforts is not to “reinvent the wheel”. Many successful programs, campaigns and resources are available. Locally, there are already many efforts underway. Other communities throughout the U.S. and Canada have already developed tools that can be adapted and modified for the Town of Brighton. This adaptation is important in order to effectively localize the educational campaigns. Locally created campaigns that include materials with a local feel have been shown to have a more noticeable influence on motorist, pedestrian, and bicyclist behaviors than generic FHWA-produced materials. The framework for the education and outreach strategy was crafted with all of this in mind.

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Recommendation 1: Connect partners to maximize the effectiveness of existing resources, programs, & materials. A list of potential partners has been developed, and their existing programs and partnerships have been inventoried to identify opportunities for new partnerships and enhanced use of resources. Some of these partners are already working together, but there are new partnerships that can be nurtured and developed, and new ways for existing educational materials to be used. Not all of the potential partners are specifically focused on active transportation-related issues, but may still be a useful partner for their ability to communicate with a certain part of the Brighton population. See Table 7.3 for a summary of the current outreach and education programs.

Examples:

- a. Coordinate different organizations that offer bicycle rodeos for young bicyclists to see what ways they can support each other and maximize existing resources. Organizations include Injury Free Coalition for Kids, and Monroe County Office of Traffic Safety.
- b. Utilize existing organizations, such as the Rochester Cycling Alliance, to locate volunteers for bicycle rodeos and bicycle repair programs, and to distribute information about bicycling to young adults in Brighton.
- c. The Strong (formerly the Strong National Museum of Play) has an enormous audience of children and their families, and could partner with other interested organizations to help promote safe active transportation.

Recommendation 2: Identify an organization that can act as a “clearinghouse” for all the existing active transportation-related programs and resources, and provide support for whoever is willing to take on this role. Despite the fact that many programs and resources already exist locally, there is no central person or organization who is keeping track of all these efforts. One of the least expensive ways to improve the effectiveness of any existing or proposed education and outreach effort is through partnerships and connections. If one organization were to act as a clearinghouse, they could help different groups to build partnerships, catalog the campaigns and materials that are available for use, and enhance communication and coordination.

Recommendation 3: Develop new - or identify existing - educational materials that address key issues. Whether there is an existing resource available, or a new resource is needed, some of the key issues that should be addressed in future education and outreach efforts include:

- a. Bicycle and pedestrian safety. Bicycle safety should specifically focus on lights, helmets, and winter cycling.
 - A bicycle light education and enforcement campaign, including giveaways. (The Boulder Bike Light campaign is an example.)
 - A helmet use encouragement campaign.
 - With the Rochester area’s long season of inclement weather, a winter cycling safety campaign would be appropriate. This campaign could involve skills workshops.
- b. Rules of the Road – for bicyclists, pedestrians, and motorists
 - A “Dangers of Riding Against Traffic” campaign.
 - An “Anti-Traffic Signal Violation” education and enforcement campaign.
- c. Encourage walking and bicycling for short trip transportation
- d. Environmental, health, economic and social benefits of active transportation.

RECOMMENDATIONS

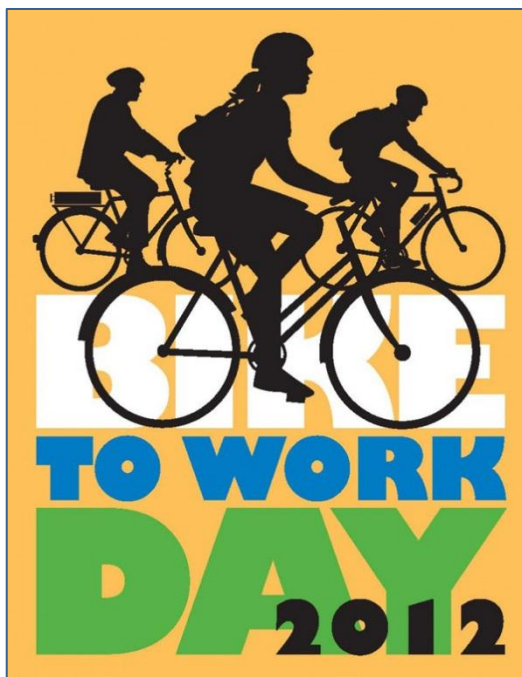
A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Recommendation 4: Learn from successful outreach and education examples in other active transportation-friendly communities. As indicated previously in this section, many successful programs, campaigns and resources are already available. Other communities throughout the U.S. and Canada have already developed tools that can be adapted and modified for the Town of Brighton. Of particular note are those campaigns and strategies identified in the Peer City Review.

Priority Examples:

- a. May is National Bike Month - Recognizes those who commute by bike and encourages people to become new bicycle commuters or increase their trips by bike during the season when spring has sprung and new beginnings abound. This program features a month long calendar of events that offers organized rides for different ages and abilities, bike handling skills and maintenance workshops, and a Bike to Work Day Commuter Challenge. The program is most successful when led by a community-based organization with financial support from the Town and greater business community.
- b. Bicycle Ambassadors - A team of at least two ambassadors encourages an increase in bicycling by engaging the general public to answer questions about bicycling and teach bicycle skills and rules of the road. Ambassadors attend community-based events throughout peak cycling season to offer helmet fits, route planning, bike rodeos and commuting 101 workshops. Community members also may request an appearance by a team of ambassadors at businesses, schools or a conflict zone location along the bikeway system.
- c. Bike Light Campaign - With shorter days when it gets dark before commuters head home from the office, fall is a good time of year to remind cyclists that proper equipment is required when riding at night. A bike light campaign also offers the opportunity to introduce cyclists to bicycle shops and strengthen partnerships between the City and retailers. This program could offer discounts on bicycle headlights and rear red reflectors and lights. It is recommended that the campaign be rolled out in September with the return of university as well as K-12 students to school. The campaign should expire before peak holiday season when bike shops are busy and less interested in offering discounts.
- d. League of American Bicyclists Bicycle Friendly Community status - The Bicycle Friendly Community (BFC) program created by the League of American Bicyclists (LAB) offers the opportunity to be recognized for achievements in supporting bicycling for transportation and recreation. It also serves as a benchmark to identify improvements yet to be made.
- e. League Certified Instructor training course scholarships - The League of American Bicyclists offers certification courses to train those interested in teaching others to ride their bike safely and legally as a form of transportation. League Certified Instructors (LCIs) are a valuable asset to the community and can offer a variety of workshops for adults lacking confidence to ride in traffic as well as children learning to ride for the first time. LCI training courses require a two and a half day commitment and are offered through the LAB. To facilitate a cadre of cyclists to become LCIs, this program coordinates with the LAB to schedule training course offerings in the community and provide scholarships.



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- f. Expand the Safe Routes to School (SRTS) program – SRTS is a national program that addresses barriers that inhibit students from walking and biking to school. The Genesee Transportation Council recently administered a regional study of the Safe Routes to School program. The Town should work with the different schools operating in Brighton to consider how the program could be used to assess barriers at all local schools. Increasing the number of children that can safely walk and bicycle to school as well as protecting the safety of those that already do so requires a holistic approach. SRTS programs need to be cooperative efforts involving both the Town and the various schools or districts.
- g. Ensure that all parts of the Town of Brighton have equal access to active transportation facilities.
- h. Conduct public safety announcements on following the rules of the road. For motorists, this campaign could address the need to look left prior to turning right, and provide clear passing space. For bicyclists, this campaign could address bicycle lights and lack of visibility when not riding in the road. For pedestrians, this campaign could address crossing at designated crossing facilities, and walking on the sidewalk in all seasons.
- i. Targeted enforcement initiatives – Focus on targeted enforcement initiatives that result in everyone following the rules of the road.
- j. Mass distribution of a bike map – The Genesee Transportation Council has already created a regional bike map, but formatting and printing changes might allow for a bike map that could be more widely distributed. The map includes not only bicycle suitability ratings but extensive safety information for bicyclists, a listing of area bicycle shops and repair services, location of bicycle lockers and how to obtain access to use them, information about how to use the bike racks that are provided on all RTS buses, and a listing of multi-use trails in the region. The map is free and can be provided upon request. If the Town published a map including only its corporate boundary, it could probably be produced in a smaller format than the GTC map, which covers a much larger area. An excellent example is the map and info guide produced by the City of Vancouver, British Columbia that illustrates bicycle routes in the city, and utilizes a compact, folded-into-wallet-size (Z-card) format.
- k. Institute a “Sunday Parkways” ride once per month - In Madison, WI, Sunday Parkways are times set aside on weekends and holidays for traffic-free biking and walking on a network of selected streets.
- l. Create an active transportation wayfinding program that includes identification of routes and signing plans (destination, distance, direction) as well as assessments of potential improvements along the proposed routes.
- m. Adapt Oregon program “Bike Wheels to Steering Wheels.” The program helps youth better understand the relationship between bicycle safety and motion, and ultimately gives students a better understanding of safety when traveling by all modes, including walking, biking, and driving. The concepts are learned through normal math or science curriculum in schools.

Other Possible Examples:

- a. Commuter of the Year Contest - This contest recognizes those who choose to bike, walk, or ride transit. An aim is to encourage others to reduce their drive alone motor vehicle trips. Nominated by their peers, contestants may be employees, residents, or students in the community and could be asked to provide an inspirational story about their transportation choice and habits. Based on nominations, categories could recognize Youth, Student, Senior, and Family Commuters. Winners also should be encouraged to serve as role models and participate in events throughout the year to mentor others and help them set goals to reduce their drive alone trips.
- b. Business Pool Bike Program - Offering employees the opportunity to check out and ride a bike to meetings, lunch or run errands is a great benefit. Pool bikes are a form of bike sharing where an employer manages a fleet

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of bikes for this purpose. This program offers subsidies for the purchase and on-going maintenance of bikes as part of an agreement to track use and achieve the goal of reducing vehicle miles traveled and greenhouse gases. Employees sign up, make reservations and log their trips using a web-based management tool.

- c. Conduct pedestrian and bicycle counts on a seasonal basis to track whether there is an increase in pedestrian and bicycle activity, exploring new methods as suggested by the public and the League of American Bicyclists.
- d. Bicycle Rodeo Kits - Children learning to ride should be confident with their bike-handling skills before riding in traffic. A Bike Rodeo is an interactive and controlled environment where cyclists practice a new skill at a series of stations. The number and difficulty of skills can be tailored based on attendance and number of instructors available to staff the event. This initiative will create a self-service bicycle rodeo kit that can be reserved by League Cycling Instructors (LCIs), Bike Ambassadors and community members. It contains instructions, diagrams and props necessary to host a bike rodeo.
- e. Participate in an annual meeting of all bicycle/pedestrian planners and engineers in Monroe County. An annual meeting should be held to allow local communities and organizations to communicate their plans and programs, as well as share best practice information. Note: Town officials may not want to facilitate such a meeting, but it would be useful to participate if some other entity were to organize the event.
- f. Identify proper enhanced visibility clothing for bicyclists and pedestrians, and advise the local active transportation community of the associated safety benefits.
- g. As part of a larger roadway safety campaign, develop an educational campaign to eliminate bicycle and pedestrian fatalities. In Minnesota, "Toward Zero Deaths" is a statewide partnership involving federal, state, county and academic partners. The mission is to create a culture in which traffic fatalities and serious injuries are no longer acceptable through the integrated application of education, engineering, enforcement, and emergency medical and trauma services.

4. Maintenance

The availability of bicycle and pedestrian facilities is one of the components that can lead to increased riding and walking in a community. However, facility improvements do not end at construction; facilities also need to be maintained to be useful. Maintenance needs require planning and budgeting. Sample maintenance activities include keeping roadways and bike lanes clean and free of debris, identifying and correcting roadway surface hazards, keeping signs and pavement markings in good condition, maintaining adequate sight distance, and keeping shared-use trails in good condition. Maintenance is an area where planning and attention can provide significant benefits for bicyclists and pedestrians at relatively modest additional cost.



Sidewalk plows, Rochester area

Identification of maintenance needs for active transportation facilities, and institutionalization of good maintenance practices are key elements in providing safe facilities for bicyclists and pedestrians. Winter snow removal and year-round debris removal will be key maintenance concerns in the Town of Brighton. The importance of good planning and initial design cannot be overstated with respect to long-term maintenance needs. It is easier to obtain outside funding for facilities construction than for on-going maintenance, so planning and building correctly at the outset will reduce future maintenance problems and expense. Residents and businesses can be engaged in clean-up days, or helping with snow removal.

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5. Program Effectiveness Measures

Program effectiveness measures can be used to determine if the recommended strategies have met their objectives, discover any areas that need change, justify funding, and provide guidance for similar programs. Baseline data is required prior to implementing recommendations. The Town could observe the outcomes or contract with a consultant to measure effectiveness on their behalf. Observable outcomes include: number of crashes, injuries, and fatalities; behaviors; number of citations issued; number of people walking or bicycling; knowledge, opinions and attitudes; changes in organizational activity; traffic volumes; and traffic speeds.

6. Enforcement

The effort to enforce the traffic laws as they relate to bicycle and pedestrian safety should be addressed in an overall, countywide, coordinated enforcement campaign.

Pedestrians. Law enforcement departments can take a leading role in improving public awareness of existing traffic laws and ordinances for motorists (e.g. obeying speed limits, yielding to pedestrians when turning, traffic signal compliance, and obeying drunk-driving laws) and pedestrians (e.g. crossing the street at legal crossings and obeying pedestrian signals). Many local law enforcement agencies have instituted annual pedestrian awareness weeks when they issue tickets to motorists who disregard pedestrian laws and warn pedestrian to follow the laws as well.

Bicyclists. A campaign should be designed keeping in mind the League of American Bicyclists' recommendation that communities make connections between the bicycling community and law enforcement. Sporadic enforcement will not result in significant improvements to bicyclist behavior and will likely result in resentment of law enforcement personnel. Those behaviors to be targeted should be determined at the outset of the law enforcement campaign. The following behaviors should be targeted:







































































































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

These four behaviors were chosen for two reasons. First, they represent particularly hazardous behaviors which result in many crashes. Secondly, and very importantly, the enforcement of these behaviors is easy to justify to the public. When coupled with (and in fact preceded by) a large-scale education campaign, the public will understand the importance of the campaign and consequently will accept the enforcement activity.

In addition to the need to educate bicyclists, pedestrians, and motorists, some targeted training of law enforcement may also be appropriate. Some questions that could be covered in this training include:

- When is it okay for bicyclists to 'claim the lane'?
- What width constitutes 'traffic lanes too narrow for a bicycle and a vehicle to travel safely side-by-side within the lane'?
- Why is it important for a bicyclist to use headlamps and tail lamps?
- Why is riding against traffic such a problem?

By answering these and other similar questions, and discussing what infractions are most likely to lead to bike crashes, cities can encourage law enforcement to help promote bike safety by targeting those behaviors most likely to result in crashes. Some communities educate local law enforcement through the enforcement agency's standing roll-call meetings, while others send officers to the League of American Bicyclists' Traffic Skills 101 courses.

	TABLE 7.3: EXISTING ACTIVE TRANSPORTATION EDUCATION AND OUTREACH PROGRAMS AND PARTNERSHIPS										
	EXISTING PROGRAMS					EXISTING PARTNERSHIPS					HIGHLIGHTS
PARTNER NAME	Bicycle Safety	Community Health	Environmental Concerns	Transportation Equity	Neighborhood Livability	Bicycle Safety	Community Health	Environmental Concerns	Transportation Equity	Neighborhood Livability	Programs or Partnerships of Note
AARP											
Boys & Girls Clubs of Rochester, NY											Cyclopedia - connects bicycling to online documentation.
Brighton Central School District											
Brighton Police Department											Hands out free bike helmets for children; School Crossing Guards
Finger Lakes Health Association											
Genesee Land Trust											
Genesee Regional Off-Road Cyclists (GROC)											Singletrack Academy to teach bicycle handling skills.
Genesee Transportation Council											Funds studies addressing key issues. Helmet brochure, bike map.
Greater Rochester Health Foundation											
Visit Rochester											Distributes information to visitors.
Injury Free Coalition for Kids											Kohl's Pedal Patrol provides bike rodeos and helmets.
Monroe Community College (MCC)											Curb Your Car program, LEED Projects/Bike Facilities.
Monroe County Health Department											Partnered w/ University of Rochester Center for Community Health
Monroe County/Rochester Public Libraries											Venue for education/outreach programs and distribution of materials
Monroe County Office of Traffic Safety											Programs are free and available to any school in Monroe County.
Monroe County Planning Department											
RocCity Coalition											Many partnerships, not specifically related to active transportation.
Rochester Area Community Foundation											Support community efforts through grants
Rochester Bicycling Club (RBC)											Dedicated to promoting cycling for health and well being
R Community Bikes, Inc.											Bike and helmet giveaways, bike repairs for underserved
Rochester Cycling Alliance											
Rochester Institute of Technology (RIT)											Active Transportation Planning course
The Strong											Continual demand for programs, reaches many families & children
Town of Brighton Recreation and Parks Department											Annual Bike/Scooter/Blade Rodeo at Brighton Farmer's Market
University of Rochester											On campus improvements, Active Transportation Symposium
Wegmans											
YMCA											

Bike Walk Brighton



Chapter 8: Implementation

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



The Implementation section includes a discussion of the proposed phasing and implementation of various recommendations, cost estimates associated with selected projects, potential funding sources, and next steps.

A. Priorities and Phasing

The Recommendations section proposes significant number of recommended projects. Table 8.1 summarizes all of these proposed projects and their associated phasing. Each project varies in priority based on the number of people served by the project and the feasibility construction and funding. Each project was ranked according to the following sequencing options:

- Priority – Highly beneficial projects that are immediately feasible, or will have the most impact and should therefore be addressed first.
- Recommended – Very beneficial projects that will have a significant impact and should be addressed next.
- Possible – Beneficial projects that have a less critical time frame, or cannot begin until other projects are completed or issues are addressed.

The projects recommended in [BikeWalkBrighton](#) encompass a number of facets of active transportation, and vary significantly in cost, effort, and resources required for successful implementation. The Town of Brighton has a finite amount of resources that can be applied to each project, and will not be able to address every recommendation immediately. Members of the community may feel that the Town is not addressing projects that are of importance to them as quickly as they might like.












Some of the recommendations present opportunities for the average citizen to participate. In some cases, citizens and community groups are already involved in bicycle and pedestrian education, trail development, or facility maintenance. These groups can contribute a valuable service to the community. Not all projects are appropriate for volunteers, of course, but the Town of Brighton should consider utilizing local citizens where possible.









B. Cost Estimates












The expense related to each recommended project will be a critical consideration for the Town of Brighton as they move towards implementation. The costs for each proposed alternative are identified in a generic fashion in Table 6.1: Design Elements for Active Transportation, found in Chapter 6, the Alternatives Toolbox. In addition, several cost estimates were prepared for selected projects. These cost estimates can be found in [Appendix I](#). Preliminary cost estimates were prepared for the following projects:










Table 8.2. Schematic Cost Estimate Summary

Project Name	Schematic Cost
Brighton Auburn Trail	\$797,723
Brighton Farash Parcel Trail	\$823,214
University of Rochester Hybrid Trail	\$359,904
Elmwood Avenue Side Path	\$782,529
Buckland Park Hybrid Trail	\$385,572
Bicycle Boulevard 1	\$22,800
Bicycle Boulevard 2	\$40,250
Bicycle Boulevard 3	\$18,500
Bicycle Boulevard 4	\$12,425
Bicycle Boulevard 5	\$14,075

	TABLE 8.1: KEY RECOMMENDATIONS WITH IMPLEMENTATION DETAILS					
	MODE(S)	CATEGORY	RECOMMENDATION	DESCRIPTION	PHASING	NOTES
NUMBER						
On-Street Recommendations						
1		On-Street	Priority Intersections 1-3: Twelve Corners	Recommended improvements include: high visibility crosswalks, increased buffer space, green space, contrasting pavement, signage, and pedestrian countdown signals.	Priority	High visibility crosswalks are utilized by MCDOT at signalized intersections, but not by NYSDOT. A consistent crosswalk approach is recommended.
2		On-Street	Twelve Corners Pedestrian Zone	In addition to the improvements identified above, other long-term improvements for the 12 Corners were identified. These include: expanded shared-use sidewalks on school grounds with buffer zone, revisions to design of triangular park, and additional street trees.	Possible	Sidewalk and buffer space improvements shown in the figure are Recommended improvements.
3		On-Street	Priority Intersection 4: South Clinton & Elmwood Avenues	Recommended improvements include: textured crosswalks, signage and signalization enhancements, advanced/staggered stop bar, and right turn channelized islands.	Priority	
4		On-Street	Priority Intersection 5: East Avenue at Clover Street & Penfield Road	Recommended improvements include: high visibility crosswalks, pedestrian countdown signals, raised island vs. painted channelized area, and relocating stop bar prior to crosswalk.	Priority	Please see high visibility crosswalk note in Item 1.
5		On-Street	Priority Intersection 6: Landing Road & Blossom Road	Recommended improvements include: high visibility crosswalks, overhead lighting, ADA compliant pedestrian crossings, and consider an urban compact roundabout for the future.	Priority	Please see high visibility crosswalk note in Item 1.
6		On-Street	Priority Intersection 7: Monroe Avenue & Brooklawn Drive	Recommended improvements include: high visibility crosswalks on side roads, textured crosswalks across Monroe, enlarged buffer space, and pedestrian signals on Brooklawn and Torrington approaches.	Priority	Please see high visibility crosswalk note in Item 1.
7		On-Street	Priority Intersection 8: Westfall Road & Monroe Avenue	Recommended improvements include: high visibility crosswalks, new crosswalks, new pedestrian countdown crossing signals, advanced stop bars on all approaches, ADA compliant pedestrian crossings, modifications to SW corner, modifications to right turn island to create pedestrian refuge, and signage improvements.	Priority	Please see high visibility crosswalk note in Item 1.
8		On-Street	Priority Intersection 9: Monroe Avenue & Clover Street	Recommended improvements include: high visibility crosswalks, raised median pedestrian refuge, pedestrian countdown signals, relocate pedestrian crossing closer to approach end of right turn island.	Priority	Please see high visibility crosswalk note in Item 1.
9		On-Street	Priority Intersection 10: West Henrietta & Crittenden Roads	Recommended improvements include: high visibility crosswalks, sidewalks, pedestrian countdown signals with push button actuation/ADA compliant pedestrian crossings.	Priority	Please see high visibility crosswalk note in Item 1.
10		On-Street	Monroe Avenue Road Diet	Monroe Avenue was reviewed from Highland Avenue to the Twelve Corners, and from the Twelve Corners to Edgewood Avenue. A road diet is feasible from Highland to Twelve Corners only. The roadway will be reduced from five lanes to three lanes, with sharrows in both directions.	Recommended	

	TABLE 8.1: KEY RECOMMENDATIONS WITH IMPLEMENTATION DETAILS					
	MODE(S)	CATEGORY	RECOMMENDATION	DESCRIPTION	PHASING	NOTES
NUMBER						
On-Street Recommendations, Continued						
11		On-Street	On-Street Bicycle Facilities: Roadway Restripe Candidates	18% of the study network segments were classified as roadway restripe candidates, which would reduce the existing lane widths to create space for bike lanes. Of all of the on-street bicycle facility recommendations, this is the most achievable within an existing roadway maintenance program.	Priority	
12		On-Street	On-Street Bicycle Facilities: Other Recommendations	The remaining study network segments were classified into one of several recommended bicycle facility improvement categories, which include: no recommended improvement (28%), road diet candidate (reduce no. of lanes to create bike lanes) (3%), add or widen paved shoulders (17%), and detailed corridor study needed/shared lane markings candidate (34%).	Recommended	
13		On-Street	Bicycle Boulevard 1: Buckland Park to Highland Avenue	A bicycle boulevard is recommended for 2.75 miles between Buckland Park and Highland Avenue. The route follows Westfall Road to Avalon Drive to Hollywood Ave to Rhinecliff Drive to Highland Avenue.	Recommended	
14		On-Street	Bicycle Boulevard 2: Erie Canal to Cobbs Hill Park	A bicycle boulevard is recommended for 4.86 miles between the Erie Canal and Cobbs Hill Park. The route follows Edgewood Ave to Meadow Drive to Orchard Drive to Irving Road to Chelmsford Road to Hillside Avenue to Norris Drive.	Recommended	
15		On-Street	Bicycle Boulevard 3: Brighton Library/Town Hall to Highland Avenue	A bicycle boulevard is recommended for 2.10 miles between the Brighton Library/Town Hall and Highland Avenue. The route follows Sylvan Road to Warrington Road to Claybourne Road to Hillside Avenue to Highland Avenue.	Recommended	
16		On-Street	Bicycle Boulevard 4: Brighton Library/Town Hall to East Avenue	A bicycle boulevard is recommended for 1.50 miles between the Brighton Library/Town Hall and East Avenue, where the City of Rochester has developed bicycle improvements. The route follows Sylvan Road to Oakdale Drive to Highland Avenue to Cobbs Hill Drive to Hillside Ave to the pedestrian bridge over I-490 to Colby Street to East Avenue.	Recommended	
17		On-Street	Bicycle Boulevard 5: Twelve Corner Bicycle Bypass	A bicycle boulevard bypass is recommended for 1.70 miles around the busy 12 Corners intersection. The route follows Rhinecliff Drive to Varinna Drive to Penarrow Road to Branford Road to Chelmsford Road to Chelmsford Lane to Elmwood Ave to Torrington Drive to Brooklawn Drive along the BCSD property to South Winton Road to Greenwich Lane to Hollywood Ave.	Recommended	

	TABLE 8.1: KEY RECOMMENDATIONS WITH IMPLEMENTATION DETAILS					
	MODE(S)	CATEGORY	RECOMMENDATION	DESCRIPTION	PHASING	NOTES
NUMBER						
Off-Street Recommendations						
18		Off-Street	Bicycle Facilities at Destinations	Bicycle facilities, such as bicycle racks, bicycle lockers and showers are desirable at many destinations. However, the priority recommendation for the Town is to develop covered bicycle parking at all schools in the Brighton Central School District.	Recommended	
19		Off-Street	Priority Sidewalk Additions	13.4 miles of priority sidewalk improvements have been identified along West Henrietta Road, Brighton-Henrietta Townline Road, Winton Road and East Avenue, Elmwood Ave., and Westfall Road	Priority	
20		Off-Street	Long-Term Sidewalk Additions	Over time, it is recommended that the Town of Brighton work towards sidewalks on both sides of all roadways.	Possible	
21		Off-Street	Neighborhood Connections	Routes between neighborhoods were identified in order to create safe connections for walking and bicycling.	Possible	
22		Off-Street	Brighton Farash Parcel Trail Concept	This parcel of land between Elmwood Ave and Westfall Road is envisioned as possible Town parkland. Preliminary concepts include a 0.8-mile asphalt trail running N-S and secondary trails connecting E-W.	Recommended	
23		Off-Street	Brighton Auburn Trail	The Brighton Auburn Trail is recommended for the existing railway corridor. The proposed trail includes a 10' wide asphalt shared-use trail, resting points every 300 yards, trail banners on existing utility poles, and native shrub plantings.	Recommended	
24		Off-Street	Buckland Park Hybrid Trail	The Buckland Park Hybrid Trail is recommended to connect the Erie Canalway Trail with Brighton Town Park and Buckland Town Park. The path is a hybrid of existing park trails, a new sidepath, and a new shared use pathway.	Recommended	
25		Off-Street	University of Rochester Hybrid Trail	An east-west hybrid trail is recommended to parallel Elmwood Ave and connect the 12 Corners vicinity with the U of R vicinity. The trail utilizes bicycle boulevards on existing pavement, a new shared-use pathway, and the recommended Farash Parcel Trail.	Possible	
26		Off-Street	Elmwood Avenue Side Path	A 2.30-mile side path is recommended along the south side of Elmwood Avenue, between Mt. Hope Avenue and Brighton Town Hall. The pathway would expand the existing 5' sidewalk to 10', with a center stripe, a buffer strip, additional street trees, and seating.	Recommended	
27		On and Off Street	Rochester Multiversity Concept	The Multiversity concept is a multi-faceted proposal to provide enhanced bike and pedestrian connections between the University of Rochester, Rochester Institute of Technology, and Monroe Community College using existing and proposed shared-use trails.	Priority	

	TABLE 8.1: KEY RECOMMENDATIONS WITH IMPLEMENTATION DETAILS					
	MODE(S)	CATEGORY	RECOMMENDATION	DESCRIPTION	PHASING	NOTES
NUMBER						
Program & Policy Recommendations						
28		Programs and Policies	Zoning	Develop/augment zoning code and site planning language, standards and guidance to enhance accessibility and safety for bicyclists and pedestrians.	Recommended	
29		Programs and Policies	Updates to Engineering Standards	The Town of Brighton Minimum Specifications for Dedication was reviewed, and several revisions/updates are recommended in order to make future development more bicycle and pedestrian accessible.	Possible	
30		Programs and Policies	Outreach and Educational Programs	Many of the recommendations create unfamiliar situations for people using all modes of transportation. Educational programs are recommended for pedestrian, bicyclists and motorists of all age groups.	Recommended	
31		Programs and Policies	Community Designation: Bicycle Friendly	The Bicycle Friendly Community program was created by the League of American Bicyclists and offers the opportunity to be recognized for achievements in supporting bicycling. The program also serves as a benchmark to identify improvements yet to be made in the community.	Possible	
32		Programs and Policies	Community Designation: Walk Friendly	The Walk Friendly Community program was created by the Pedestrian and Bicycle Information Center, and offers the opportunity to be recognized for achievements in supporting walkability. The program also serves as a benchmark to identify improvements yet to be made in the community.	Possible	
33		Programs and Policies	Maintenance Programs	Enhanced maintenance is recommended, which includes plowing and sweeping regularly, engaging residents and businesses in clean-up days, and creating neighborhood plantings and gardens.	Recommended	
34		Programs and Policies	Program Effectiveness Measures	In order to track the success of implemented recommendations, the development of program effectiveness measures is recommended. Possible measurements include: number of crashes/injuries/fatalities, traffic speeds, traffic volumes, number of people walking, opinions and attitudes, etc.	Possible	
35		Programs and Policies	Enforcement	Increased police enforcement is recommended for pedestrian, bicyclist and motorist actions. Enforcement is particularly needed in response to special needs, such as senior citizens and school areas.	Recommended	

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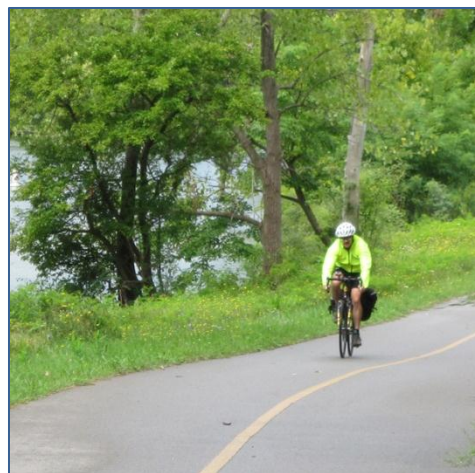
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C. Potential Funding Sources

First and foremost, the Town of Brighton will assume the financial responsibility for active transportation facility improvements as resources allow. The Town has funded, and will continue to fund, sidewalk projects using the following techniques:

- New development projects requesting incentive zoning may be required to install and/or fund sidewalks as an amenity.
- New developments or redevelopments may be required to provide sidewalk easements, and/or construct sidewalks as a condition of Planning Board approval.
- In addition, the Town has established a sidewalk maintenance fund that annually funds sidewalk maintenance projects within existing Town sidewalk districts.
- Finally, Town residents may petition the Town of Brighton and request that a sidewalk district be formed, which would then fund the construction of any sidewalk improvements within the district, as well as their future maintenance.



In general, however, most large sidewalk construction projects are funded by state and federal grants. In addition, the costs associated with constructing the bicycle and pedestrian facilities recommended in this Plan exceed available Town resources.

To help alleviate this deficiency, this section identifies and discusses the numerous sources which can be used to provide monetary assistance for bicycle and pedestrian facilities and programs. Many of these funding sources are available on the federal level, as dictated in the new transportation legislation, Moving Ahead for Progress for the 21st Century (MAP-21). Many of these federal programs are administered by the New York State Department of Transportation (NYSDOT). Additionally, there are other state and regional funding sources which can be used to help achieve the goals and objectives of this Plan. Finally, a number of private funding sources exist which can be used by local governments to implement bicycle- and pedestrian-related programs. The following quick-reference table (Table 8.3) includes all of the funding sources that are described subsequently in greater detail.

Table 8.3. Potential Funding Sources

Funding Source	Category	Relevant Project Type(s)
National Highway Performance Program	Federal	Bicycle transportation and pedestrian walkways (Section 207)
Surface Transportation Program	Federal	Bicycle transportation and pedestrian walkways; modification of sidewalks to comply with ADA; recreational trail projects; Scenic Byway projects; SRTS projects (Section 207)
Highway Safety Improvement Program	Federal	Intersection safety improvement, pavement and shoulder widening; bicycle/pedestrian/disabled person safety improvements; traffic calming; installation of yellow-green signs at pedestrian and bicycle crossings and in school zones; transportation safety planning; road safety audits; improvements consistent with FHWA publication "Highway Design Handbook for Older Drivers and Pedestrians"; safety improvements for publicly owned bicycle and pedestrian pathway or trail

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Congestion Management and Air Quality (CMAQ)	Federal	Bicycle and pedestrian facilities (TA projects)
Transportation Alternatives (replaced TE, SRTS, Recreational Trails)	Federal	Bicycle and pedestrian facilities; Safe routes for non-drivers projects and systems; preservation of abandoned railway corridors including for pedestrian and bicycle trails; Safe Routes to School infrastructure and non-infrastructure projects: school-based facility, education, and enforcement projects/campaigns
State and Community Highway Safety Grants	Federal	Safety-related programs and projects (Section 402)
HUD Community Development Block Grants	Federal	Public facilities and improvements, such as streets, sidewalks, sewers, water systems, community and senior citizen centers, recreational facilities, and greenways
Urbanized Area Formula Grants, Capital Investment Grants and Loans, and Formula Program for Other than Urbanized Area	Federal (FTA)	Bicycle access to public transportation facilities, shelters and parking facilities, bus bicycle racks
CHIPS (Consolidated Local, State, and Highway Improvement Program) (www.dot.ny.gov/programs/chips)	State	Bike lanes and wide curb lanes
The Greater Rochester Health Foundation	Regional	Community health and prevention projects and programs
Bikes Belong Coalition (www.bikesbelong.org/grants)	Private	Bicycle facilities; end-of-trip facilities; trails; advocacy projects such as Ciclovias
National Trails Fund (www.americanhiking.org/our-work/national-trails-fund)	Private	Hiking trails
Global ReLeaf Program (www.americanforests.org/our-programs/global-releaf-projects/global-releaf-grant-application/global-releaf-project-criteria)	Private	Trail tree plantings
Robert Wood Johnson Foundation (general) (www.rwjf.org/grants)	Private	Various
The Conservation Alliance Fund (www.conservationalliance.com/grants/grant_criteria)	Private	Land Use
Surdna Environment/Community Revitalization (www.surdna.org/grants/grants-overview.html)	Private	Community revitalization and environment, including greenway trail design

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1. Federal Funding Sources: MAP-21 Funded Programs

With the adoption of Moving Ahead for Progress for the 21st Century (MAP-21), the funding landscape for bicycle and pedestrian projects changed radically. Whereas under SAFTEA-LU (MAP-21's legislative predecessor), non-motorized transportation facility projects had been eligible under dedicated funding categories that included the Transportation Enhancements Program (TEP), Safe Routes to School (SRTS) and recreational trails. These dedicated programs have been folded into is a new category, Transportation Alternatives which recasts, at reduced funding levels, the former TE program.²² Transportation Alternatives includes TA projects (see list below), previously eligible Safe Routes to School Projects,²³ Recreational Trails projects, and boulevard projects in former Interstate Highway rights of way. Eliminated programs include Safe Routes to School, National Scenic Byways, and the Paul S. Sarbanes Transit in Parks program. The Land and Water Conservation Fund has been funded at a reduced amount through 2013. As before, non-motorized projects must be "principally for transportation, rather than recreation, purposes" and must be designed and located pursuant to the transportation plans required of States and Metropolitan Planning Organizations. The exception to this rule is the Recreational Trails Program (RTP), under which projects may be used for recreational purposes.

Whereas before there were different funding methods for each program, new MAP-21 TA funds will be distributed through grant programs. Fifty percent of the funding will be distributed according to population share. For areas over 200,000, the MPOs will manage the distribution of funds by grant competition. For areas under 200,000, the state will manage the distribution through a competitive grant program. These funds are limited to this use and are not transferable. The remaining fifty percent will be distributed by DOTs, and is transferable to other highway uses.

²² Section 101 (29) Transportation Alternatives.--The term 'transportation alternatives' means any of the following activities when carried out as part of any program or project authorized or funded under this title, or as an independent program or project related to surface transportation: (A) Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety- related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.)(B) Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs. (C) Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users. (D) Construction of turnouts, overlooks, and viewing areas. (E) Community improvement activities, including--(i) inventory, control, or removal of outdoor advertising; (ii) historic preservation and rehabilitation of historic transportation facilities; (iii) vegetation management practices in transportation rights-of-way to improve roadway safety, prevent against invasive species, and provide erosion control; and (iv) archaeological activities relating to impacts from implementation of a transportation project eligible under this title. (F) Any environmental mitigation activity, including pollution prevention and pollution abatement activities an mitigation to-- (i) address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff, including activities described in sections 133(b)(11), 328(a), and 329; or (ii) reduce vehicle-caused wildlife mortality or to restore and maintain connectivity among terrestrial or aquatic habitats.

²³ Authorized in the 2005 SAFETEA-LU bill, Safe Routes to School projects include: (f) Eligible Projects and Activities.--

(1) Infrastructure-related projects.-- (A) In general.--Amounts apportioned to a State under this section may be used for the planning, design, and construction of infrastructure-related projects that will substantially improve the ability of students to walk and bicycle to school, including sidewalk improvements, traffic calming and speed reduction improvements, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, secure bicycle parking facilities, and traffic diversion improvements in the vicinity of schools. (B) Location of projects.--Infrastructure-related projects under subparagraph (A) may be carried out on any public road or any bicycle or pedestrian pathway or trail in the vicinity of schools. (2) Non-infrastructure-related activities.--(A) In general.--In addition to projects described in paragraph (1), amounts apportioned to a State under this section may be used for non-infrastructure-related activities to encourage walking and bicycling to school, including public awareness campaigns and outreach to press and community leaders, traffic education and enforcement in the vicinity of schools, student sessions on bicycle and pedestrian safety, health, and environment, and funding for training, volunteers, and managers of safe routes to school programs.

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The combination of reduced available funding and increased competition for funds due to the combining of programs may lead to a reduction in bicycle and pedestrian projects being funded.

National Highway Performance Program. Funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway in the National Highway System, including Interstate highways.

Surface Transportation Program (STP). Funds may be used for the construction of bicycle transportation facilities and pedestrian walkways, as well as many other related facilities (bicycle parking, bike-transit interface, etc.). Transportation Alternative projects are eligible for STP funds. Modifications of public sidewalks to comply with the Americans with Disabilities Act (ADA) are also covered.

Highway Safety Improvement Program. Funds may be used for bicycle- and pedestrian-related highway safety improvement projects, strategies and activities on a public road that are consistent with a State strategic highway safety plan.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program. Established in 1991 and continued in MAP-21, CMAQ will continue to provide funding for projects that help State and local governments meet the requirements of the Clean Air Act. Whether they include attainment or non-attainment areas, States may use CMAQ funds for CMAQ- or STP-eligible projects. Projects must be included in the MPO's current transportation plan and transportation improvement program (TIP) or state transportation program (STIP) in areas without an MPO.

It is important to note that future additional funding from this program is unlikely to be available in the Genesee-Finger Lakes region and there is a backlog of eligible projects in the region that makes funding for new bicycle and pedestrian projects unlikely within the MAP-21 timeframe (through 2014).

Transportation Alternatives. As mentioned earlier, this new program now provides funding for what used to be funded by three separate programs (Transportation Enhancements, Safe Routes to School, Recreational Trails). In addition to projects in these categories, TA money can be used to fund some road projects. Fifty percent of each state's funds will be distributed by the DOT, the remainder by the MPOs. There is an opt-out clause that allows up to fifty percent of the funds to be transferred to use in any program without restriction. Eligible activities include:

1. Bicycle and pedestrian facilities;
2. Safe routes for non-drivers projects and systems;
3. Construction of turnouts, overlooks and viewing areas;
4. Vegetation management practices in rights-of-way and other activities under Section 319 (similar to landscaping and beautification);
5. Historic preservation, rehabilitation and operation of historic transportation buildings, structures and facilities;
6. Preservation of abandoned railway corridors including for pedestrian and bicycle trails
7. Inventory, control and removal of outdoor advertising;
8. Archeological activities related to transportation projects; and
9. Any environmental mitigation, including existing uses.

Safety and education activities are no longer specifically funded, but may be allowed under #2.

The Recreational Trails Program is now funded under the TA umbrella. Funds may be used for all kinds of trail projects. Of the funds apportioned to a state, 30 percent must be used for motorized trail uses, 30 percent for non-motorized trail uses, and 40 percent for diverse trail uses (any combination). Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle

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riding, four-wheel driving, or using other off-road motorized vehicles. The funding amount will remain the same as in 2009 (\$2,204,556). An important provision of the new bill allows the Governor of a state to opt out the recreational trails program if the Governor notifies the U.S. Secretary of Transportation no later than 30 days prior to apportionments being made for any fiscal year.

Highway Safety Section 402 Grants. Generally unchanged from SAFETEA-LU. A State is eligible for these Section 402 grants by submitting a Performance Plan (establishing goals and performance measures for improving highway safety) and a Highway Safety Plan (describing activities to achieve those goals). Research, development, demonstrations, and training to improve highway safety (including bicycle and pedestrian safety) are carried out under the Highway Safety Research and Development (Section 403) Program.

Community Development Block Grants (CDBG). Through the U.S. Department of Housing and Urban Development (HUD), the CDBG program provides eligible metropolitan cities and urban counties (called "entitlement communities") with annual direct grants that they can use to revitalize neighborhoods, expand affordable housing and economic opportunities, and/or improve community facilities and services, principally to benefit low- and moderate-income persons. Eligible activities include building public facilities and improvements, such as streets, sidewalks, sewers, water systems, community and senior citizen centers, and recreational facilities. Several communities have used HUD funds to develop greenways. <http://www.hud.gov/offices/cpd/communitydevelopment/programs/>

Title 49 USC allows the **Urbanized Area Formula Grants (Section 5307)**, **Capital Investment Grants and Loans (Section 5309)**, and **Formula Program for Other than Urbanized Area (Section 5311)** transit funds to be used for improving bicycle and pedestrian access to transit facilities and vehicles. Eligible activities include investments in "pedestrian and bicycle access to a mass transportation facility" that establishes or enhances coordination between mass transportation and other transportation.

2. Other Federally Funded Programs

National Park Service Land and Water Conservation Fund (LWCF) Grants. This federal funding source was established in 1965 to provide "close-to-home" parks and recreation opportunities to residents throughout the United States. Money for the fund comes from the sale or lease of nonrenewable resources, primarily federal offshore oil and gas leases, and surplus federal land sales. LWCF grants can be used by communities to build a variety of parks and recreation facilities, including trails and greenways. LWCF funds are distributed by the National Park Service to the states annually. Communities must match LWCF grants with 50 percent of the local project costs through in-kind services or cash. All projects funded by LWCF grants must be used exclusively for recreation purposes, in perpetuity. Projects must be in accordance with each State's Comprehensive Outdoor Recreation Plan.

3. State and Regional Funding Sources

CHIPS (Consolidated Local, State, and Highway Improvement Program). Funds are administered by NYSDOT for local infrastructure projects. Eligible project activities include bike lanes and wide curb lanes (highway resurfacing category); sidewalks, shared use paths, and bike paths within highway right-of-way (highway reconstruction category), and traffic calming installations (traffic control devices category).

The Greater Rochester Health Foundation administers a competitive grant program to implement community health and prevention projects. While grant focus topics and cycles may vary from year to year (the letter of intent deadline for 2013 grants was August 6, 2012), bicycle- and pedestrian-related projects and programs may frequently be well suited for these opportunity grants. <http://www.thegrhf.org/>

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4. Private Funding Sources

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

Bikes Belong Coalition. The Bikes Belong Grants Program strives to put more people on bicycles more often by funding important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S." Most of the Bikes Belong grants awarded to government agencies are for trail projects. The program encourages government agencies to team with a local bicycle advocacy group for the application. Bikes Belong Coalition seeks to assist local organizations, agencies, and citizens in developing bicycle facilities projects that will be funded by MAP-21. Bikes Belong Coalition will accept applications for grants of up to \$10,000 each (with potential local matches), and will consider successor grants for continuing projects. Grant applications are accepted quarterly. <http://www.bikesbelong.org/grants>

American Hiking Society National Trails Fund. The American Hiking Society's National Trails Fund is the only privately funded national grants program dedicated solely to hiking trails. National Trails Fund grants have been used for land acquisition, constituency building campaigns, and traditional trail work projects. Since the late 1990s, the American Hiking Society has granted nearly \$200,000 to 42 different organizations across the US. Applications are accepted annually with a summer deadline. <http://www.americanhiking.org/NTF.aspx>

The Global ReLeaf Program. The Global ReLeaf Forest Program is American Forests' education and action program that helps individuals, organizations, agencies, and corporations improve the local and global environment by planting and caring for trees. The program provides funding for planting tree seedlings on public lands, including trailsides. Emphasis is placed on diversifying species, regenerating the optimal ecosystem for the site and implementing the best forest management practices. This grant is for planting tree seedlings on public lands, including along trail rights-of-way. http://www.americanforests.org/global_releaf/grants/

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

Conservation Alliance. The Conservation Alliance is a group of outdoor businesses that supports efforts to protect specific wild places for their habitat and recreation values. Before applying for funding, an organization must first be nominated by a member company. Members nominate organizations by completing and submitting a nomination form. Each nominated organization is then sent a request for proposal (RFP) instructing them how to submit a full request. Proposals from organizations that are not first nominated will not be accepted. The Conservation Alliance conducts two funding cycles annually. Grant requests should not exceed \$35,000 annually. <http://www.conservationalliance.com/>

Surdna Foundation. The Surdna Foundation seeks to foster just and sustainable communities in the United States, communities guided by principles of social justice and distinguished by healthy environments, strong local economies and thriving cultures. <http://www.surdna.org/>

IMPLEMENTATION

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



D. Next Steps

As a master plan, **BikeWalkBrighton** does not identify all of the specifics needed to construct every recommended project. Some work still remains to be done. This includes, but is not limited to:

1. Additional study and operational analysis is required for each recommended project prior to implementation.
2. Consultation with - and agreement from - facility owners is required prior to implementation.
3. Access agreements from landowners and/or property acquisition are necessary prior to implementation. Please see **Appendix J**, Economic Impact of Trails for useful information in talking with landowners.
4. Detailed corridor studies are needed in order to provide on-street bicycle facilities in select corridors. Please see **Table 7.1** and **Figure 19** for more details.
5. Design development and construction documentation will be necessary for any construction-related projects, such as trails, side paths, and other infrastructure improvements.
6. Regulatory approvals and permitting will be necessary for many of the recommended projects. Environmental permits will be required for trail projects.
7. Some of the program and policy recommendations do not require regulatory approvals. However, changes to Town code will need review and approval by the appropriate municipal boards and would be subject to the SEQR process.



BIKE WALK brighton

Appendices

A Comprehensive Pedestrian and Bicycle Master Plan
For The Town of Brighton, New York

January 2013

Bike Walk Brighton



Appendix J: Economic Impact of Trails

Economic Impacts of Trails

<http://www.americantrails.org/resources/economics/GreenwaySumEcon.html>

Source: American Trails

Subject: Economic Impacts of Trails

Findings:

- "In the vicinity of Philadelphia's 1,300 acre Pennypack Park, property values correlate significantly with proximity to the park. In 1974, the park accounted for 33 percent of the value of land 40 feet away from the park, nine percent when located 1,000 feet away, and 4.2 percent at a distance of 2,500 feet." [Hammer, Coughlin and Horn, 1974]

Impacts of Trails and Trail Use

<http://www.americantrails.org/resources/adjacent/sumadjacent.html>

Source: American Trails

Subject: Impacts of Trails and Trail Use

Findings:

- "A 1978 study of property values in Boulder, Colorado, noted that housing prices declined an average of \$4.20 for each foot of distance from a greenbelt up to 3,200 feet. In one neighborhood, this figure was \$10.20 for each foot of distance. The same study determined that, other variables being equal, the average value of property adjacent to the greenbelt would be 32% higher than those 3,200 feet away."

Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas

<http://128.175.63.72/projects/DOCUMENTS/bikepathfinal.pdf>

Source: University of Delaware

Subject: Property Value Near Bike Paths

Findings:

- "The analysis indicates that the impact of proximity to a bike path on property prices is positive, controlling for the number of bedrooms, years since sale, acres, land, buildings, total number of rooms, total assessment. The properties within 50m of the bike paths show a positive significance of at least \$8,800 and even higher when controlled for specific variables."

Bicycle Paths: Safety Concerns and Property Values

http://www.greenway.org/pdf/la_bikepath_safety.pdf

Source: Los Angeles County, Metropolitan Transportation Authority

Subject: Home sales near trails

Findings:

- "Homes sales were examined in the seven Massachusetts towns through which the Minuteman Bikeway and Nashua River Rail Trail run. Statistics on list and selling prices and on days on the market were analyzed. The analysis shows that homes near these rail trails sold at 99.3% of the list price as compared to 98.1% of the list price for other homes sold in these towns. The most significant feature of home sales near rail trails is that these homes sold in an average of 29.3 days as compared to

50.4 days for other homes.” [*Home Sales Near Two Massachusetts Trails*, Jan. 25, 2006. Craig Della Penna]

Table 1. Home Sales near Rail Trails					
Town	No. of Properties Sold	Average List Price	Average Sale Price	Ratio of Sale to List	Days on the Market
Arlington	10	\$513,750	\$509,690	99.2%	27.1
Lexington	10	\$906,090	\$907,040	100.1%	18.5
Bedford	3	\$511,600	\$500,833	97.9%	55.3
Ayer	1	\$329,900	\$317,500	96.2%	47.0
Groton	2	\$689,900	\$675,000	97.8%	22.0
Dunstable	1	\$695,000	\$685,000	98.6%	20.0
Pepperell	3	\$385,833	\$376,333	97.5%	48.3
Average		\$643,180	\$638,377	99.3%	29.3

Table 2. Home Sales not near Rail Trails					
Town	No. of Properties Sold	Average List Price	Average Sale Price	Ratio of Sale to List	Days on the Market
Arlington	119	\$558,775	\$556,327	99.6%	28.3
Lexington	166	\$871,533	\$849,470	97.5%	54.4
Bedford	38	\$633,912	\$624,289	98.5%	42.4
Ayer	30	\$344,677	\$340,155	98.7%	73.0
Groton	53	\$605,198	\$584,689	96.6%	80.4
Dunstable	12	\$587,946	\$578,965	98.5%	83.2
Pepperell	57	\$384,818	\$379,482	98.6%	80.2
Average		\$645,607	\$633,072	98.1%	50.4

[*Home Sales Near Two Massachusetts Trails*, Jan. 25, 2006. Craig Della Penna]

- “Realizing the selling power of greenways, developers of the Shepherd’s Vineyard housing development in Apex, North Carolina added \$5,000 to the price of 40 homes adjacent to the regional greenway. Those homes were still the first to sell.” [*Economic Benefits of Trails and Greenways*, Rails-to-Trails Conservancy, 2004]
- “The average price for all homes sold in greenway corridors was nearly 10 percent higher than the average price for all homes. Similarly, the average prices for all homes near greenways with trails and in conservation corridors were higher than the overall average sale price. For homes near the Monon Trail, the average sale price was 11 percent higher than for all homes that sold in 1999.” [*Public Choices and Property Values: Evidence from Greenways in Indianapolis*, Center for Urban Policy and the Environment, December 2003]
- “A study of property values near greenbelts in Boulder, Colorado, noted that...other variables being equal, the average value of property adjacent to the greenbelt would be 32 percent higher than those 3,200 feet away.” [*Economic Impacts of Rivers, Trails and Greenways: Property Values*. Resource Guide published by the National Parks Service, 1995]
- “A study completed by the Office of Planning in Seattle, Washington, for the 12 mile Burke-Gilman trail was based upon surveys of homeowners and real estate agents. The survey of real estate agents revealed that property near, but not immediately adjacent to the trail, sells for an average of 6 percent more.” [*Economic Impacts of*

Rivers, Trails and Greenways: Property Values. Resource Guide published by the National Parks Service, 1995]

- "In a survey of adjacent landowners along the Luce Line rail-trail in Minnesota, 61 percent of the suburban residential owners noted an increase in their property value as a result of the trail. New owners felt the trail had a more positive effect on adjacent property values than did continuing owners. Appraisers and real estate agents claimed that trails were a positive selling point for suburban residential property." [*Economic Impacts of Rivers, Trails and Greenways: Property Values*. Resource Guide published by the National Parks Service, 1995]
- "A survey of Denver residential neighborhoods by the Rocky Mountain Research Institute shows the public's increasing interest in greenways and trails. From 1980 to 1990, those who said they would pay extra for greenbelts and parks in their neighborhood rose from 16 percent to 48 percent." [*Economic Impacts of Rivers, Trails and Greenways: Property Values*. Resource Guide published by the National Parks Service, 1995]
- "Recognizing what had happened, the realty companies decided to restructure the pricing of future lots located along the Mountain-Bay Trail. thus, in the addition of Highridge Estates, the average lot located along the rail was priced 26 percent higher than slightly larger lots not located along the trail." [*Perceptions of How the Presence of Greenway Trails Affects the Value of Proximate Properties*. Journal of Park and Recreation Administration, Fall 2001. John L. Crompton.]

A Study of Trail Impacts on Property Values, Noise and Crime

<http://library.michigantrails.org/education-and-advocacy/a-study-of-trail-impacts-on-property-values-noise-andcrime/>

Source: Michigan Trails

Subject: Trail Impacts on Property Values, Noise and Crime

Findings:

- For all trail segments studied, the median home sale prices adjacent to the trail are escalating faster than countywide. The rate of increase was particularly high in certain areas. The results indicated that the trail does not negatively impact property values and suggested that it may help increase property values by roughly 2 percent to 3 percent annually over inflation.
- Realtors were surveyed as well, and 90 percent said that home sales had increased significantly or increased somewhat in areas near the trail versus other areas in the market.

A Study of Trail Impacts on Property Values, Noise and Crime

<http://library.michigantrails.org/education-and-advocacy/a-study-of-trail-impacts-on-property-values-noise-andcrime/>

Source: Michigan Trails

Subject: Trail Impacts on Property Values, Noise and Crime

Findings:

- "81% surveyed felt that the nearby trail's presence would have a positive effect or effect on the ease of sale of their homes." (Fig. 5)

- “The clear majority of residents (63.8%) who bought their homes after construction of the trails reported that the trail had positively influenced their purchase decision.” (Fig. 6)
- “West Papio showed stronger results than the other two trails on property values, ease of home sale, and quality of life. The differences may possibly be due to neighborhood demographics and characteristics of the trail themselves” (Fig. 7.)
- “Of the respondents who purchased their home after the trail existed, 63.8% indicated that the trail had positively influenced their purchase decision.

Fig. 5. Impact of Trail on Sale of Home



Fig. 6. Impact of Trail on Selling Price

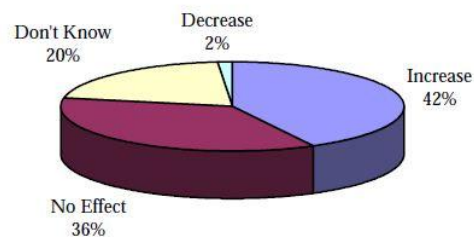


Fig. 7. Trail Impact on Home Sale
Three Trails

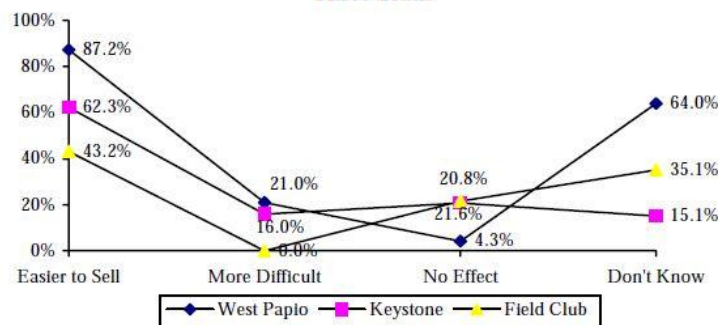
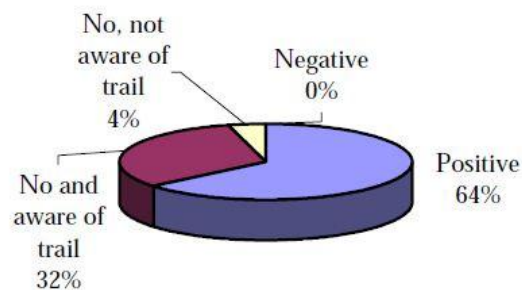


Fig. 8. Influence of Trail on
Home Purchase



Bike Walk Brighton



Appendix I: Schematic Cost Estimates

Bike Walk Brighton

edr Job No. 11085

Prepared for: Town of Brighton

NOTE: Conceptual estimate for budgeting purposes only

Bicycle Boulevards

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	BOULEVARDS (Signage and pavement markings)				
1.1	Buckland Park to Highland Avenue	Miles	2.75	\$6,000	\$16,500
1.2	Erie Canal to Cobbs Hill Park	Miles	4.86	\$6,000	\$29,160
1.3	Brighton Library & Town Hall to Highland Avenue	Miles	2.10	\$6,000	\$12,600
1.4	Brighton Library & Town Hall to East Avenue & City of Rochester's Bicycle Route Improvement	Miles	1.50	\$6,000	\$9,000
1.5	Twelve Corners Bicycle Bypass	Miles	1.70	\$6,000	\$10,200
				SUBTOTAL	<u>\$67,260</u>
2	CONTINGENCY (20%)				\$13,452
				SUBTOTAL	<u>\$80,712</u>
3	DESIGN AND PERMITTING (15%)				\$12,107
				TOTAL	<u>\$92,819</u>

Bike Walk Brighton

edr Job No. 11085

Prepared for: Town of Brighton

NOTE: Conceptual estimate for budgeting purposes only

Brighton Auburn Trail



ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	SITE PREPARATION				
1.1	Mobilization/Demobilization	LS	1	\$10,000	\$10,000
1.2	Clearing, grubbing, and earthwork	LS	1	\$5,000	\$5,000
1.3	Erosion and sediment controls	LS	1	\$4,000	\$4,000
1.4	Survey and stakeout	LS	1	\$5,000	\$5,000
2	STRUCTURAL				
2.1	Creek crossing enhancements	Each	2	\$5,000	\$10,000
2.2	Trail drainage improvements	LS	1	\$20,000	\$20,000
3	PAVING				
3.1	10' wide asphalt multi-use trail	LF	9,874	\$40.00	\$394,960
3.2	At grade crossings (signage and pavement markings)	Each	4	\$3,000	\$12,000
4	SIGNAGE				
4.1	Way finding signage	Each	8	\$500	\$4,000
4.2	Trailhead kiosks & interpretive signage	Each	2	\$10,500	\$21,000
5	SITE FURNITURE				
5.1	Limestone slab seats	Each	20	\$500	\$10,000
5.2	Bicycle racks	Each	4	\$1,000	\$4,000
5.3	Trail gateways	Each	8	\$5,000	\$40,000
5.4	Access control gates	Each	8	\$1,200	\$9,600
6	PLANTINGS				
6.1	Native RPM plants	Each	300	\$80	\$24,000
6.2	Seeding, mulching, and site restoration	Acre	3	\$1,500	\$4,500
				SUBTOTAL	\$578,060
7	CONTINGENCY (20%)				\$115,612
				SUBTOTAL	\$693,672
8	DESIGN AND PERMITTING (15%)				\$104,051
				TOTAL	\$797,723

Bike Walk Brighton

edr Job No. 11085

Prepared for: Town of Brighton

NOTE: Conceptual estimate for budgeting purposes only

Farash Parcel Trail



ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	SITE PREPARATION				
1.1	Mobilization/Demobilization	LS	1	\$10,000	\$10,000
1.2	Clearing, grubbing, and earthwork	LS	1	\$20,000	\$20,000
1.3	Erosion and sediment controls	LS	1	\$6,000	\$6,000
1.4	Survey and stakeout	LS	1	\$5,000	\$5,000
2	STRUCTURAL				
2.1	Creek crossings	Each	2	\$21,500	\$43,000
2.2	10' wide boardwalk, with curb rails and helical pier foundation system	LF	600	\$275.00	\$165,000
2.3	Trail drainage improvements	LS	1	\$40,000	\$40,000
3	PAVING				
3.1	10' wide asphalt multi-use trail	LF	4,268	\$40.00	\$170,720
3.2	4' wide stone dust trail	LF	2,737	\$6.00	\$16,422
3.3	Asphalt driveway and parking lot	SF	6,578	\$5.00	\$32,890
3.4	At grade crossings (signage and pavement markings)	Each	2	\$3,000	\$6,000
4	SIGNAGE				
4.1	Wayfinding signage	Each	6	\$500	\$3,000
4.2	Trailhead kiosks & signage	Each	2	\$10,500	\$21,000
4.3	Trail map display	Each	5	\$1,500	\$7,500
5	SITE FURNITURE				
5.1	Limestone slab seats	Each	15	\$500	\$7,500
5.2	Bicycle racks	Each	5	\$1,000	\$5,000
5.3	Trail gateways	Each	2	\$5,000	\$10,000
6	PLANTINGS				
6.1	Native trees (3" cal.)	Each	20	\$600	\$12,000
6.2	Native shrubs	Each	100	\$80	\$8,000
6.3	Seeding, mulching, and site restoration	Acre	5	\$1,500	\$7,500
				SUBTOTAL	<u>\$596,532</u>
7	CONTINGENCY (20%)				\$119,306
				SUBTOTAL	<u>\$715,838</u>
8	DESIGN AND PERMITTING (15%)				\$107,376
				TOTAL	<u>\$823,214</u>

Bike Walk Brighton

edr Job No. 11085

Prepared for: Town of Brighton

NOTE: Conceptual estimate for budgeting purposes only

Buckland Park

Hybrid Trail



ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	SITE PREPARATION				
1.1	Mobilization/Demobilization	LS	1	\$6,000	\$6,000
1.2	Clearing, grubbing, and earthwork	LS	1	\$5,000	\$5,000
1.3	Erosion and sediment controls	LS	1	\$3,000	\$3,000
1.4	Survey and stakeout	LS	1	\$7,000	\$7,000
2	STRUCTURAL				
2.1	Creek crossing enhancements	Each	1	\$7,500	\$7,500
3	PAVING				
3.1	10' wide asphalt multi-use trail	LF	4,500	\$40.00	\$180,000
3.2	5' wide concrete side path	LF	1,400	\$40.00	\$56,000
3.3	Concrete pad	SF	120	\$7.50	\$900
4	SIGNAGE				
4.1	Wayfinding signage	Each	4	\$500	\$2,000
5	SITE FURNITURE				
5.1	Limestone slab seats	Each	6	\$500	\$3,000
5.2	Bench	Each	2	\$1,000	\$2,000
5.3	Bicycle racks	Each	4	\$1,000	\$4,000
6	PLANTINGS				
6.1	Seeding, mulching, and site restoration	Acre	2	\$1,500	\$3,000
				SUBTOTAL	<u>\$279,400</u>
7	CONTINGENCY (20%)				\$55,880
				SUBTOTAL	<u>\$335,280</u>
8	DESIGN AND PERMITTING (15%)				\$50,292
				TOTAL	<u>\$385,572</u>

Bike Walk Brighton

edr Job No. 11085

Prepared for: Town of Brighton

NOTE: Conceptual estimate for budgeting purposes only

U of R Hybrid Trail

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	SITE PREPARATION				
1.1	Mobilization/Demobilization	LS	1	\$10,000	\$10,000
1.2	Clearing, grubbing, and earthwork	LS	1	\$10,000	\$10,000
1.3	Erosion and sediment controls	LS	1	\$4,000	\$4,000
1.4	Survey and stakeout	LS	1	\$5,000	\$5,000
2	STRUCTURAL				
2.1	Trail drainage improvements	LS	1	\$5,000	\$5,000
3	PAVING				
3.1	10' wide asphalt multi-use trail	LF	3,765	\$40.00	\$150,600
3.2	At grade crossings (signage and pavement markings)	Each	1	\$3,000	\$3,000
3.3	Bicycle boulevard (signage and pavement markings)	Miles	2.5	\$6,000	\$15,000
4	SIGNAGE				
4.1	Wayfinding signage	Each	10	\$500	\$5,000
4.2	Trailhead kiosks & signage	Each	2	\$10,500	\$21,000
5	SITE FURNITURE				
5.1	Limestone slab seats	Each	12	\$500	\$6,000
5.2	Bicycle racks	Each	2	\$1,000	\$2,000
5.3	Trail gateways	Each	2	\$5,000	\$10,000
5.4	Access control gates	Each	2	\$1,200	\$2,400
6	PLANTINGS				
6.1	Native trees (3" cal.)	Each	12	\$600	\$7,200
6.2	Native shrubs	Each	20	\$80	\$1,600
6.3	Seeding, mulching, and site restoration	Acre	2	\$1,500	\$3,000
				SUBTOTAL	\$260,800
7	CONTINGENCY (20%)				\$52,160
				SUBTOTAL	\$312,960
8	DESIGN AND PERMITTING (15%)				\$46,944
				TOTAL	\$359,904

Bike Walk Brighton

edr Job No. 11085

Prepared for: Town of Brighton

NOTE: Conceptual estimate for budgeting purposes only

Elmwood Avenue

Side Path



ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
1	SITE PREPARATION				
1.1	Mobilization/Demobilization	LS	1	\$10,000	\$10,000
1.2	Clearing, grubbing, and earthwork	LS	1	\$3,000	\$3,000
1.3	Erosion and sediment controls	LS	1	\$4,000	\$4,000
1.4	Survey and stakeout	LS	1	\$5,000	\$5,000
2	STRUCTURAL				
3	PAVING				
3.1	5' wide concrete side path	LF	12,105	\$40.00	\$484,200
3.2	Concrete pad	SF	780	\$7.50	\$5,850
3.2	At grade crossings (signage and pavement markings)	Each	10	\$3,000	\$30,000
4	SIGNAGE				
4.1	Wayfinding signage	Each	6	\$500	\$3,000
5	SITE FURNITURE				
5.1	Bench	Each	13	\$1,000	\$13,000
5.2	Bicycle racks	Each	6	\$1,000	\$6,000
6	PLANTINGS				
6.1	Seeding, mulching, and site restoration	Acre	2	\$1,500	\$3,000
				SUBTOTAL	<u>\$567,050</u>
7	CONTINGENCY (20%)				\$113,410
				SUBTOTAL	<u>\$680,460</u>
8	DESIGN AND PERMITTING (15%)				\$102,069
				TOTAL	<u>\$782,529</u>

Bike Walk Brighton



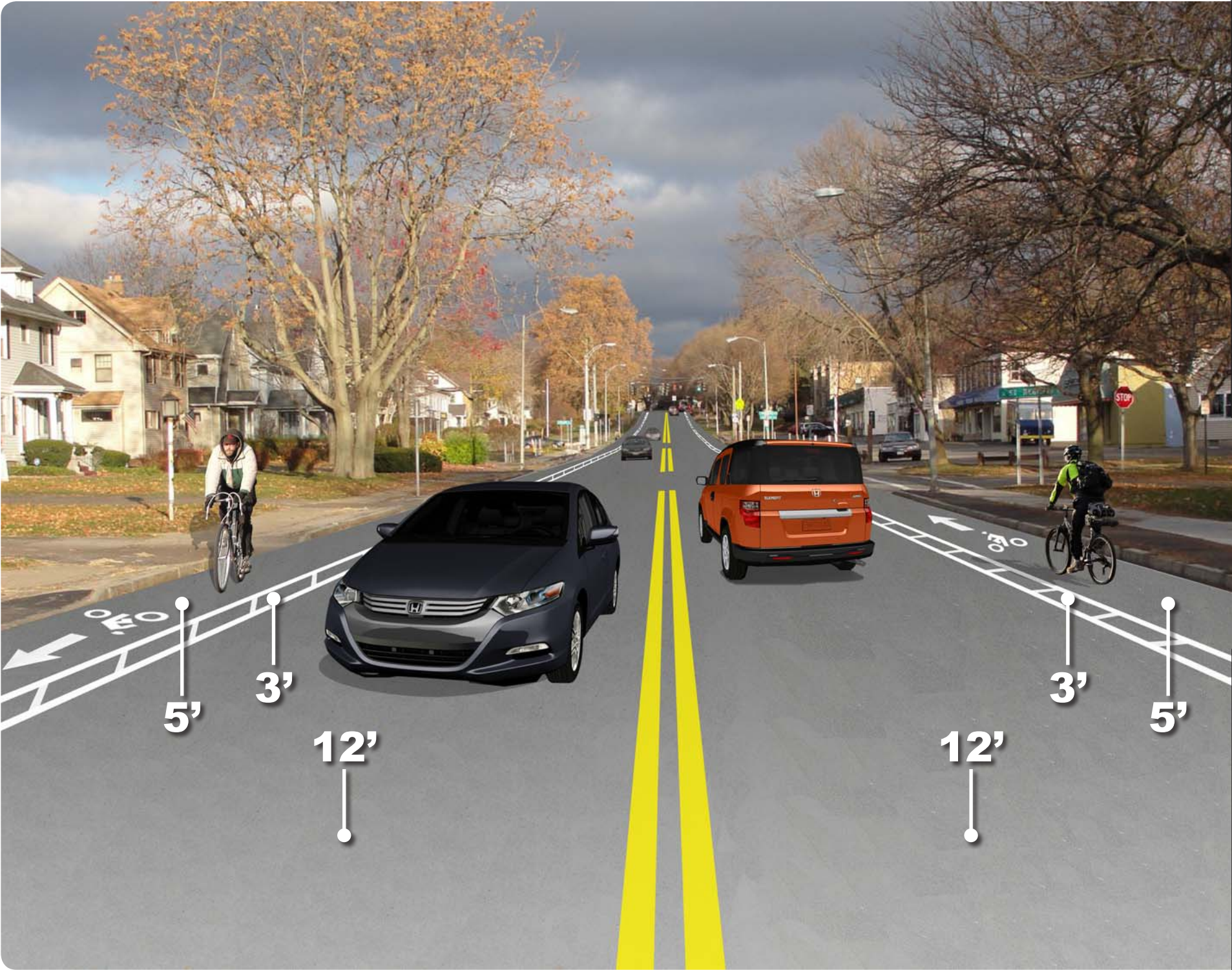
Appendix H: Monroe Avenue Road Diet Alternative

APPENDIX H

Alternate Recommendations

Monroe Avenue Road Diet Alternative

Buffered Bike Lanes Alternative



Existing Conditions

Note:
This solution was presented and reviewed, but was not accepted for Monroe Avenue at this time. The concept has been included in the report with the intention that it might be reconsidered for another road segment at another point in time.

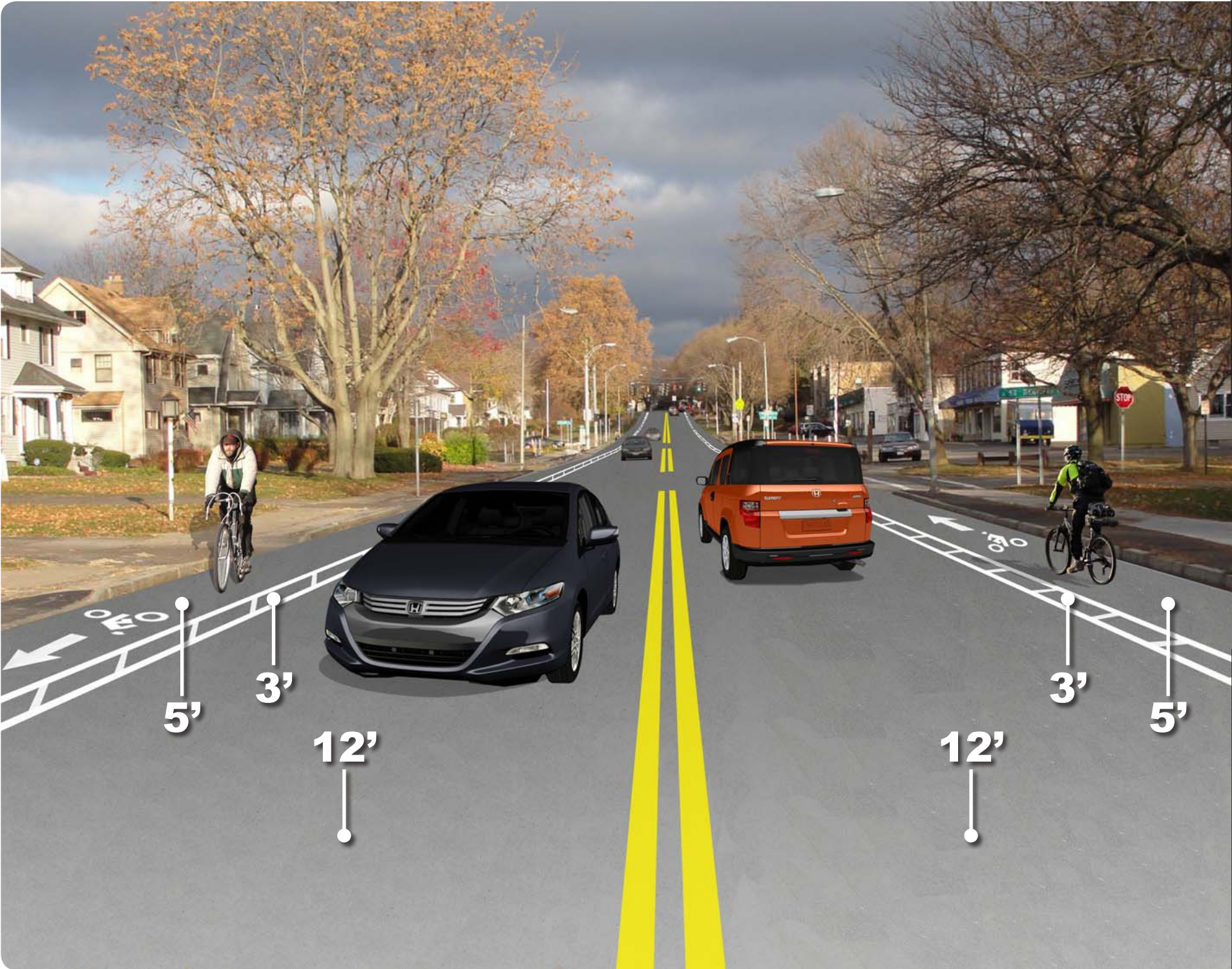


APPENDIX H

Alternate Recommendations

Monroe Avenue Road Diet Alternative

Buffered Bike Lanes Alternative



Existing Conditions

Note:
This solution was presented and reviewed, but was not accepted for Monroe Avenue at this time. The concept has been included in the report with the intention that it might be reconsidered for another road segment at another point in time.



Bike Walk Brighton













Appendix G: Monroe Avenue Road Diet Calculations

Lanes, Volumes, Timings
1: 31 & Side Street

PM Peak - Road Diet Scenario

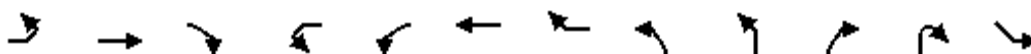
9/12/2012

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	625	20	10	620	20	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	100		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.932	
Flt Protected			0.950		0.976	
Satd. Flow (prot)	1855	0	1770	1863	1694	0
Flt Permitted			0.950		0.976	
Satd. Flow (perm)	1855	0	1770	1863	1694	0
Link Speed (mph)	40			40	30	
Link Distance (ft)	1255			743	446	
Travel Time (s)	21.4			12.7	10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	694	22	11	689	22	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	716	0	11	689	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	44.1%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
138: Highland & Monroe

PM Peak - Road Diet Scenario

9/12/2012



Lane Group	EBL	EBT	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBR	NBR2	SEL
Lane Configurations												
Volume (vph)	315	95	317	8	93	15	19	6	1	21	14	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125				125		0		0	0		125
Storage Lanes	1				1		0		1	0		1
Taper Length (ft)	25				25		25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.885				0.919			0.889			
Flt Protected	0.950				0.950				0.991			0.950
Satd. Flow (prot)	1770	1649	0	0	1770	1712	0	0	1641	0	0	1770
Flt Permitted	0.733				0.499				0.991			0.262
Satd. Flow (perm)	1365	1649	0	0	930	1712	0	0	1641	0	0	488
Right Turn on Red			Yes				Yes				Yes	
Satd. Flow (RTOR)		204				20			15			
Link Speed (mph)		30				30			30			
Link Distance (ft)		660				400			239			
Travel Time (s)		15.0				9.1			5.4			
Peak Hour Factor	0.89	0.89	0.90	0.90	0.90	0.90	0.95	0.90	0.95	0.95	0.95	0.87
Adj. Flow (vph)	354	107	352	9	103	17	20	7	1	22	15	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	354	459	0	0	112	37	0	0	45	0	0	75
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right	Right	Left
Median Width(ft)		12				12			12			
Link Offset(ft)		0				0			0			
Crosswalk Width(ft)		16				16			16			
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15	15		9	15	15	9	9	15
Number of Detectors	1	1		1	1	2		1	1			1
Detector Template				Left	Left	Thru		Left				
Leading Detector (ft)	50	50		20	20	100		20	50			50
Trailing Detector (ft)	0	0		0	0	0		0	0			0
Detector 1 Position(ft)	0	0		0	0	0		0	0			0
Detector 1 Size(ft)	50	50		20	20	6		20	50			50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0			0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0			0.0
Detector 2 Position(ft)						94						
Detector 2 Size(ft)						6						
Detector 2 Type						Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)						0.0						
Turn Type	D.P+P			Perm	Perm			custom				Perm
Protected Phases	2	2 3				3		4	4			
Permitted Phases	3			3	3			4	4			1
Detector Phase	2	2 3		3	3	3		4	4			1

5:00 pm Baseline

Synchro 7 - Report
Page 2

Lanes, Volumes, Timings
138: Highland & Monroe

PM Peak - Road Diet Scenario

9/12/2012

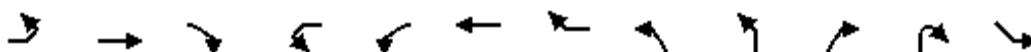


Lane Group	SET	SER	SER2	NWL2	NWL	NWT	NWR
Lane Configurations	↑	↑			↑	↑	
Volume (vph)	555	64	40	53	5	470	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0			125		0
Storage Lanes		1			1		0
Taper Length (ft)		25			25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.994	
Flt Protected					0.950		
Satd. Flow (prot)	1863	1583	0	0	1770	1852	0
Flt Permitted					0.173		
Satd. Flow (perm)	1863	1583	0	0	322	1852	0
Right Turn on Red			Yes				Yes
Satd. Flow (RTOR)		35				2	
Link Speed (mph)	30					30	
Link Distance (ft)	928					1197	
Travel Time (s)	21.1					27.2	
Peak Hour Factor	0.87	0.90	0.87	0.92	0.92	0.92	0.92
Adj. Flow (vph)	638	71	46	58	5	511	22
Shared Lane Traffic (%)							
Lane Group Flow (vph)	638	117	0	0	63	533	0
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Left	Right
Median Width(ft)	12					0	
Link Offset(ft)	0					0	
Crosswalk Width(ft)	16					16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	9	15	15		9
Number of Detectors	1	1		1	1	1	
Detector Template		Right		Left			
Leading Detector (ft)	50	20		20	50	50	
Trailing Detector (ft)	0	0		0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	
Detector 1 Size(ft)	50	20		20	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	
Detector 2 Position(ft)							
Detector 2 Size(ft)							
Detector 2 Type							
Detector 2 Channel							
Detector 2 Extend (s)							
Turn Type		Perm		Perm	Perm		
Protected Phases	1					1	
Permitted Phases		1		1	1		
Detector Phase	1	1		1	1	1	

Lanes, Volumes, Timings
138: Highland & Monroe

PM Peak - Road Diet Scenario

9/12/2012



Lane Group	EBL	EBT	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBR	NBR2	SEL
Switch Phase												
Minimum Initial (s)	6.0			6.0	6.0	6.0		3.0	3.0			7.0
Minimum Split (s)	13.0			25.0	25.0	25.0		14.0	14.0			29.0
Total Split (s)	19.0	45.0	0.0	26.0	26.0	26.0	0.0	15.0	15.0	0.0	0.0	40.0
Total Split (%)	19.0%	45.0%	0.0%	26.0%	26.0%	26.0%	0.0%	15.0%	15.0%	0.0%	0.0%	40.0%
Maximum Green (s)	14.0			20.5	20.5	20.5		9.5	9.5			34.0
Yellow Time (s)	4.0			3.5	3.5	3.5		3.5	3.5			4.0
All-Red Time (s)	1.0			2.0	2.0	2.0		2.0	2.0			2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.5	0.0	-2.5	-1.0	0.0	-2.5	-2.5	-1.0	-3.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	5.5	3.0	3.0	5.5	3.0	1.5	3.0	3.0
Lead/Lag	Lag			Lead	Lead	Lead		Lag	Lag			Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0			3.0	3.0	3.0		3.0	3.0			4.0
Recall Mode	None			None	None	None		None	None			C-Max
Walk Time (s)				7.0	7.0	7.0		5.0	5.0			7.0
Flash Dont Walk (s)				12.0	12.0	12.0		15.0	15.0			16.0
Pedestrian Calls (#/hr)				0	0	0		0	0			0
Act Effect Green (s)	35.0	38.0			16.5	19.0			9.8			47.6
Actuated g/C Ratio	0.35	0.38			0.16	0.19			0.10			0.48
v/c Ratio	0.65	0.61			0.73	0.11			0.26			0.32
Control Delay	30.0	16.4			65.0	19.1			33.9			26.3
Queue Delay	0.0	0.0			0.0	0.0			0.0			0.0
Total Delay	30.0	16.4			65.0	19.1			33.9			26.3
LOS	C	B			E	B			C			C
Approach Delay		22.3				53.6			33.9			
Approach LOS		C				D			C			

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 56 (56%), Referenced to phase 1:NWSE, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 27.4

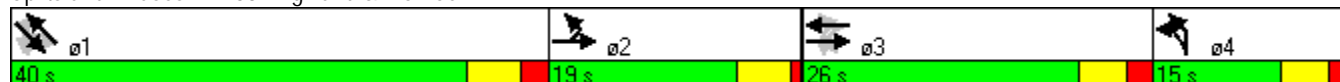
Intersection LOS: C

Intersection Capacity Utilization 85.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 138: Highland & Monroe






















Lane Group	SET	SER	SER2	NWL2	NWL	NWT	NWR
Switch Phase							
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	
Minimum Split (s)	29.0	29.0		29.0	29.0	29.0	
Total Split (s)	40.0	40.0	0.0	40.0	40.0	40.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-3.0	0.0	0.0	0.0	-3.0	-3.0	0.0
Total Lost Time (s)	3.0	6.0	4.0	6.0	3.0	3.0	4.0
Lead/Lag	Lead	Lead		Lead	Lead	Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	
Act Effct Green (s)	47.6	44.6			47.6	47.6	
Actuated g/C Ratio	0.48	0.45			0.48	0.48	
v/c Ratio	0.72	0.16			0.41	0.60	
Control Delay	30.1	15.5			33.7	26.0	
Queue Delay	0.0	0.0			0.0	0.0	
Total Delay	30.1	15.5			33.7	26.0	
LOS	C	B			C	C	
Approach Delay	27.7					26.8	
Approach LOS	C					C	
Intersection Summary							

Lanes, Volumes, Timings
1013: Winton & 31

PM Peak - Road Diet Scenario













9/12/2012

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	157	490	0	144	478	51	55	550	180	0	575	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	125		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt					0.989			0.963			0.975	
Flt Protected		0.988			0.989		0.950					
Satd. Flow (prot)	0	3497	0	0	3462	0	1770	3408	0	0	3451	0
Flt Permitted		0.576			0.596		0.291					
Satd. Flow (perm)	0	2039	0	0	2086	0	542	3408	0	0	3451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					12			76				39
Link Speed (mph)		35			35			40				40
Link Distance (ft)		133			281			548				140
Travel Time (s)		2.6			5.5			9.3				2.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	174	544	0	160	531	57	61	611	200	0	639	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	718	0	0	748	0	61	811	0	0	765	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1			1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50			50	
Trailing Detector (ft)	0	0		0	0		0	0			0	
Detector 1 Position(ft)	0	0		0	0		0	0			0	
Detector 1 Size(ft)	50	50		50	50		50	50			50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Turn Type	Perm			Perm			Perm					
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1					
Detector Phase	3	3		3	3		1	1			1	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		20.0	20.0			20.0	
Minimum Split (s)	31.0	31.0		31.0	31.0		28.5	28.5			28.5	
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	47.0	47.0	0.0	0.0	47.0	0.0
Total Split (%)	44.7%	44.7%	0.0%	44.7%	44.7%	0.0%	55.3%	55.3%	0.0%	0.0%	55.3%	0.0%

Lanes, Volumes, Timings
1013: Winton & 31

PM Peak - Road Diet Scenario

9/12/2012

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)	32.0	32.0		32.0	32.0		41.5	41.5				41.5
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5				3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0				2.0
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	4.0	4.0	3.0	4.0	4.0	3.0	3.5	3.5	3.0	3.0	3.5	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0				1.0
Recall Mode	None	None		None	None		C-Max	C-Max				C-Max
Walk Time (s)	10.0	10.0		10.0	10.0		8.0	8.0				8.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0				15.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0				0
Act Effect Green (s)		34.0			34.0		43.5	43.5				43.5
Actuated g/C Ratio		0.40			0.40		0.51	0.51				0.51
v/c Ratio		0.91dl			0.89		0.22	0.46				0.43
Control Delay		38.0			38.1		15.0	13.5				13.2
Queue Delay		0.0			0.0		0.0	0.0				0.0
Total Delay		38.0			38.1		15.0	13.5				13.2
LOS		D			D		B	B				B
Approach Delay		38.0			38.1			13.6				13.2
Approach LOS		D			D			B				B

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 4 (5%), Referenced to phase 1:NWSE, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 25.1

Intersection LOS: C

Intersection Capacity Utilization 86.6%

ICU Level of Service E

Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



















Splits and Phases: 1013: Winton & 31



Lanes, Volumes, Timings
1016: 31 & Oakdale

PM Peak - Road Diet Scenario













9/12/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	585	25	11	466	24	18	2	10	12	5	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.993			0.956			0.946	
Flt Protected	0.950			0.950				0.971			0.979	
Satd. Flow (prot)	1770	1852	0	1770	1850	0	0	1729	0	0	1725	0
Flt Permitted	0.439			0.367				0.858			0.869	
Satd. Flow (perm)	818	1852	0	684	1850	0	0	1528	0	0	1531	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			6			13			16	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1197			1255			395			323	
Travel Time (s)		20.4			21.4			9.0			7.3	
Peak Hour Factor	0.88	0.88	0.88	0.90	0.90	0.90	0.75	0.75	0.75	0.70	0.70	0.70
Adj. Flow (vph)	24	665	28	12	518	27	24	3	13	17	7	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	693	0	12	545	0	0	40	0	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		
Detector Phase	1	1		1	1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	20.0	20.0		20.0	20.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	25.5	25.5		25.5	25.5		26.5	26.5		26.5	26.5	
Total Split (s)	56.0	56.0	0.0	56.0	56.0	0.0	29.0	29.0	0.0	29.0	29.0	0.0
Total Split (%)	65.9%	65.9%	0.0%	65.9%	65.9%	0.0%	34.1%	34.1%	0.0%	34.1%	34.1%	0.0%

Lanes, Volumes, Timings
1016: 31 & Oakdale

PM Peak - Road Diet Scenario

9/12/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	50.5	50.5		50.5	50.5		24.5	24.5		24.5	24.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-2.5	-2.5	-1.0	-2.5	-2.5	-1.0	-1.5	-1.5	-1.0	-1.5	-1.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		4.0	4.0		4.0	4.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effect Green (s)	71.9	71.9		71.9	71.9		10.2	10.2		10.2	10.2	
Actuated g/C Ratio	0.85	0.85		0.85	0.85		0.12	0.12		0.12	0.12	
v/c Ratio	0.03	0.44		0.02	0.35		0.21	0.21		0.20	0.20	
Control Delay	1.9	3.3		3.2	3.7		27.6	27.6		25.6	25.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	1.9	3.3		3.2	3.7		27.6	27.6		25.6	25.6	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		3.3			3.7		27.6	27.6		25.6	25.6	
Approach LOS		A			A		C	C		C	C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 61 (72%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 4.8

Intersection LOS: A

Intersection Capacity Utilization 45.6%

ICU Level of Service A

Analysis Period (min) 15




















Splits and Phases: 1016: 31 & Oakdale



Lanes, Volumes, Timings
1054: 31 & Glen Ellyn

PM Peak - Road Diet Scenario













9/12/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	600	11	19	575	43	22	38	58	57	26	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.990			0.934			0.961	
Flt Protected	0.950			0.950				0.991			0.976	
Satd. Flow (prot)	1770	1857	0	1770	1844	0	0	1724	0	0	1747	0
Flt Permitted	0.341			0.345				0.942			0.747	
Satd. Flow (perm)	635	1857	0	643	1844	0	0	1639	0	0	1337	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			12			51			21	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		743			635			389			361	
Travel Time (s)		12.7			10.8			8.8			8.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	667	12	21	639	48	24	42	64	63	29	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	679	0	21	687	0	0	130	0	0	129	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			4			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Detector Phase	1	1		1	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		20.0	20.0		20.0	20.0	
Total Split (s)	65.0	65.0	0.0	65.0	65.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	76.5%	76.5%	0.0%	76.5%	76.5%	0.0%	23.5%	23.5%	0.0%	23.5%	23.5%	0.0%

Lanes, Volumes, Timings
1054: 31 & Glen Ellyn

PM Peak - Road Diet Scenario

9/12/2012

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	60.0	60.0		60.0	60.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	0.2	0.2		0.2	0.2		5.0	5.0		5.0	5.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Act Effect Green (s)	64.0	64.0		64.0	64.0			15.0			15.0	
Actuated g/C Ratio	0.75	0.75		0.75	0.75			0.18			0.18	
v/c Ratio	0.08	0.49		0.04	0.49			0.39			0.51	
Control Delay	3.5	5.1		2.4	4.8			22.5			33.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.5	5.1		2.4	4.8			22.5			33.4	
LOS	A	A		A	A			C			C	
Approach Delay		5.0			4.7			22.5			33.4	
Approach LOS		A			A			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 61 (72%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 8.4

Intersection LOS: A

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1054: 31 & Glen Ellyn



Bike Walk Brighton



Appendix F: Peer City Review

REVIEW OF PEER CITIES

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Introduction

This Peer City Review compiles Active Transportation Planning ideas and best practices from some progressive communities with characteristics similar to Brighton. The foundation for this report is a peer city review conducted for the City of Rochester's Bicycle Master Plan in 2010. Cities identified by the Rochester project stakeholders included Boulder, CO; Montreal, Quebec; Minneapolis, MN; and Madison, WI. Because of the inherent differences between Rochester and Brighton, and because the Brighton plan also encompasses pedestrians, additional cities were added and each of the original peer cities was reviewed for pedestrian facilities and programs. Information from other cities, including Seattle and Tucson are included where relevant.

This review expands on the Rochester review to include inner ring-type suburban communities and expands the eight categories listed below to include pedestrian infrastructure and programs. The new suburban cities are Westminster, CO; Edina, MN; Fitchburg, WI; and Middleton, WI. Much of the information about each city's program is available in the cities' transportation plans and and/or bicycle or pedestrian master plans. Additional details, typically on implementation, were added based on interviews with the bicycle and pedestrian coordinators from the respective cities.

1. Bicycle Infrastructure including bike lanes, paved shoulders, shared use paths, Shared Lane Markings (i.e. "sharrows"), bike boulevards
2. Bicycle Services including bike parking, bike sharing, end-of-trip facilities, and route/wayfinding signage
3. Municipal code language that supports bicycling, including zoning changes/recommendations
4. Pedestrian infrastructure
5. Bicycle and Pedestrian Education and outreach programs
6. Municipal staffing commitment
7. Private sector partnerships and/or incentives
8. Snow removal strategies
9. Strategies for dealing with on-street parking when attempting to retrofit roadways

Peer City Bicycle and Pedestrian Plans

Each of the suburban communities reviewed has some sort of bicycle and/or pedestrian guidance in place. This may be a bicycle plan or, in the case of Montreal, specific items in their comprehensive plan.

Edina MN's Bicycle Plan was adopted in 2007 and in addition to making facility and route recommendations made recommendations on everything from increasing bicycle parking at schools to recommending hiring a Bicycle Coordinator, forming a Bicycle Advisory Committee (BAC) and including a member of the BAC on the Edina Transportation Commission. The Plan also recommended implementing a Complete Streets Policy to ensure that Edina's streets are:

...designed and operated to provide safe space and access for all users, including pedestrians, bicyclists, motorists and transit riders, and to ensure that they work for people of all ages and abilities, including older people, children, and people with disabilities.¹

¹ The City of Edina Comprehensive Bicycle Transportation Plan, September 2007

REVIEW OF PEER CITIES

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



A Living Streets policy is in the process of being crafted by the Edina Transportation Commission. Edina is also part of a multi city partnership Blue Cross Blue Shield called 'Do-town' that is helping member communities tackle issues of obesity and public health.

Westminster, CO 2011 Bicycle Plan

This plan has yet to be implemented to any significant degree because of budgetary constraints. This was a known issue at the time of its development. Funding for implementation is planned in 2013-2014.

Fitchburg, WI 2008 Bicycle Pedestrian Plan

This plan begins with general facility and policy recommendations to offer the support for the specific roadway and trail design recommendations that come further in the report; for example there are Refuge Island Recommendations that cover Installation, Design and Maintenance. The City will be updating the plan in 2013 and the focus may be more on bicycling.



Multi-use trail, Middleton, WI

Middleton, WI 2009 Bicycle and Pedestrian Plan

This plan, an update of the 1999 plan, notes that, the majority of the City's bicycle and pedestrian trails (over 80%) have been built in the past decade. Mark Opitz, the assistant City Planner responsible for bicycle and pedestrian planning, says the City has seen huge increases in the number of active transportation users, and cited the growth of a local bicycle club, comments he gets about facilities and the 'jockeying' for space, as well as informal counts of facility users, as evidence of a shift in public interest in bicycle and pedestrian facilities. He attributes some of the shift to the proximity to Madison, a League of American Bicyclist's Platinum rated Bicycle Friendly Community Plan, with a

long history of innovative and successful bicycle and pedestrian planning. The Plan is used as a guide and vision, but the recent municipal budgets have not supported the implementation of many projects.

In addition to the City's *Bicycle and Pedestrian Plan*, Middleton has a *Sustainable City Plan* (2010). This plan goes far beyond just sustainable transportation and was developed in response to the fact that Middleton has undertaken numerous sustainable initiatives over the years. This plan helps the City measure its progress in all of these areas and helps connect seven separate yet interconnected aspects of life within the City of Middleton: energy, Transportation, Land Use, Water, Waste, Economy/Food/Fair Trade, and Public Outreach and Education.²

1. BICYCLE INFRASTRUCTURE

Bicycle infrastructure consists of many varying facility types. These include on-street facilities such as bike lanes (space designated for preferential use by bicyclists), paved shoulders (area of pavement at the edge of the outer travel lane that is not designated as a bicycle facility but where bicyclists are allowed to ride), and Shared Lane Markings, sometimes called "sharrows," which are pavement markings that help position bicyclists within the lane. Shared-use paths are physically separated from the roadway and can be either adjacent to the roadway or operate as an independent alignment. Bike boulevards are roadway corridors (typically low-speed, low-volume roads)

² Sustainable City Plan, City of Middleton, WI, November 2010

REVIEW OF PEER CITIES

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



optimized for use by bicyclists through a variety of traffic calming and other treatments. The table below shows the existing bicycle infrastructure in Rochester's identified peer cities as well as in the Brighton peer cities.

City	Bike Lane/ Paved Shoulder/Sharrow	Shared Path	Use	Bike Boulevard
Boulder	37 miles	9 miles		informal
Montreal	25 miles			unk
Minneapolis	44 miles	84 miles		6 funded
Madison	63 miles	42 miles		3 (pilot)
Westminster CO	Less than 1 mile (132 planned)	74 miles		0
Edina, MN	Fewer than 2 miles	4-5 miles		pilot
Fitchburg, WI	21	35 miles		0
Middleton, WI	3.1	15.4 miles		0

Bike Network: Boulder

Boulder has over 305 directional miles of dedicated bike facilities (this includes on-street, contra-flow, designated routes, paved shoulders, and multi-use and soft surface facilities).



Signage examples in Boulder, CO

The City has a Complete Streets policy. Designing for complete streets that include pedestrian and bicyclist facilities helps the City get more federal dollars per project than designing them without, according to Marni Ratzel, City's Bicycle and Pedestrian Coordinator. Bicycle projects are included in the City's restriping and resurfacing programs. As part of their *Transportation Master Plan* public outreach process, it was determined that the community likes and wants both on and off street facilities. This leads to a blending of facilities, as the City considers sidewalks part of their multi-use path system. The standard sidewalk is 8 feet wide, with 10-12 feet being the standard in more pedestrian congested areas.

The City has a *Comprehensive Sign Policy* in place to help address side path/multi-use path conflict points and has developed and adopted Pedestrian Crossing Treatment Warrants as well as installing enhanced treatments on multi-use paths

adjacent to or crossing roadways in order to reduce conflicts between motorists, bicyclists and pedestrians. The recommended treatments include:

- (1) Raised right-turn bypasses that serve as a speed humps for motorists turning right that also facilitate a 90 degree approach for bicycles entering the crosswalk.
- (2) Pedestrian-actuated crossing signals that trigger flashing beacon signs to allow bicyclists to cross safely at un-signalized crosswalks. One of these crossings can be activated by a bicycle-detecting loop in the bike lane.
- (3) Signing that informs right turning and left turning motorists that they will be crossing a bikeway adjacent to the roadway of which they are they are turning.
- (4) Colored pavement markings to indicate bikeway crossings at driveways.

REVIEW OF PEER CITIES

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



12 percent of commuters ride to work and Boulder, in general, has a high percentage of bicycle riders. Because these treatments are installed throughout the city virtually every motorist in Boulder is exposed to bicyclists using them and understands how to respond to the treatments.



Right turn bypass lane in Boulder, CO

While Boulder has no formal Bike Boulevards, many of their local streets function as typical low traffic speed, low volume bike boulevards. Their Traffic Calming program, into which bicycle boulevards fall, is currently unfunded.

The City does not have a pre-set timeline for restriping roadways. The City reviews its assets each year and determines which crosswalks, legends, lane lines, bike lanes, etc. are in need of restriping and they restripe as much as the budget allows. More significant changes may occur (removing crosswalks, changing position of lane lines, etc.) when a roadway is resurfaced and all pavement markings need to be newly applied. Major roadways are resurfaced every 7 to 10 years while lower volume/classification roadways are resurfaced much less frequently than that.

Bike Network: Montreal

Montreal has a 311 mile network; 32 new miles added 2010: 25 miles of bike lanes with symbols; 7 miles of cycle track; their goal is 497 miles of bike paths by 2015.

Montreal has developed a 19 mile network called the *White Network* that is maintained all year long. Since 2007, in addition to routine maintenance, this series of bike paths has been plowed and kept clear of snow allowing for use during all seasons. An additional 39 miles are planned for this network.

Bike Network: Minneapolis

Minneapolis has a 128 mile network consisting of 84 miles of dedicated bike paths and 44 miles of designated bike lanes on streets. The City has plans to install another 40 miles of designated bike lanes. The bike/ped coordinator estimates that while 5-10% of the on-street facilities are shoulders or sharrows, the majority are marked bike lanes.

There is no Routine Accommodation policy but the *Access Minneapolis* plan clearly defines a process for including all modes. *Chapter 3, Design Guidelines for Streets and Sidewalks* details a process titled "Develop a Citizen View of the Street" which uses the following questions as a guide for the process:

- What are the things you like about this place, street, neighborhood, community?
- What are the problems?
- How is this place/street used?
- What works well and doesn't work well?
- How have you seen this place/street change in the past? How do you expect it to change in the future?
- What kinds of trips do you make and what modes of transportation do you use?

In Minneapolis, a grant from the federal government managed by the Non-Motorized Pilot Program has helped fund the building of a bike boulevard on Bryant Avenue and the planning of five others. These bike boulevards, which will include a combination of signage and traffic calming, range in cost from \$50,000 to \$400,000, and average one to three miles in length.

REVIEW OF PEER CITIES

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Their extensive off-street system exists mostly along rivers and creeks and on old rail corridors with few street crossings. There are few conflict points, so mitigating the challenges of side paths is not a high priority.

Bike Network: Madison

Madison has 63 miles of on-street bicycle facilities (bike lanes, paved shoulders); 42 miles of bike paths and trails; 134 miles of signed bike routes and 12 miles of wide curb lanes that are being converted to bike lanes.

There are three bike boulevard pilot projects underway. These entail signage and paint markings, specifically Share the Road signage. Additional treatments such as speed bumps are typically part of a traffic management program. While all three bike boulevards are pilot projects, the city has approved replacing temporary barrier on one of them with a permanent concrete curb to keep cars out, especially because some drivers are still turning onto the avenue. The pilot program will study these areas for about a year before deciding if bike boulevards will be permanent and if others are needed. The signage and marking for the permanent installation cost the city about \$5,000.

The addition of any physical features to roadways will occur as part of the political process, the Neighborhood Traffic Management Program or reconstruction or development of the streets as part of another project, as there is no protocol for including the physical traffic calming features in the current bike boulevard program. Potential bike boulevards may be identified by neighborhoods.

Bike Network: Westminster, CO

The city has 74 miles of shared use paths and less than one mile of street facilities. The plan identifies 132 miles of possible bike facilities. The plan was developed to better connect the two networks. There are no bicycle boulevards planned.

Bike Network: Edina, MN

Edina has existing shared use paths and some bike lanes, but the plan has been slow to be implemented. Projects tend to be done as part of street reconstruction. In some cases, to create a bike lane without having to widen much, the City installs a 5' gutter pan and curb instead of their typical B618 curb.

Bike Network: Fitchburg, WI

Fitchburg has 35 miles of shared use pathways, many of them part of the state trail network. There are 118 street miles and 14 miles of bicycle lanes. The city has not installed any shared lane markings yet, but is embarking on a project that will use them as part of a series of facilities on various uphill sections. This application will be used to help cyclists riding uphill. The city will install a paved shoulder on the uphill section to allow a bicyclist to move out of the travel lane going uphill, then use shared lane markings to move the bicyclist back in to a visible position at the crest of hill.

Bike Network: Middleton, WI

Middleton has 15.4 miles of shared use pathway, and 3.1 miles of bicycle lanes.



A pedestrian crossing in Middleton, WI

REVIEW OF PEER CITIES

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



2. BICYCLE SERVICES – BIKE PARKING, BIKE SHARING AND ROUTE/WAYFINDING SIGNAGE

Bicycle services play an important role in a person's decision to ride a bicycle and should be provided at both the trip origin and the destination, providing a safe place to leave a bicycle for the needed time. Bicycle parking should be included to accommodate a variety of needs and is addressed in several ways. Short term bicycle parking, typically bicycle racks against which the bicyclist can lock both their frame and the wheels in a highly visible location can be an option for cyclists needing parking during short stops. Long term bicycle parking typically entails covered bicycle storage lockers and are common in parking garages or transit stations. These secure facilities are accessed by lock or combination.

Bicycle sharing is an increasingly popular option in cities, with programs ranging from a few hundred to a thousand bicycles. These on-demand systems offer inexpensive, convenient bicycle rentals, typically in a downtown or urban setting.

End of trip facilities may also include showers and changing facilities. These facilities may be available on a per office or per building basis. Occasionally, an arrangement with a local health club can be used to satisfy the needs of bicycle commuters.

Wayfinding/route signage is an important component in any bicycle network and can be used to identify key routes and offer destination information. There may or may not be a local identity component to the wayfinding system. The *Manual of Uniform Traffic Control Devices (MUTCD)* defines the basic sign standards that should be used.

The following chart shows the bike services facility types and the cities in which they are found. End of trip facilities, while listed here, are addressed in Section 3 of this review because such facilities are frequently included in cities' zoning codes.

City	Bike parking	Bike sharing	End-of-trip facilities (showers)	Route/wayfinding signage
Boulder	x	B-Cycle		43 miles
Montreal	x	BIXI		43 miles
Minneapolis	x	BIXI	zoning code	x
Madison	x			134 miles
Seattle	x		zoning code	x
Denver	x	B-Cycle		x
Westminster, CO	x			recommended
Edina, MN				Some, no formal program
Fitchburg, WI	x			8 miles
Middleton, WI	x			Some, no formal program

2a. Bike Parking

Bicycle parking is a critical piece of a successful bicycle program. Having somewhere safe and secure to park a bicycle often influences the decision to make a trip by bicycle. There are a variety of strategies employed by the peer cities and frequently each element is part of a comprehensive parking program.

Boulder

Boulder offers a variety of parking options, including their parking corral pilot program.

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A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



The city offers two bike rack styles as well as covered parking:

Inverted U (Lean the bike along the side of the rack and secure with a U or cable lock. This bike rack provides two points of contact for a bike and accommodates two bikes)



Inverted U style bike rack

Cora Racks (secure the bike perpendicularly to the rack by attaching your lock to one of the upright posts) and *Covered Parking* (Secure bike parking is available and free at 3 garages)

Boulder relies on property owners to provide adequate bike parking for their buildings. Long and short term bicycle parking have recently been defined in the Design and Construction Standards, but required percentages have not been designated in the Zoning Code.



Cora rack on the University campus, Boulder, CO

The Denver Regional Transportation District, which is responsible for public transit in the metro area, provides free bicycle storage lockers at many of its transit stations, including the downtown Boulder Transit Station and the nearby Table Mesa Park-n-Ride.

Boulder Corral Pilot Program. The City is installing bike corrals as a year-long demonstration project to evaluate use, maintenance, traffic safety and public opinion of the treatment. Next steps would be based on the results of the evaluation.

A bike corral provides bicycle parking in the parking lane. Transportation and Downtown and University Hill Management Division / Parking Services (DUHMD/PS) are working in partnership to pilot bike corrals at two locations along Pearl Street:



Bike corral in front of popular cafe in Boulder, CO

- 1521 Pearl Street, in front of the Cup Espresso Café
- 940 Pearl Street, in front of the Trident Booksellers & Café

Installed in mid-September of 2010, each corral replaces an existing on-street parking space with four bike racks, which accommodate eight bicycles total within the parking space. The racks for each corral cost about \$1000.

Both locations have a documented need for additional bike parking and the adjacent business at each location is supporting the pilot project, having agreed to handle day-to-day maintenance, including debris and snow removal.

In the recent *Transportation Master Plan implementation progress report*, it was noted that the bike parking corral program has proven to be very successful and that the city is now developing criteria for additional corrals. The report also noted that between 2007 and 2011, a bike parking survey showed a 44 percent increase in the bikes being parked in the downtown area.

Montreal

The *Montreal Master Plan* (December 2005) identifies specific actions that the City plans to undertake in support of expanding their bicycle program. The following actions and policy statements are made outlining the strategy:

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Action 3.4: Complete the City-wide bikeway network to provide access to activity areas and public transportation and infrastructure:

The City also plans to establish adequate, safe parking facilities for bicycles, especially in workplaces and educational institutions, either inside buildings or in areas that are sheltered from the weather. Ideally, cyclists would also benefit from changing rooms and showers. The City favours the integration of the bicycle and public transportation networks, by facilitating modal transfer through quality facilities that are adapted to the needs of cyclists. In light of this, the metro and commuter train stations that are served by a bikeway will have priority in the development of bicycle parking areas. To encourage cycling and mode transfer, it is important that cyclists feel that their bicycles are safe from theft. Metro and commuter rail stations will receive priority consideration for lockers and secure enclosures for bicycles.

Action 3.5: Promote urban development and the use of public transportation and bicycles by taking action on the supply of parking:

Plan for an adequate number of bike racks near metro stations, train stations, office buildings and public institutions and along commercial strips.

- Integrate bike parking in every newly-constructed indoor parking lot.

In the *2008 Transportation Plan*, item 2.3 Bike Parking set a goal to increase parking facilities by 500% and says the following:

Montréal intends to share responsibility for bicycle parking facilities with its partners (property owners and institutions) so that they make necessary efforts in areas falling within their jurisdiction. Montréal plans to amend its current by-law and require parking lot owners in downtown Montréal to set aside space for bicycle parking facilities and then to adopt such a by-law for the island as a whole. This new by-law would target owners and operators of parking lots and owners of residential and commercial buildings and would require them to provide a significant number of spaces for bikes. The boroughs are asked to play an important role with these partners in getting them to shoulder such responsibility

The City has created a network of Bike Stations and includes bicycle parking facilities at transit stations. Additional bike parking initiatives include amending the by-law (zoning code) to increase the number of bicycle parking spaces at City buildings to at least one for every 50 employees, to enforce the by-law requirements for bicycle parking in new or renovated buildings and create incentives encouraging private businesses to add new bicycle parking spaces. The City expects to use public/private partnerships to operate aspects of the bicycle parking project.

On-street parking (in the form of bike corrals) is proposed in Montreal and could be used from spring to the fall and removed in the winter to facilitate snow removal.

Minneapolis

Minneapolis has an extensive bicycle parking program and has published a Bike Racks and Lockers Map to help bicyclists find available parking. There are approximately 3600 racks, 16,000 spaces; 29 locker locations and 249 locker spaces. Showers are available with rental of bike lockers at 2 locations. Costs are as follows:

\$10	Key deposit
\$30	Seasonal locker (Apr 1-Nov 30)
\$50	Annual locker

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\$80	Seasonal locker and shower (Apr 1-Nov 30)
\$100	Annual Locker and Shower

Every office building in Minneapolis is required by law to provide bicycle storage.

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

In addition, Minneapolis cyclists have access to the Freewheel Bike's Midtown Bike Center, a coffee house/repair center/bike shop on the Greenway that the City helped fund. Inside, there is bicycle storage (which costs \$110 a year) and low-cost showers for cyclists who commute to downtown. The Bike Center began as a joint effort of Allina Health Systems and the City of Minneapolis to provide the Midtown and larger Twin Cities community a full service bike transportation station, complete with long/short term bike storage, bike rentals, a cafe, repair classes and even a public repair shop where bicyclists can do their own maintenance. It also has a full service repair shop, bicycle and accessory sales, public restrooms and other ancillary uses.

Madison

Bicycle racks have been installed throughout the City, typically in the business districts. The racks are requested as part of the annual budget and are located in the public right of way.

Westminster, CO

Provisions for bicycle parking exist in Westminster's Municipal zoning code (See appendix).

Edina, MN

Recommendations for parking were made in the plan, though there is little funding available for installation. The City did win a grant last year and with the help of the Bike Edina task Force, locations for the racks are being identified. Mr. Houle mentioned that a number of bicycle racks have been installed by local Eagle Scouts.

Fitchburg, WI

In the last plan, a walk shed audit was completed to identify both facility and parking needs. This audit revealed a severe lack of bicycle parking and that the existing bicycle racks were not optimal. The City has been upgrading bicycle racks to the preferred inverted U-rack design on public property (e.g.: at the new library or at parks) as it can.

Middleton, WI

Bicycle parking has been identified and the City is upgrading and adding racks as opportunities arise.

2b. Bike Share

Bike Sharing programs are increasing popular in cities across North America. They come in several forms and can be scaled to meet the identified market. A number of companies specialize in the program. Public Bike System Company(PBSC), based in Montreal, developed BIXI and runs the program there in response to the 2007 Réinventer Montréal mandate to create, install and market the first large-scale public bike system in North America. PBSC was then chosen as the supplier for the bikes and kiosks for the program in Minneapolis. BIXI systems have also been implemented in Arlington, VA and nearby Washington, D.C. The other popular current option in North America is B-

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Cycle. Similar in nature to BIXI, this system has been implemented in Chicago, Denver, Boulder, Des Moines, Louisville and San Antonio.

Funding sources for the programs range from outdoor advertising dollars or user fees to federal grants including Energy Efficiency and Conservation Block Grants and ARRA stimulus money and other public/private partnership options. In both cases, bicycles can be rented with a monthly membership or on an hourly or daily basis and can be returned to any available kiosk location.

Boulder

Boulder started its bike share program on May 2012. After an RFP process, the City selected B-Cycle, a local non-profit, to implement and manage its program. The program launched with 12 stations and is on track to add 8 more by May 2013. According to the Transportation Master Plan progress report, during their inaugural year they had 1,153 members and 5,788 users, logging 17,500 trips and pedaling 52,300 miles.

Montreal



A system of 400 closely spaced stations offering 5,000 bicycles has been implemented in Montreal. Users can purchase monthly, yearly, and daily use passes and the bicycles are available three seasons of the year. The program is city run, rather than using an outside operator, and funded with fees from users rather than advertising. City ownership has allowed for greater coordination with city's bus and subway system. The development and operation of the program is handled by the city's parking authority. Many of the current bike-share programs are managed by non-profits, but Montreal already had the real estate and the infrastructure needed so was able to launch the program itself.

The BIXI system is solar powered meaning that because the base stations do not need any electrical connections, they can be dropped anywhere without any preparatory work and can be easily removed in the fall for the winter season. This ease of use also allows the city to respond to demand patterns.

Minneapolis



Launched June 2010, the phase I of the system included 700 bikes. The first season logged 100,817 trips. Phase II is planned and funded and at build out the system will include 116 docking station with 10 of those on the University of Minnesota campus and 1,200 bikes. *Nice Ride Minnesota* uses the BIXI system and is run by a non-profit. Startup funding of \$3.2 million was provided by a number of sources (\$1 million, Blue Cross, Blue Shield, City of Minneapolis and \$1.6 million from a federal transportation grant). The system experienced 10,000 trips in first month.

Bike availability can be checked real-time via smartphone or online; trucks redistribute bicycles among the kiosks throughout the day. The system runs April to November, with stations being removed during winter.

Note: None of the selected suburban peer cities has a bike share program

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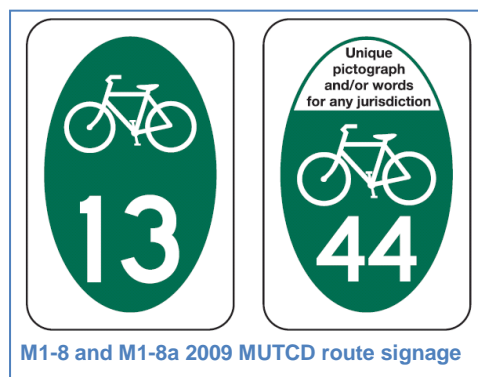
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2c. Wayfinding/Route Signage

While each of the reviewed cities has a route signage program, it is worth noting what the 2009 *MUTCD* says about Bicycle Route signs:

The Bicycle Route (M1-8) sign shall contain a route designation and shall have a green background with a retro reflectorized white legend and border. The Bicycle Route (M1-8a) sign shall contain the same information as the M1-8 sign and in addition shall include a pictograph or words that are associated with the route or with the agency that has jurisdiction over the route.



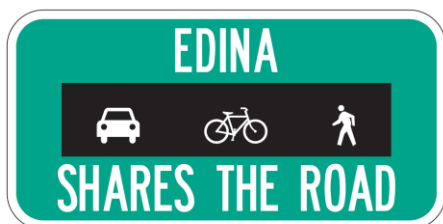
Boulder, CO. Boulder maintains signs to their own local standard that are funded through their Operational Budget. These signs are not *MUTCD* standard, but do integrate directional signage that includes the distance to destinations. Boulder has 43 miles of designated bike routes.

Minneapolis, MN. Wayfinding and Signage Guidelines are in the *Minneapolis Bicycle Facility Design Manual*, Chapter 4 – On-Street Facilities. According to the Manual Bike Route signage should be placed at key decision points along the corridor and should be used on designated bike routes that complete a comprehensive network. This network should consist of a grid of regularly spaced routes such that bicyclists are no further than one quarter mile of any signed route from any point in the city. This program is in the process of being implemented and the *MUTCD* standard signage should be installed 2010-2011.

Madison, WI. In the *Madison Mayor's Platinum Bicycling Committee Adopted Report*, a recommendation was made to convert the current bike route network and signage to a destination-based network. In addition to the Route Signage, Madison has developed map signage for their network. A total of 27 signs were installed at a cost of \$50,000. They estimate new signs to cost about \$2000 and will seek private sponsorship to defray the costs.

Westminster, CO. Westminster's off-street network includes signage. According to City staff the limited on-street network does not need it, but the signage will be used to inform riders about the system and the routes as they are developed.

Edina, MN. The City of Edina uses smaller route signs with arrows on their routes. Where the facilities are federally funded the signage meets *MUTCD* standards. As the routes evolve and the signage recommendations from the plan are implemented, the City intends to develop a wayfinding plan.



Edina's share the road sign



Edina's bike route signage

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Fitchburg, WI. Fitchburg currently has 8 miles of signed routes with more planned. Signs are used to designate the bike routes and off-street paths.

Middleton, WI. Signage is used along the greenway and along the City's designated routes. There is no formal signage plan.

3. BICYCLE SUPPORTIVE CODE LANGUAGE INCLUDING ZONING CHANGES/RECOMMENDATIONS AND END OF TRIP FACILITIES

Boulder, CO

Certain percentages of bicycle parking are required by the Zoning code for new construction and renovated buildings. Public demand for facilities has been historically low, with feedback gathered that fitness clubs fill the need or that the casual nature of the Boulder community creates little need for such facilities. There is currently discussion about adding bicycle parking requirements to the menu of options available as part of their Transportation Demand Management Program. For the Design and Construction Standards, 2-32, see Appendix X.

Minneapolis, MN

As defined in the City's zoning code as it relates to new developments over 500,000 square feet:

549.170. Bicycle facilities in new developments. (a) *In general.* All developments containing five hundred thousand (500,000) square feet or more of new or additional gross floor area shall include secure bicycle parking spaces, shower facilities and clothing storage areas as provided in Table 549-3, Required Bicycle Facilities. Such facilities shall be for the use of the employees and occupants of the building. Where a development includes automobile parking spaces that are monitored or are covered or weather protected, bicycle parking spaces required by this section shall be provided on the same basis. For the purposes of this section, a secure bicycle parking space shall include a bicycle rack that permits the locking of the bicycle frame and one (1) wheel to the rack, and that supports the bicycle in a stable position without damage to wheels, frame or components.

(b) *Exceptions.* This section shall not apply to buildings used primarily as hotels or for retail or residential purposes.

Table 549-3 Required Bicycle Facilities

Minimum Required Facilities	Building Area									
	At 500,000 ft.	Least sq.	At 750,000 ft.	Least sq.	At 1,000,000 ft.	Least sq.	At 1,250,000 ft.	Least sq.	At 1,500,000 ft.	Least sq.
Bicycle Parking Spaces	30		45		60		75		90	
Showers*	4		5		6		7		8	
Full-Size Lockers*	15		22		30		37		45	

*The minimum required shall be distributed between men's and women's facilities.

For the Bike Parking Regulations, zoning code, table 541-3, see summary at the end of this Appendix.

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Madison, WI

All of Madison's Bicycle Parking requirements are detailed in the **City of Madison General Ordinances** (current as of June 15, 1997) 28.11 OFF-STREET PARKING AND LOADING FACILITIES. This ordinance covers the provision of off-street bicycle parking for new developments, expansion of existing developments, and changes in use that would require additional parking.

For expansions or changes in use, bicycle parking is required based only on the extra amount needed by the addition or change in use, not for the entire development. This is similar to the way in which off-street automobile parking requirements work.

For the Bike Parking Regulations, see summary at the end of this Appendix.

Seattle, WA

Including end of trip facilities is an important part of the Zoning Code and was included following the adoption of the recent Bike Master Plan. Showers are required for buildings over 250,000 square feet but are not chargeable as part of the floor area ratio (FAR) of a project so there is no rentable square footage lost. The following is from the Seattle Municipal Zoning Code:

F. Bicycle Commuter Shower Facilities. Structures containing two hundred fifty thousand (250,000) square feet or more of office gross floor area shall include shower facilities and clothing storage areas for bicycle commuters. One (1) shower per gender shall be required for every two hundred fifty thousand (250,000) square feet of office use. Such facilities shall be for the use of the employees and occupants of the building, and shall be located where they are easily accessible to parking facilities for bicycles

Westminster, CO

There is currently no provision in the development code for showers and other end of trip facilities. Bicycle parking is regulated by their Municipal Code, Section 7 Site Development Standards.

Edina, MN

There is a provision for bicycle parking for all new commercial construction. Wayne Houle, City engineer, mentioned that much of their new construction is more sustainable and that the demand exists for buildings that have bicycle parking and showers. He commented that it seemed, more and more, to be a tenant interest that was willingly met by developers.

Fitchburg, WI

There is currently no requirement for end of trip facilities or bicycle parking in the regular building code. To enable development that satisfied some special requirements, the City developed a Smart Code overlay district. This code includes a specific bike module that guides everything from facility design by type of development to parking and building codes. They hope to incorporate more of the Bicycle Mode or Bicycle Smart Code into the next update the bicycle plan.

Middleton, WI

The current zoning code does not require bicycle parking or end of trip facilities such as indoor storage or showers. Middleton does however have both Traditional Neighborhood Development (TND) and Planned Development District (PDD) zones that require neighborhood connectivity and bicycle parking. A recently approved PPD plan includes

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one bicycle parking space for every 10 vehicle parking spaces. Their current zoning code is being revamped to include bicycle parking requirements that more closely match those in the PDD and TND zoning districts.

4. PEDESTRIAN INFRASTRUCTURE

In each of the selected cities, pedestrian infrastructure is acknowledged as an important part of the transportation network but for budgetary reasons (typically) has not been a priority. Many roadways already include sidewalks and gaps, while noteworthy, do not prevent much of the city from being connected. The pedestrian network may not be treated with extra emphasis. Whereas Boulder has raised the bar with its pedestrian environment, many of the cities, because sidewalk coverage is considered sufficient, may choose to address specific areas of need (e.g.: a dangerous crossing) rather than focus on the network. In most cases, the *MUTCD* is the guidance document of choice.

Boulder, CO

Boulder uses a number of documents to address its pedestrian system. From the policies in the *Transportation Master Plan* to the nuts-and bolts guidance of the *Pedestrian Crossing Treatment Installation Guidelines*, Boulder has evolved its pedestrian infrastructure program to truly support the goal of making the city pedestrian friendly.

The City bases its decisions for unprotected or mid-block crossings on their *City of Boulder Pedestrian Crossing Treatment Installation Guidelines*. This document acknowledges the balance that must be maintained between installing crossings and maintaining traffic flow. Typically, the warrant criterion applies to unprotected (e.g.: does not have a traffic control device such as a stop sign or traffic signal) urban, suburban and residential areas with speed limits of 40 mph or less. While acknowledging the *MUTCD* warrant criterion as the basis for this guide, Boulder has also identified and applies a slightly different list of criteria than was developed for the *MUTCD*. For example, the *MUTCD* says that to warrant a crossing 100 pedestrians must cross for each of four hours, less than 60 gaps per hour that are of adequate length must occur and that a roadway with a four foot median should be considered two different pedestrian movements because of the refuge. Boulder, to best meet the City's goals, identified its own walking speeds, and set its threshold at the minimum pedestrian volume of 20 pedestrians per hour, or 18 pedestrians per hour in any two hours or 15 pedestrians per hour in any three hours. It also set the minimum median width as six feet, with a preference for eight feet or even ten feet at multi-use path crossing locations.

This document also details treatments such as marked, signed crosswalks, neckdowns or curb bulb-outs, median/refuge islands that may be used if the pedestrian crossing location does not meet the warrant criterion as well as detailing steps to take to evaluate a pedestrian crossing location.

The city is in the process of updating its *Pedestrian Crossing Treatment Installation Guidelines* to include guidance on the latest crossing treatments. These include:

- Standard crosswalks
- School crosswalks
- Special "State Law – Yield to Pedestrians" signage
- Pedestrian actuated flashing beacons
- Raised crossings on right turn bypass islands
- Pedestrian actuated traffic signals
- Median refuge islands
- Underpasses and grade-separated crossings

Of particular interest in this document may be the *Pedestrian Crossing Evaluation Worksheet* and the *Pedestrian Crossing Treatment Flowchart*, included in summary at the end of this Appendix.

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Minneapolis, MN

The *Minneapolis Pedestrian Master Plan* is one component of the City's transportation action plan, which guides the implementation of the policies in the City's comprehensive plan. Sidewalks cover 95% of city streets, there are over 100 pedestrian/bicycle bridges and there is an eight mile network of skyways downtown. With much of the infrastructure in place, this Plan seeks to address barriers to walking that were addressed during the planning process. These barriers include: conflict points at intersections and busy streets, lack of a comfortable walking environment and maintenance issues.

In conjunction with the *Pedestrian Master Plan*, the City developed best practice guidelines to assist in the implementation of facilities. Chapter 10: Pedestrian Facility Design of the *Access Minneapolis Plan* offers specific guidance on:

- Pedestrian Zone Design
- Street Corners
- Bus Stops
- Street Crossings
- Wayfinding
- Site Planning
- Closures, Safety, and Accessibility in Work Zones

Madison, WI

The 1997 Pedestrian Transportation Plan is the guiding document for the City, which supports the *City of Madison Comprehensive Plan*. This plan describes the vision and goals for the plan and includes guidance for facility design and installation, maintenance and recommended actions.

Unlike Boulder, which developed its own criteria for crossings based on best practices review and federal guidance, Madison relies on the *MUTCD* as its primary guidance document.

Westminster, CO

Westminster relies on the *MUTCD* as its primary guidance document for pedestrian facility design.

Edina, MN

According to Mr. Houle, the *MUTCD* is the primary guidance document for the City of Edina. There were several cases, he noted, where the City has installed different treatments when it was felt to be warranted. He noted an intersection that was not signalized and was known to be particularly has been enhanced by flashing lights and in pavement LED lights. He also noted that the City is now using Duraprint™ stamping at their crosswalks. These stamped crosswalks require less maintenance and therefore cost less and are safer for the road installation crews. He speculated that both treatments make pedestrians safer, but there have been no studies to prove it.

The City does not have a sidewalk master plan and typically funds sidewalk construction using special funds. These funds tend to be easily reallocated, so little funding for sidewalk projects is available.

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Fitchburg, WI

Over 50% of Fitchburg's roadways have sidewalks on either one or both sides of the street. New developments require the installation of sidewalks. Older roadways without sidewalks can have them installed if the property owner petitions to have them installed as a matter of public safety. There has been push back from residents about installing sidewalks so it is no longer a priority unless requested.

Middleton, WI

Middleton relies on the *MUTCD* as its primary guidance document, though the City has been supportive of implementing facilities that have been successful in other communities.

5. BICYCLE AND PEDESTRIAN EDUCATION AND OUTREACH PROGRAMS

Each of the reviewed peer cities has a number of programs that have been recommended or implemented. Some are known throughout the United States, such as the Safe Routes to School program. Others, such as Lighten Up Boulder, have a very local flair. Typically in response to a problem or a goal, these programs can present opportunities to engage the community.

Boulder, CO

Boulder has a number of education and outreach programs that it has developed. The BFC application highlights the range of programs, both formal and informal, that the City of Boulder has developed and implemented.

Unlike the other peer cities reviewed, the City's bicycle and pedestrian programs are managed by Great Options or GO Boulder, a City department that has developed and promoted alternative modes of transportation in the City since 1989. The mission of GO Boulder is to achieve the objective of the Updated Transportation Plan (TMP): Stay the course of no long-term growth in auto traffic. To reach this objective, it was determined that single-occupancy vehicle trips need to be reduced from 44 percent of all trips to 25 percent by 2025, with no more than 20 percent of roadways congested. To that end, the department has developed a Community Transit Network with friendly user amenities, supports the use of public transit and partners with the Regional Transit District, develops, maintains and promotes the bike network and develops long and short range planning to design an integrated multi-modal system.

Some of the programs it is responsible for are:

Boulder's Walk & Bike Month - This program features a month long calendar of events that offers organized rides for different ages and abilities, bike handling skills and maintenance workshops, and a Bike to Work Day Commuter Challenge.

Commuter of the Year Contest - Each spring extraordinary commuters are recognized for their dedication to finding, using and promoting Boulder's transportation options and award winning facilities.

Lighten Up Boulder - An annual campaign stressing the importance of using bike lights. GO Boulder/City of Boulder teams up with the University of Colorado and local merchants to offer discounts on bike light accessories at participating merchants.

Safe Routes to School - The Colorado Safe Routes to Schools program addresses barriers that inhibit students from walking and biking to school.

Great Option Ambassadors - During warm weather months (June-Sept), GO Ambassadors raise public awareness of the importance of sharing the road through safety education and public outreach.

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Every spring the City hires a team of Great Options (GO) Ambassadors that are responsible for educating the public about the many transportation options available to them and the rules and responsibilities associated with using those options. These ambassadors reach thousands of Boulder's residents and visitors from spring to fall by attending local events from the Boulder County farmer's market to local neighborhood meetings. They bring with them useful information and tools that help people move around Boulder safely and courteously. When high profile conflicts occur between roadway users the GO Ambassadors are available to perform on-site diplomacy by reminding motorists, bicyclists and pedestrians of the rules and responsibilities that, when applied, will prevent conflicts. Due to the high profiles of these circumstances, the resulting efforts are often highlighted in the local news allowing messages to reach a broad audience.

Beyond the Paths Bike Tour - This free self-guided tour showcases points of interest and organizations that helped Boulder earn a Platinum designation from the League of American Bicyclists.

Minneapolis, MN

The *Minneapolis Bicycle Master Plan* Chapter 7: Project/Initiative Identification and Prioritization lists the following short and long term education and outreach programs.

Long-Term Initiatives - Below is the list of the top recommended long-term initiatives by category based on the needs analysis. The marked items have been implemented.

Fully fund the **Safe Routes to School Program** for all schools within Minneapolis (Education) **In process**

Complete the **Minneapolis Bicycle and Pedestrian Ambassadors** work plan. (Encouragement) The Bike Walk Ambassadors work throughout Minneapolis, as well as in the 13 adjoining communities. The Bike Walk Ambassador program is an educational and outreach program which encourages people in Minneapolis and the 13 neighboring communities to bike and walk more, and drive less. The program is a community partnership led by the Public Works department, in response to a grant awarded to the City of Minneapolis.

Focus on a **Toward Zero Deaths** campaign that will eliminate bicycle fatalities. (Enforcement) This program had been part of a grant proposal that would have allowed the implementation of a more specific public information campaign to reduce bicycle injuries and fatalities. Minnesota has a Towards Zero Deaths program that focuses on reducing the number of vehicle fatalities. This program was an offshoot of that effort and would have adapted some of the tools that the TZD program has created to reduce bicycle crashes.

Ensure that all parts of the city have **equal access to bicycle facilities** (Equity)

Conduct bicycle counts on a seasonal basis. (Evaluation) Counts have been conducted each September for the last four years running.

Short-Term Initiatives - Below is the list of the top recommended short-term initiatives by category based on the needs analysis

Conduct public safety announcements on following the rules of the road (Education)

Continue bike giveaways (Encouragement)

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Focus on targeted enforcement initiatives that result in everyone following the rules of the road (Enforcement)

Ensure that all buses have a bike rack on them (Equity)

Complete a quality bike map for mass distribution (Evaluation)

Madison, WI

The following encouragement ideas from the Madison Mayor's Platinum Bicycling Committee Adopted have been implemented:

Institute a Sunday Parkways ride once per month.

Sunday Parkways are times set aside on weekends and holidays for traffic-free biking and walking on a network of selected streets. In effect, streets are transformed into trails. Hundreds of thousands of cyclists use Sunday Parkways, a concept similar to events called Ciclovía in Bogotá, Columbia and Via RecreActiva in Guadalajara, Mexico. Sunday Parkways do not impact motorized traffic flow like other special events, since all cross-traffic flows normally. Participants stop at all traffic signals, so that only the closed street is affected. Often on a divided arterial, the Sunday Parkway uses one half of the roadway and motorized traffic uses the other half. Sunday Parkways provide close-to-home recreational opportunities for all ages and all types of active travel. **They had one very successful event last year and two this year.**

Create a Safe Routes to School plan for Madison.

This plan would include education, enforcement, engineering, encouragement, and evaluation for children K-12.

Facilitate an annual meeting of all regional bicycle/pedestrian planners/engineers in Dane County.

In order to assure that all communities and organizations are communicating their plans and programs, as well as sharing best practice information, an annual meeting should be held.

Undertake a scientific survey to determine the level of bicycling in Madison and what the public feels can and should be done to improve bicycling conditions and to increase the number of people bicycling.

In addition to the fact that reliable figures are not available for the number of people bicycling in Madison, the Platinum Committee recognizes that there are issues that they do not have the answers for regarding bicycling. Among these issues is the question of how to get those who do not currently bicycle to bicycle more. The Committee hopes that some innovative solutions will emerge through the recommended mini-grant program, this scientific study, and the individualized marketing program. The City may be able to partner with the university to complete the survey.

Westminster, CO

Programs such as Bike to Work Week were recommended for expansion in Westminster's recent Bicycle Plan but because of funding limitations none have been implemented. The Plan stresses the need to inform the community about facilities and bicycle laws. The Plan also notes the need for the City to be involved regionally to try to integrate bicycling as part of the regional transportation demand management program.

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Edina, MN

The Bike Edina Task Force (BETF) is very active in the community. They are a volunteer group, not officially associated with the City, but they work together very closely and with City support. The BETF successfully completed a Bicycle Rodeo at Highlands Elementary in 2010 and is working with Edina Schools to continue similar events for 2011-12 to increase both bicycling and walking for both staff and students. Other programs include Rides with the Mayor and Bike to Work days. This group was a primary stakeholder in the 2009 bicycle plan and is working with City Engineering to place bicycle racks. They are also coordinating a *Tour to Edina* bicycle ride and are planning a cyclovía this summer.

The City won a STRS grant to develop a Safe Routes to School Plan. As with other communities, walking and bicycling to school is not perceived as a safe activity, so this plan will be developed to help begin to change the culture. Even though there may not be school support for bicycling to school, Mr. Houle mentioned that bicycle racks are in short supply at a number of community schools.

Fitchburg, WI

Fitchburg held its first bicycle rodeo last year and had 76 participants. This year's event is being held in a neighborhood as opposed to downtown with the hopes of growing the program and holding them in different locations around the city. The program manager hopes to expand this effort into the schools as well.

There are no annual events or programs that focus on pedestrians, although there is an Annual Expo held by the City that has in the past focused on transportation and included safety and bicycle maintenance sessions.

Middleton, WI

The police department has held 'kid safety' events over the past few years, including bike helmet giveaways. Schools have not been too interested in taking part. When the middle school was approached about Walk to School day, they cited safety and insurance concerns and declined to take part.

Mr. Optiz commented that local businesses have begun to engage cyclists through discount programs and the local brewery started a bicycle club in which membership has exploded in the past year. This anecdotal evidence supports a growing interest in and support of bicycling in Middleton.

The City also submitted a Bicycle Friendly Community Application and is waiting to hear the League of American Bicyclists' review and rating.

6. MUNICIPAL STAFFING COMMITMENT

The staffing commitment to bicycle and pedestrian planning varies widely depending on the goals of the municipality. In many cases, current bicycle and pedestrian coordinators have been in their positions for years, but as often, the coordinator is an individual with more passion than experience. How Rochester shapes the role will depend on the goals of the City and perhaps the timeframe in which goals are to be achieved. As a result, pay scales vary widely with experience, ranging from \$42,000 to over \$60,000. Bicycle and Pedestrian planners can be Planner I through Senior Staff. In the case of the Minneapolis planner, the role was created by a grant award and is housed in Public Works, in Boulder it is a senior staff position housed in Transportation Planning. Education varies widely but common requirements are a Master's Degree in Urban and Regional Planning and some level of bicycle interest or advocacy. In other cases, the position has a greater policy focus, may answer to the Mayor and the role is more administrative than about implementation or programs.

The level of decision making varies widely, determined by their position in the hierarchy of the municipality. Regardless, the success of the position is frequently determined by relationships with other departments, as the effort

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is collaborative and there are myriad aspects to a bicycle and pedestrian program. While not a Bike Friendly Community requirement, it is generally acknowledged that having a staff person dedicated to bicycle issues is an important component of a successful program. The inspiration for a staff bike coordinator varies also, but typically correlates to an increasing demand for a better pedestrian and bicycle environment.

Day to day tasks may include public meetings, council member and neighborhood updates, the management of projects and consultants, training, education and outreach, collaboration for enforcement, research, report and grant writing, data management, facility planning, updating plans and designing/expanding programs such as bike parking, bike safety outreach, traffic calming and plan review to ensure compliance with City plans and goals for non-motorized transportation and accessibility.

Amongst the suburban peer cities, bicycle and pedestrian planning tends to be handled as part of a job, rather than a dedicated position. In Edina and Westminster, bicycle and pedestrian projects are handled primarily by the City engineering staff. In Edina, the BETF is considered a partner in the effort. In Fitchburg, all transportation related projects (traffic calming to transit to bicycle and pedestrian) are handled by a single part-time position. In Middleton, there are three departments that assist with bicycle and pedestrian projects: Planning, Public Lands and Public Works. Middleton's Assistant City Planner estimates that the work put in by the three departments would average out to that of a full time employee.

7. PRIVATE SECTOR PARTNERSHIPS AND/OR INCENTIVES

Partnerships and incentives play different roles in the reviewed cities. Some cities do not maintain any. Others use the partnerships to add another dimension to their bicycle programs. A common partnership involves bicycle parking, where the City and the business split the cost or the business agrees to maintain the parking that the City has installed. Another common offering are Ride Home programs to mitigate the concern that a bike commuter may not be able to get home in an emergency. More unique are the programs Boulder maintains such as the Employer Transportation Coordinator Program.

Boulder, CO

Private property owners provide bike parking. The City partners with businesses to provide EcoPasses for employees. These passes give riders access to the complete Regional Transportation District system and are offered as a benefit to employees. The City also supports an Employer Transportation Coordinator Program where employees serve as resources for peer transportation guidance. About 200 businesses are part of this program.

Minneapolis, MN

Businesses provide bicycle parking with a City reimbursement of 50% at eligible locations.

Fitchburg, WI, Edina, WI and Westminster, CO

There are no incentive programs.

8. SNOW REMOVAL STRATEGIES

Snow removal is a challenge in most of the cities reviewed and there are varying ways of addressing it. A number of the programs have a dedicated snow removal policy for their off-street systems, treating them much like streets.

Boulder, CO

Formal snow maintenance policies have been in place since 1996. A crew dedicated to clear the off-street trail system (for trails adjacent to City property) is deployed at the same time the road clearing crew is dispatched. The

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bikeway winter maintenance team consists of two trucks and a special plowing machine. It is reported to take about eight hours to clear the entire pathway system. Trails that are on University or County property are the responsibility of that agency. Because the primary route is towards the center of the road bike lanes may get secondary treatment but are still typically cleared within a day or two of a snow event. Wide sidewalks (Boulder designates some of them as multi-use paths) tend to be maintained by the City, though the City's code makes clearing a minimum five foot path the responsibility of the property owner.

Minneapolis, MN

The on-street system gets plowed as the roads do, with no special treatment. Plowing the off-street system is a joint effort of the Public Works department, the City and the Parks and Recreation Board and a formal policy exists to clear the paths within 24 hours of a snowfall.

Madison, WI

In winter months, required parking areas, including bicycle parking areas, shall be cleared of snow within a reasonable time. Areas used for snow storage shall be approved by the zoning administrator.

Fitchburg, WI

Shared use paths are cleared by the Parks and Recreation department. Bike lanes are cleared by the roadway snow clearing crew. There is a few day lag time between the clearing of shared-use paths and the roadways. There is some discussion about giving priority to pathways that do not have duplicate roadway facilities, but this is not yet a policy.

Edina, WI

Parks and Recreation is responsible for paths in parks; public works clears the roadways and any bike lanes. The City typically aims to have them clear by noon on a snow-fall day.

A special assessment district pays for services, including snow removal in the downtown area.

9. STRATEGIES FOR DEALING WITH ON-STREET PARKING WHEN ATTEMPTING TO RETROFIT ROADWAYS

A significant challenge to retrofitting roadways for restriping or road diets is on-street parking. Each of the reviewed cities acknowledged the challenge presented by removing parking. Typically the projects are handled on a case-by-case basis.

Minimum Widths for On-street Parking

Boulder's minimum width for on street parking is 7', with an adjacent 5' bike lane. The ideal is 8' with a 5' adjacent bike lane. The removal of on-street parking is addressed on project by project basis, with an objective analysis of trade-offs done per project.

Minneapolis maintains a minimum 8' for streets with ADT of 40,000 or less and 10' for streets with ADT of 40,000 or greater. Lanes may be 7' with special permission. Most travel lanes are 11' wide, though 10.5' lanes have been successfully implemented. The appropriate amount of on-street parking is handled in each city on a case-by-case basis.

In Minneapolis requirements for on street parking are reviewed under the new Access Minneapolis guidelines.

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In Madison, it depends on the situation. It may be more appropriate in some neighborhoods or areas to reduce parking. In light of the interest in Complete Streets and the lack of room in the right-of-way, off-street common parking areas are something to be considered where there is available room.

In Fitchburg there has not been much issue with on-street parking. In one case, the roadway was reconfigured to remove parking from one side and add bicycle lanes on both sides. The decision was made to remove the parking from the less densely populated side, thereby leaving on-street parking for residents of the adjacent multi-family housing.

In Edina, the minimum on street parking width is 7 feet. The City typically tries to maintain parking on one side of the street. On street projects where they have parking, the City has begun installing bump-outs at the ends of the parking row because they have found cyclists use parking lanes as 2-way lanes. This use of bump-outs has reduced wrong way riding in the bike lanes.

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Resources

Madison

Madison, WI Regional Transportation Plan 2030

<http://madisonareampl.org/planning/documents/BikeTransportation.pdf>

"Bike Boulevard Pilot Program Underway In Madison"

<http://www.channel3000.com/news/24739358/detail.html>

"Making Madison the Best Place in the Country to Ride"

<http://www.cityofmadison.com/trafficEngineering/documents/PlatinumAdopted040808sm.pdf>

Pedestrian Transportation Plan for Madison, WI, Sept 1997

<http://www.cityofmadison.com/trafficEngineering/documents/PedTransPlanExSumry.pdf>

Minneapolis

Minneapolis Freewheel Bike Center

<http://freewheelbike.com/articles/freewheel-midtown-bike-center-pg302.htm>

"Minneapolis to launch bike-share system"

<http://uwire.com/2010/06/09/minneapolis-to-launch-bike-share-system/>

Nice Ride Minnesota

http://www.niceridemn.org/how_it_works/

ACCESS MINNEAPOLIS Ten Year Transportation Action Plan

<http://www.ci.minneapolis.mn.us/public-works/trans-plan/index.asp#TopOfPage>

Street and Sidewalk Design Guidelines

http://www.ci.minneapolis.mn.us/publicworks/transplan/comp/public-works_trans-plan_designguidelines

Montreal

"Montreal Inaugurates Continent's Most Ambitious Bike-Sharing Program"

<http://green.blogs.nytimes.com/2009/05/13/montreal-inaugurates-continents-most-ambitious-bike-sharing-program/>

Montreal Transportation Plan, 2008

http://ville.montreal.qc.ca/pls/portal/docs/PAGE/TRANSPORT_V2_EN/MEDIA/DOCUMENTS/transportation_plan_2008.pdf

Montreal Transportation Plan Brochure

http://ville.montreal.qc.ca/pls/portal/docs/PAGE/TRANSPORT_V2_EN/MEDIA/DOCUMENTS/ptm_brochure_eng.pdf

Montreal Master Plan

http://ville.montreal.qc.ca/portal/page?_pageid=2762,3099643&_dad=portal&_schema=PORTAL

Boulder

2008 City of Boulder Transportation Master Plan

http://www.bouldercolorado.gov/files/Transportation_Master_Plan/2008_BoulderTMP.pdf

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City of Boulder Pedestrian Crossing Treatment Installation Guide (July 2011)

http://www.bouldercolorado.gov/files/Transportation/Projects/Pedestrian%20Crossing%20Treatment/PCTIG_DRAFT_4_29_11.pdf

A Report on Progress: Transportation to Sustain a Community (Feb 2012)

http://www.bouldercolorado.gov/files/Transportation/Transportation_Report_on_Progress_2012.pdf

Westminster, CO

Westminster Bicycle Master Plan

<http://www.ci.westminster.co.us/CityGovernment/CommunityDevelopment/BicycleMasterPlan.aspx>

Edina, MN

Edina Bicycle Master Plan

<http://www.ci.edina.mn.us/citycouncil/BikeTaskforce.htm>

Middleton, WI

Middleton Bicycle Plan

<http://www.ci.middleton.wi.us/City/Transportation/bicycling.htm>

Sustainable City Plan

http://www.ci.middleton.wi.us/City/Sustainability/documents/AdoptedMiddletonsustainability_11-16-2010.pdf

Fitchburg, WI

Fitchburg Bicycle and Pedestrian Plan

<http://www.city.fitchburg.wi.us/departments/cityHall/planning/AdoptedPlansStudies.php>

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Selections for Peer Cities' Codes (Bicycle Parking)

Boulder

2-32 DESIGN AND CONSTRUCTION STANDARDS Effective: November 6, 2009

(E) Bicycle Parking

Bicycle parking should be located in a visible and prominent location that is lit at night and physically separated from automobile parking to prevent vehicles from intruding into the bike parking area. All bicycle parking constructed in the City of Boulder shall conform to the provisions in the Section 9-9-6(g), "Bicycle Parking," B.R.C. 1981 or as adopted in any subcommunity or area improvement plan.

(1) **Bicycle Parking in Public Right-of-Way:** Bicycle parking racks located in the public right-of-way shall be designed using either the inverted "U" standard or the Cora style rack. A minimum aisle of 5 feet shall be provided for bikes to maneuver in when accessing the rack. All racks shall be attached to a concrete base using a high security tamper proof anchor such as a mushroom head carbon steel expansion anchor "spike" #5550 as manufactured by Rawl or an equivalent theft-proof device.

(a) Inverted "U" Rack: The inverted U rack is designed to park two bicycles, facing opposite directions, parallel to the rack. For the rack to meet its design specification of parking two bikes, it must be installed according to the specifications below, otherwise it will be considered to provide parking for one bike. The inverted U standard may be installed with the following conditions:

- (i) Where the U rack is installed oriented parallel to a wall or curb, at least 3.0 feet shall be provided between the parallel wall or curb and the center of the rack. Where a bike rack is located near a curb with "head-in" automobile parking, a minimum distance of 5 feet from the curb to the center of the rack is required to avoid damage to bicycles or racks by automobiles extending across the curb over the sidewalk.
- (ii) Where the U rack is installed oriented perpendicular to a wall or curb, a minimum distance of 4 feet from the wall or curb to the center of the rack will be provided to allow two bikes to access and use the rack.
- (iii) Where placed side-by-side, bike racks shall be placed at least 3.5 feet apart to accommodate ease of access to the racks.
- (iv) Where placed in a series of 2 or more and parallel to a wall, U racks will be separated by a minimum distance of 10 feet between the centers of the racks to allow access to both sides of the rack.
- (v) The location of a bike rack shall maintain a minimum unobstructed sidewalk width of 6 feet from any bicycle parked properly in the bike rack.
- (vi) The location of a bike rack shall maintain a minimum unobstructed distance of 3 feet from any pedestrian curb ramp to any bicycle parked properly in the bike rack.

(b) Cora Style Racks: The Cora style standard is designed to be loaded from both sides without an overlap of the handlebars of the bicycles parked on the two sides. For the rack to meet its design specification of parking bikes from both sides, it must be installed according to the conditions below, otherwise it will be considered to provide half the rated bike parking. The Cora style standard can be installed with the following conditions:

- (i) Where a bike rack is located perpendicular to a curb with "head-in" automobile parking, a minimum distance of 4-feet from the curb to the end of the rack is required to avoid damage to bicycles or racks by automobiles extending across the curb over the sidewalk.
- (ii) A minimum of 10 feet of clear space is required on both sides of a Cora style rack. This provides 5 feet of space for bike parking and a 5-foot access aisle for both sides of the rack. When a series of racks are provided, a common 5-foot access aisle can serve two racks.

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- (iii) The location of a bike rack shall maintain a minimum unobstructed sidewalk width of 6 feet from any bicycle parked properly in the bike rack.
- (iv) The location of a bike rack shall maintain a minimum unobstructed distance of 3 feet from any pedestrian curb ramp to any bicycle parked properly in the bike rack.

(2) **Onsite Bicycle Parking:** Bicycle parking should generally be provided within 50 feet of the main building entrance. Racks must be installed according to the guidelines in (1) above to reach their designed parking capacity. Otherwise, they shall be credited with no more than half their design capacity. Bicycle parking racks or lockers located on development or project sites or in parking lots outside of public right-of-way shall generally be selected from the following standards:

(a) Inverted "U" Rack: The inverted "U" rack is recommended for most bike rack installations, and is one of the standards for bicycle parking in public rights-of-way as required in Subsection (1) above. Each rack provides space for two bicycles, and allows flexibility in parking by providing two supports for attaching locks. The "U" rack may be used individually where space is limited, or in clusters where space is available for concentrated bike parking.

(b) Cora Style Racks: The Cora rack will accommodate more than eight bicycles and is one of the standards for bicycle parking in public rights-of-way as required in Subsection (1) above. The Cora style rack is recommended where space exists for concentrated bike parking, such as in a parking structure or lot.

(c) Other Bike Rack Styles: Another rack style may be approved by the Director of Public Works if it meets the following criteria:

- (i) Provides at least two contact points between the rack and the bike to securely support the bike;
- (ii) Provides at least a 2 foot by 6 foot parking space for each bike without the need to lift the handlebars of one bike over those of another to park;
- (iii) Allows the frame and one wheel to be locked to the rack with a standard high security, U-shaped shackle lock.
- (iv) The rack is uncomplicated and intuitively simple for the bicyclist to use.

(d) Lockers: Bicycle lockers provide secure weatherproof storage for bike parking. Lockers are recommended for employee and longer-term parking and require adequate space, since they require more area than bicycle racks.

City of Minneapolis Code of Ordinances

Chapter 541: Off-street parking and loading

541.180. Bicycle parking. (a) *In general.* Bicycle parking shall be provided for principal uses as specified in Table 541-3, Bicycle Parking Requirements, except as otherwise specified in this zoning ordinance. The numbers specified in the "Notes" column shall have the following meanings:

- (1) The number one (1) shall mean that not less than fifty (50) percent of the required bicycle parking shall meet the standards for short-term bicycle parking.
- (2) The number two (2) shall mean that not less than fifty (50) percent of the required bicycle parking shall meet the standards for long-term bicycle parking.
- (3) The number three (3) shall mean that not less than ninety (90) percent of the required bicycle parking shall meet the standards for long-term bicycle parking.

(b) *Bicycle parking standards.* Each required bicycle parking space must be accessible without moving another bicycle and its placement shall not result in a bicycle obstructing a required walkway. Bicycle racks shall be installed

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to the manufacturer's specifications, including the minimum recommended distance from other structures. In addition:

(1) Required short-term bicycle parking spaces shall be located in a convenient and visible area within fifty (50) feet of a principal entrance and shall permit the locking of the bicycle frame and one (1) wheel to the rack and shall support a bicycle in a stable position without damage to the wheels, frame or components. With the permission of the city engineer, required bicycle parking may be located in the public right-of-way. Public bicycle parking spaces may contribute to compliance with required bicycle parking when located adjacent to the property in question.

(2) Required long-term bicycle parking spaces shall be located in enclosed and secured or supervised areas providing protection from theft, vandalism and weather and shall be accessible to intended users. Required long-term bicycle parking for residential uses shall not be located within dwelling units or within deck or patio areas accessory to dwelling units. With permission of the zoning administrator, long-term bicycle parking spaces for non-residential uses may be located off-site within three hundred (300) feet of the site.

(c) *Downtown districts.* Developments with five hundred thousand (500,000) square feet of new or additional gross floor area in downtown districts shall provide bicycle parking and bicycle facilities as required by Chapter 549, Downtown Districts. All other developments in the downtown districts shall provide one (1) secure bicycle parking space for every twenty (20) automobile spaces provided, but in no case shall fewer than four (4) or more than thirty (30) bicycle parking spaces be required. For the purposes of this section, a secure bicycle parking space shall include a bicycle rack which permits the locking of the bicycle frame and one (1) wheel to the rack, and which supports the bicycle in a stable position without damage to wheels, frame or components. Residential uses in the downtown districts are subject to the requirements of Table 541-3, Bicycle Parking Requirements.

Table 541-3 Bicycle Parking Requirements

Use	Minimum Bicycle Parking Requirement	Notes (see 541.180)
Minimum bicycle parking requirement, in general. Non-residential uses having one thousand (1,000) square feet or less shall be exempt from minimum bicycle parking requirements. Unlisted uses do not have a minimum bicycle parking requirement.		
RESIDENTIAL USES		
Dwellings	Single and two-family dwellings and multiple-family dwellings with three or four units: None Multiple-family dwellings with five or more units: 1 space per 2 dwelling units	3
Congregate living	1 space per 4 beds provided the requirement shall not exceed 8 spaces	3
INSTITUTIONAL AND PUBLIC USES		
Educational Facilities		
Colleges and universities	As approved by C.U.P.	1
School, grades K--12	3 spaces per classroom	1
School, vocational or	1 space per classroom provided the requirement shall not	1

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business	exceed 40	
Social, Cultural, Charitable and Recreational Facilities		
Club or lodge	3 spaces	1
Community center	6 spaces	1
Convention center	1 space per 50,000 sq. ft. of GFA	1
Library	1 space per 5,000 sq. ft. of GFA	1
Museum	3 spaces or 1 space per 10,000 sq. ft. of GFA, whichever is greater	2
Theater, indoor, provided live performances only	3 spaces	2
COMMERCIAL USES		
General retail sales and services	3 spaces or 1 space per 5,000 sq. ft. of GFA, whichever is greater	1
Bank or financial institution	3 spaces	1
Bookstore, new or used	3 spaces	1
Child care center	3 spaces	1
Consignment clothing store	3 spaces	1
Currency exchange	3 spaces	1
Day labor agency	3 spaces	1
Farmer's market	1 space per 2,000 sq. ft. of sales area, except where approved as a temporary use	1
Greenhouse, lawn and garden supply store	3 spaces	1
Grocery store	3 spaces or 1 space per 5,000 sq. ft. of GFA, whichever is greater	1
Performing, visual or martial arts school	3 spaces or 1 space per 1,000 sq. ft. of GFA, whichever is greater	1
Photocopying	3 spaces	1
Secondhand goods store	3 spaces	1
Shopping center	3 spaces or 1 space per 5,000 sq. ft. of GFA, whichever is greater	1
Tattoo and body piercing parlor	3 spaces	1
Tobacco shop	3 spaces	1

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Video store	3 spaces	1
Offices	3 spaces or 1 space per 15,000 sq. ft. of GFA, whichever is greater	2
Coffee shop	3 spaces	1
Liquor store	3 spaces	1
Restaurant, delicatessen	3 spaces	1
Restaurant, fast food	3 spaces	1
Restaurant, sit down	3 spaces	1
Commercial Recreation, Entertainment and Lodging		
Indoor recreation area	3 spaces	1
Outdoor recreation area	3 spaces	1
Regional sports arena	1 space per 20,000 sq. ft. of GFA	1
Sports and health facility	3 spaces or 1 space per 10,000 sq. ft. of GFA, whichever is greater	1
Theater, indoor	3 spaces	2
Medical facilities		
Clinic, medical or dental	3 spaces	1
Hospital	As approved by C.U.P.	2
INDUSTRIAL USES		
General Use Categories		
Light industrial	2 spaces or 1 space per 20,000 sq. ft. of GFA, whichever is greater, excluding GFA devoted to bulk storage of materials	2
Medium industrial	2 spaces or 1 space per 30,000 sq. ft. of GFA, whichever is greater, excluding GFA devoted to bulk storage of materials	2
General industrial	2 spaces or 1 space per 40,000 sq. ft. of GFA, whichever is greater, excluding GFA devoted to bulk storage of materials	2
Limited production and processing	2 spaces or 1 space per 20,000 sq. ft. of GFA, whichever is greater	2
PUBLIC SERVICES AND UTILITIES		
Passenger transit station	As approved by C.U.P.	1
Post office	3 spaces	1

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(2000-Or-041, § 2, 5-19-2000; 2006-Or-086, § 1, 7-21-06; 2007-Or-085, § 1, 10-19-07; 2009-Or-002, §§ 13--15, 1-9-2009)

Madison: Subchapter 28J. General Regulations

(4) Off-Street Parking Requirements, Applicability.

Table 28J-3 establishes the minimum number of parking spaces required, the maximum number of parking spaces permitted, and the minimum number of bicycle spaces required, for the uses indicated. Compliance with this Section is required in the case of any change in use or occupancy.

Parking requirements are determined as follows:

(c) Bicycle space minimum. A minimum number of two (2) bicycle spaces (the equivalent of one two-sided bike rack) is required for nonresidential uses.

(8) Parking Design and Location

Parking for automobiles and other motor vehicles shall be designed according to the requirements of Section 10.08, Madison General Ordinances and the following standards..

(b) Snow removal. In winter months, required parking areas, including bicycle parking areas, shall be cleared of snow within a reasonable time. Areas used for snow storage shall be approved by the zoning administrator.

(11) Bicycle Parking Design and Location.

(a) Parking designation. Bicycle parking requirements are as shown in Table 28J-3 and shall be designated as long-term or short-term parking.

1. For all residential uses, including those in combination with other uses, at least ninety percent (90%) of resident bicycle parking shall be designed as long-term parking. Any guest parking shall be designed as short-term parking.

2. For all other uses, at least fifty percent (50%) of all bicycle parking shall be designed as short-term parking.

(b) Required short-term bicycle parking spaces shall be located in a convenient and visible area within fifty (50) feet of a principal entrance and shall permit the locking of the bicycle frame and one (1) wheel to the rack and shall support a bicycle in a stable position.

(c) Required long-term bicycle parking spaces shall be located in enclosed and secured or supervised areas providing protection from theft, vandalism and weather and shall be accessible to intended users. Required long-term bicycle parking for residential uses shall not be located within dwelling units or within deck or patio areas accessory to dwelling units. With permission of the zoning administrator, long-term bicycle parking spaces for non-residential uses may be located off-site within three hundred (300) feet of the site. No fee shall be charged for long-term resident bicycle parking.

(d) Bicycle parking spaces shall be located on an improved, dust-free surface with a slope no greater than three percent (3%).

(e) Bicycle parking spaces shall be a minimum of two and one-half (2 ½) by six (6) feet in size, with an access aisle a minimum of five (5) feet in width. Each required bicycle parking space must be accessible without moving another bicycle and its placement shall not result in a bicycle obstructing a required walkway. Bicycle racks shall be installed to the manufacturer's specifications, including the minimum recommended distance from other structures.

Westminster, CO Municipal Code:

(E) BICYCLE PARKING.

1. Bicycle Parking Standards.

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- (a) Bicycle parking facilities shall include provisions for storage and locking of bicycles, either in lockers or secure racks or equivalent installation in which the bicycle frame and at least one wheel may be locked by the user.
- (b) The ground surface surrounding and underneath the bicycle storage facility shall be surfaced in a manner which prevents mud or dust.
- (c) Bicycle spaces shall consist of racks or lockers anchored so that they cannot be easily removed. Racks shall be designed that at least one wheel and the frame of a bicycle can be locked securely to it with a heavy chain, cable, or padlock. Lockers shall be so designed to minimize the possibility of an unauthorized person removing a bicycle.
- (d) Fixed objects which are intended to serve as bicycle racks but not obviously intended for such purposes shall be labeled as available for bicycles.
- (e) Bicycle lockers should be harmonious with their environment both in color and design as approved by the City. Parking device designs should be incorporated wherever possible into building design or street furniture. There should be sufficient space between devices so that the use of one does not interfere with the other bicycles or devices. The parking device selected should allow maximum flexibility in grouping and placement.
- (f) The City shall have the authority to review and approve bicycle parking devices for design with respect to safety and convenience.
- (g) Parking for bicycles shall be provided on the same lot, tract or parcel as the use served.
- (h) Bicycle parking areas shall be lighted and located as near to the building or facility entrance as possible, without interfering with pedestrian traffic.

2. Amount of Off street Bicycle Parking Spaces Required. The minimum number of bicycle parking spaces shall be required as follows for all zones except P.U.D.; however, during the development review process, City staff may determine that a greater number of spaces than those listed below are necessary. For P.U.D. zones, the following list shall be used as a guideline:

7/10 11-7-4 (E) 2

11-7-5

- (a) Multiple Family Dwellings: .25 bicycle parking space for each dwelling unit.
- (b) Non Residential Uses: One bicycle parking space per each twenty (20) required automobile parking spaces, with no less than two (2) spaces per premise, with the following exceptions:
 - (1) Private or Commercial Indoor Recreation Facility: One bicycle parking space for each twelve (12) persons capacity.
 - (2) Community Facilities Including Public Parks, Libraries, Recreation or Activity Centers: One bicycle parking space per twelve (12) persons capacity.
 - (3) Drive In Theatres, Auto Service Stations, Automobile Repair and Service: None.
 - (4) Mortuaries: None.

In the 2011 Plan for Westminster, recommendations were made for bicycle parking that differ from the current approach. As noted in the Plan, tying bicycle parking ratios to automobile parking requirements is inappropriate. Bicycle parking and car parking needs vary widely and frequently by use. Therefore the Plan recommends that

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bicycle parking be based on land use/building function and can these ratios can be revisited according to demand (see next page). The recommendations are based on the 2010 APBP Bicycle Parking guidelines.

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Selections from Peer City Codes or Pedestrian Policies

The following policies reflect each community's commitment to providing a safe and comfortable pedestrian environment. In many cases, the pedestrian system is now supported from a variety of perspectives: connecting between transit modes, and supporting healthy or "active living."

Boulder, CO, *Pedestrian System Plan* from the 2008 *Transportation Master Plan*

- Pedestrian travel is involved in every trip and is the basis for all other modes of travel. A high-quality pedestrian system environment will be developed as the foundation for the desired multimodal transportation system.
- The City's standard for pedestrian mobility and accessibility is the ability of a wheelchair user to move safely and conveniently through the transportation system.
- A high-quality pedestrian environment includes the ability to travel safely and conveniently along the street and to have reasonable crossing opportunities; to travel through a comfortable and interesting environment provided by high-quality urban design; and to have appropriate pedestrian amenities such as benches, shade and water fountains.
- In existing residential areas, the City will identify alternative means of meeting defined pedestrian needs. If the need can be met safely within the traveled way of a rural residential street or access lane, then sidewalks may not need to be developed.

Minneapolis, MN

The *Minneapolis Pedestrian Master Plan* is one of six components of *Access Minneapolis*, the City's transportation action plan to implement the transportation policies articulated in the City's long-range comprehensive plan. The plan focuses on 7 goals:

- Goal 1: A Well-Connected Walkway System
- Goal 2: Accessibility for All Pedestrians
- Goal 3: Safe Streets and Crossings
- Goal 4: Pedestrian Environment that Fosters Walking
- Goal 5: A Well-Maintained Pedestrian System
- Goal 6: A Culture of Walking
- Goal 7: Funding, Tools and Leadership for Implementing Pedestrian Improvements

Each goal has associated implementation strategies. For example, *Goal 2: Accessibility for All Pedestrians* notes that pedestrians of all ages and abilities need to be able to travel safely and conveniently on foot or with a mobility device and that in spite of the City's efforts to implement ADA compliant pedestrian facilities, deficiencies remain. The *Implementation Strategies* include identifying and removing accessibility barriers on pedestrian facilities and improving and institutionalizing best design practices for accessibility.

Edina, MN

Edina takes part in the **GreenStep Cities** program which is a statewide sustainability program. This program had 28 best practices, of which six relate to transportation land use and encouraging walking and bicycling.

Madison, WI

The *Pedestrian Transportation Plan* sets recommendations that enable the City to implement the needed infrastructure to help Madison become a great walking city.

REVIEW OF PEER CITIES

A Comprehensive Pedestrian and Bicycle Master Plan for the Town of Brighton, NY



Recommendations include:

- Evaluation of projects in the Transportation Improvement Program for the inclusion of sidewalks.
- Evaluation of sidewalk surface quality and the potential for any other pedestrian improvements that could enhance pedestrian travel in the corridor.
- Review of signal, intersection and bridge projects to evaluate and recommend pedestrian enhancements.

Bike Walk Brighton



Appendix E: Shared-Use Trail Assessments

ERIE CANALWAY TRAIL

MONROE COUNTY



TRAIL SEGMENT 1

FROM THE LEHIGH VALLEY TRAIL TO WEST HENRIETTA ROAD (0.65 MI)

PAVEMENT MATERIAL, WIDTH

ASPHALT, APPROXIMATELY 9 TO 10 FT.

PAVEMENT CONDITION

FAIR TO GOOD

STRIPING

NONE

TRAIL ALIGNMENT/SIGHT DISTANCE

GOOD

AMENITIES

LIGHTING - NONE; SEATING - BENCH & PICNIC TABLE AT KIOSK; SIGNAGE - CANALWAY INTERPRETIVE SIGNS AT LOCK, KIOSK WITH INFO ABOUT DIFF. TRAILS

POINTS OF INTEREST

CANAL LOCK, UNIVERSITY OF ROCHESTER

TRAIL HEAD/ACCESS POINT

ACCESS FROM BOTH ENDS AND KENDRICK ROAD. PARKING AT EITHER END, BUT NONE DESIGNATED FOR TRAIL ACCESS. WAYFINDING FROM WEST SIDE OF KENDRICK ROAD IS CONFUSING.

ROAD CROSSINGS

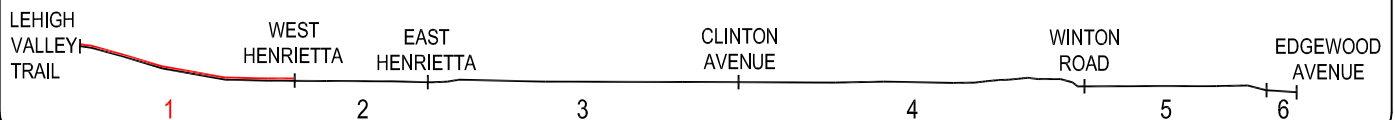
TRAIL - UNDER KENDRICK ROAD OVERPASS, NO AT-GRADE SIGNAL OR PAVEMENT MARKINGS. NO SIGNAGE, EXCEPT ONE SMALL CANAL CORP. WARNING SIGN.

GENERAL COMMENTS

NOT VERY SCENIC, PARALLELS BUSY I-390. BRUSH WAS CLEARED RECENTLY BETWEEN THE CANAL AND TRAIL - FEELS MORE EXPOSED. PAVEMENT CONDITION INFERIOR TO OTHER TRAIL SEGMENTS. PICNIC TABLE NEEDS REPAIR.



0 250 500
GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **A-1**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1" = 500'**

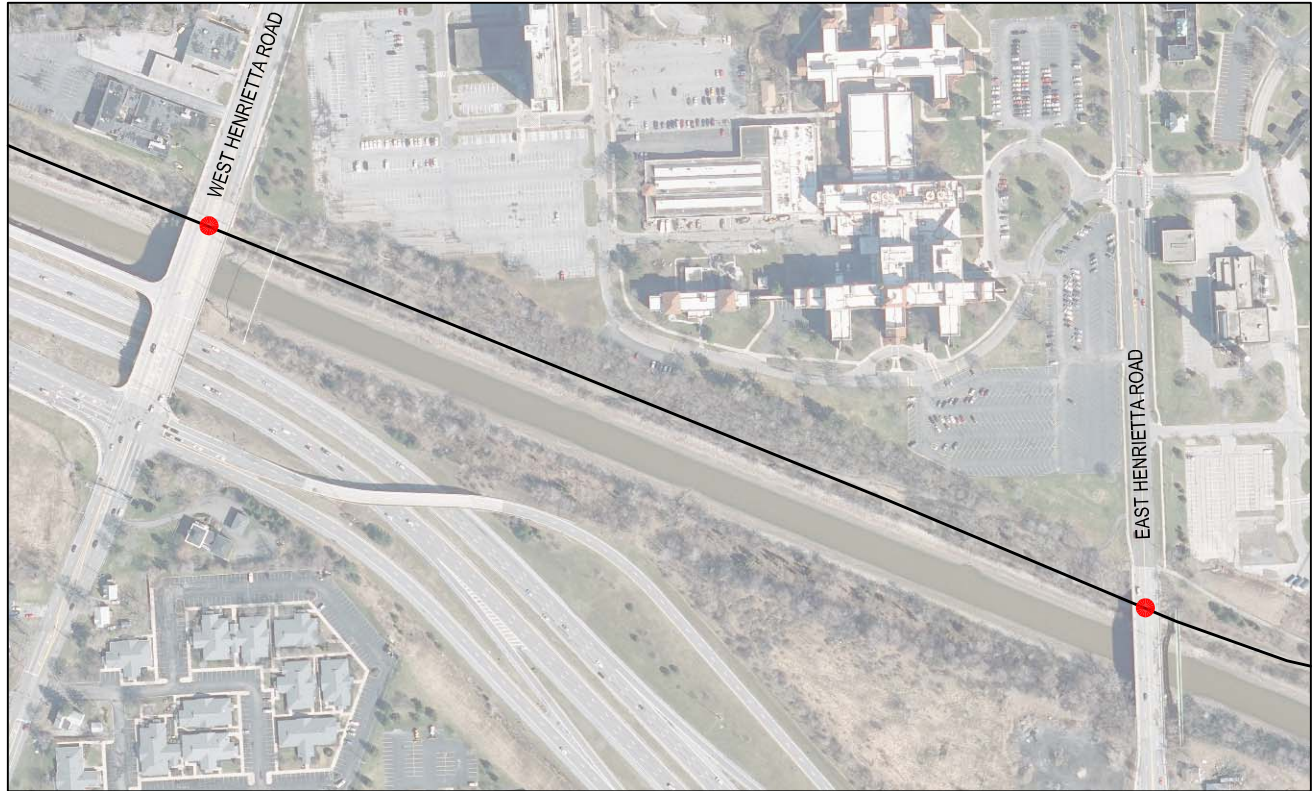
DATE: **02/08/2012**



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ERIE CANALWAY TRAIL

MONROE COUNTY



TRAIL SEGMENT 2

FROM WEST HENRIETTA ROAD TO EAST HENRIETTA ROAD (0.40 MI)

PAVEMENT MATERIAL, WIDTH

ASPHALT, APPROXIMATELY 9 FT.

PAVEMENT CONDITION

FAIR. IN THE VICINITY OF THE EAST HENRIETTA ROAD OVERPASS, THERE ARE PAVEMENT AND DRAINAGE ISSUES.

STRIPING

NONE

TRAIL ALIGNMENT/SIGHT DISTANCE

GOOD

AMENITIES

NONE

POINTS OF INTEREST

COMMERCIAL AREAS

TRAIL HEAD/ACCESS POINT

ACCESS FROM EAST SIDE OF WEST HENRIETTA ROAD, AND FROM BOTH EAST AND WEST SIDES OF EAST HENRIETTA ROAD. NO TRAIL HEADS, NO PARKING. ACCESS FROM EAST HENRIETTA ROAD IS 9' WIDE ON BOTH SIDES.

ROAD CROSSINGS

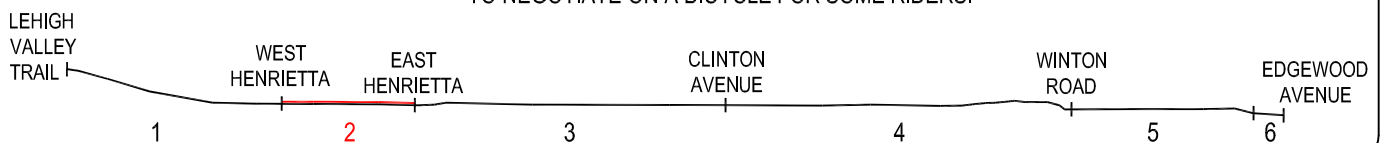
NO AT-GRADE ROAD CROSSING FACILITIES (NO STRIPING, NO SIGNALS) AT EITHER ROAD, TRAIL GOES UNDER EACH ROAD OVERPASS.

GENERAL COMMENTS

NOTICEABLE DEBRIS AND TRASH AT WEST HENRIETTA ROAD ACCESS POINT. ALSO, A VERY TIGHT SWITCHBACK AT THIS ACCESS POINT, WHICH MAY BE HARD TO NEGOTIATE ON A BICYCLE FOR SOME RIDERS.



0 200 400
GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **A-2**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1" = 400'**

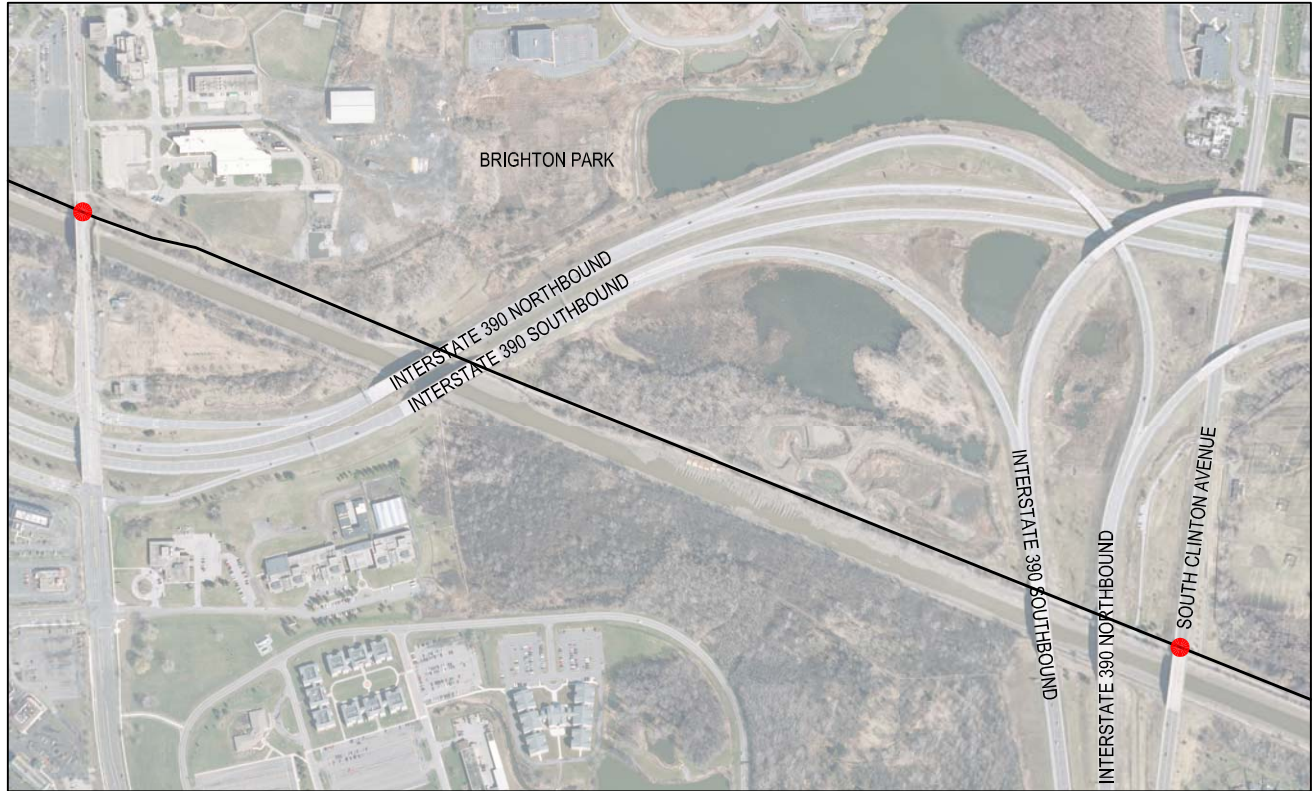
DATE: **02/08/2012**



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ERIE CANALWAY TRAIL

MONROE COUNTY



TRAIL SEGMENT 3

FROM EAST HENRIETTA ROAD TO SOUTH CLINTON AVENUE (0.93 MI)

PAVEMENT MATERIAL, WIDTH

ASPHALT, 9 FT. SWITCHES TO 12 FT. WEST OF BRIGHTON PARK ACCESS

PAVEMENT CONDITION

GOOD

STRIPING

NO STRIPE IN 9 FT. SECTION. YELLOW CENTER STRIPE BEGINS WHEN WIDTH CHANGES TO 12 FT.

TRAIL ALIGNMENT/SIGHT DISTANCE

GOOD

AMENITIES

NONE

POINTS OF INTEREST

BRIGHTON PARK

TRAIL HEAD/ACCESS POINT

ACCESS FROM EAST HENRIETTA ROAD, BRIGHTON PARK, AND CLINTON AVENUE PARKING AT BRIGHTON PARK AND CLINTON AVENUE TRAIL HEAD..

ROAD CROSSINGS

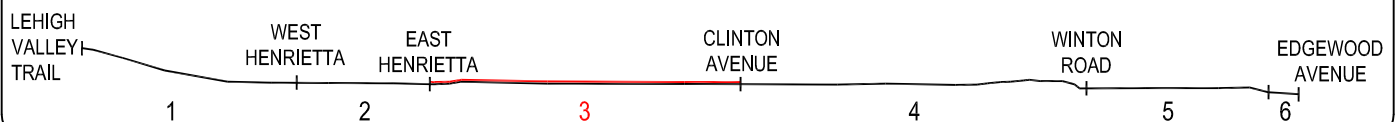
NO AT-GRADE ROAD CROSSING FACILITIES (NO STRIPING, NO SIGNALS) AT ANY OF THE ROADS. THE TRAIL GOES UNDER EACH ROAD OVERPASS.

GENERAL COMMENTS

WAYFINDING AT THE BRIGHTON PARK ACCESS POINT IS NOT CLEAR, AS THERE IS NO SIGNAGE DIRECTING VISITOR FROM THE TRAIL TO THE PARK AND VICE VERSA. THERE IS NOT MUCH SIGNAGE AROUND EAST HENRIETTA ROAD, EXCEPT FOR AN OLD SIGN WITH GRAFFITI.



0 400 800
GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **A-3**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1" = 800'**

DATE: **02/08/2012**



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ERIE CANALWAY TRAIL

MONROE COUNTY



TRAIL SEGMENT 4

FROM SOUTH CLINTON AVENUE TO SOUTH WINTON ROAD (1.04 MI)

PAVEMENT MATERIAL, WIDTH

ASPHALT, APPROXIMATELY 12 FT.

PAVEMENT CONDITION

GOOD. TRANSITIONS FROM ASPHALT TO CRUSHED STONE ON SIDE PATHWAYS CAN BE AWKWARD.

STRIPING

YELLOW CENTER STRIPE

TRAIL ALIGNMENT/SIGHT DISTANCE

GOOD. THE TRAIL HAS A FEW CURVES IN THIS SEGMENT, BUT NOT SO MUCH SO THAT VISIBILITY IS SIGNIFICANTLY IMPAIRED.

AMENITIES

SOME. BOULDER SEATING AT ENTRANCE TO PARK, DOCK, VIEWING PLATFORM.

POINTS OF INTEREST

MERIDIAN CENTRE PARK - PHASES 1 AND 2, ASSOCIATED TRAILS

TRAIL HEAD/ACCESS POINT

ACCESS FROM PARK IN 2 LOCATIONS, BUT PARKING IS NOT IMMEDIATELY ADJACENT. ACCESS FROM BOTH SIDES OF CLINTON; HEAVILY USED PARKING AREA ON WEST SIDE (NO STRIPING), LITTLE SIGNAGE, BROKEN GLASS.

ROAD CROSSINGS

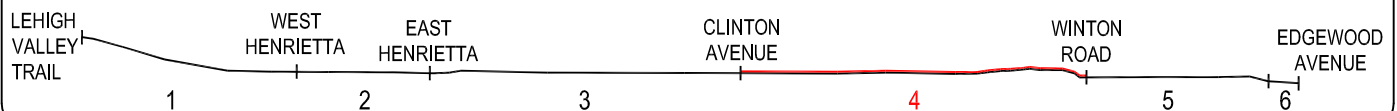
NO AT-GRADE ROAD CROSSING FACILITIES (NO STRIPING, NO SIGNALS) AT EITHER ROAD, TRAIL GOES UNDER EACH ROAD OVERPASS.

GENERAL COMMENTS

SIGNAGE IS LIMITED, GRAFFITI ON SIGNAGE. NOISY BY 390/CLINTON. STREAM BY CLINTON - SHADY/COOL -MIGHT BE GOOD SPOT FOR A BENCH.



0 500 1000
GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **A-4**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1"=1000'**

DATE: **02/08/2012**



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ERIE CANALWAY TRAIL

MONROE COUNTY



TRAIL SEGMENT 5

FROM SOUTH WINTON ROAD TO THE EDGEWOOD ACCESS AREA (0.56 MI)

PAVEMENT MATERIAL, WIDTH

ASPHALT, APPROXIMATELY 12 FT.

PAVEMENT CONDITION

GOOD TO EXCELLENT

STRIPING

YELLOW CENTER STRIPE

TRAIL ALIGNMENT/SIGHT DISTANCE

EXCELLENT. ONE SPOT BY WINTON WHERE CURVES REDUCE SIGHT DISTANCE.

AMENITIES

WEST SIDE OF WINTON ACCESS POINTS - PICNIC TABLES AND BOULDERS.

POINTS OF INTEREST

WINTON ROAD - COMMERCIAL AREA, OFFICE BUILDINGS

TRAIL HEAD/ACCESS POINT

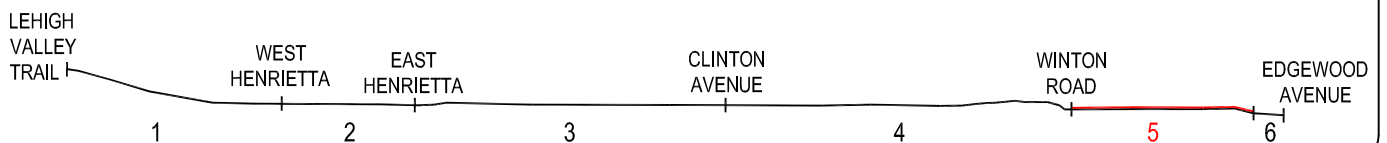
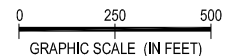
WEST SIDE OF WINTON - SOME SIGNAGE, NO LIGHTS (EXCEPT OVER PARKING FOR OFFICE BLDGS). EAST SIDE OF WINTON/FRENCH ROAD - NO LIGHTS, FEW SIGNS, PARKING FOR 6-10 CARS, ASPHALT POOR.

ROAD CROSSINGS

NO AT-GRADE ROAD CROSSING FACILITIES (NO STRIPING, NO SIGNALS) AT WINTON, TRAIL GOES UNDER ROAD OVERPASS.

GENERAL COMMENTS

ACCESS TRAIL SPUR ON WEST SIDE OF WINTON HAS DRAINAGE ISSUES WHERE THE TRAIL BENDS. NOT CLEAR IF YOU CAN PARK IN THE OFFICE PARKING LOTS TO ACCESS THE TRAIL - NO SIGNS. SIGNAGE IS VERY LIMITED.



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **A-5**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1" = 500'**

DATE: **02/08/2012**



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ERIE CANALWAY TRAIL

MONROE COUNTY



TRAIL SEGMENT 6

EDGEWOOD ACCESS AREA (0.09 MI)

PAVEMENT MATERIAL, WIDTH

ASPHALT, 12 FT. ON TRAIL, 23 FT. IN ACCESS AREA.

PAVEMENT CONDITION

GOOD TO EXCELLENT

STRIPING

YELLOW CENTER STRIPE - TRAIL, WHITE STRIPE - ACCESS

TRAIL ALIGNMENT/SIGHT DISTANCE

POOR IN ACCESS AREA

AMENITIES

PICNIC TABLES, GRILLS, LIGHTING OVER CANAL ONLY, SIGNAGE

POINTS OF INTEREST

LOCKS, JEWISH COMMUNITY CENTER, BOAT ACCESS, PLACES TO TIE UP BOAT

TRAIL HEAD/ACCESS POINT

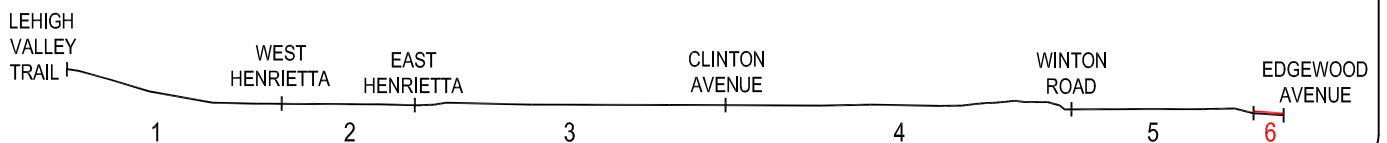
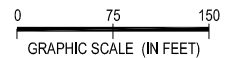
ASPHALT LOT WITH 16 SPACES, NO LIGHTING.

ROAD CROSSINGS

STRIPED, AT-GRADE CROSSING AT EDGEWOOD AVE. ALSO A RAMP AND STEPS UNDER ROAD OVERPASS. VEHICULAR SIGNAGE MAY NOT BE ADEQUATE.

GENERAL COMMENTS

AWKWARD CROSSING AT EDGEWOOD - MUST RIDE THROUGH PARKING AREA TO REACH AT-GRADE CROSSING, OR DISMOUNT AND WALK BICYCLE DOWN STEPS/RAMP TO STAY ON THE TRAIL. ACCESS AREA HAS AN UNSAFE RAMP WHERE A TRAIL USER COULD FALL INTO THE CANAL.



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **A-6**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1" = 150'**

DATE: **02/08/2012**



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LEHIGH VALLEY TRAIL

MONROE COUNTY



TRAIL SEGMENT 1

FROM THE ERIE CANALWAY TRAIL TO EAST RIVER ROAD (0.30 MI)

PAVEMENT MATERIAL, WIDTH

GRAVEL, 12 FT.

PAVEMENT CONDITION

GOOD

STRIPING

NONE

TRAIL ALIGNMENT/SIGHT DISTANCE

GOOD

AMENITIES

NO LIGHTING, SEATING, OR SIGNAGE. BOULDERS MARKING INTERSECTION WITH EAST RIVER ROAD.

POINTS OF INTEREST

ERIE CANALWAY TRAIL (ECT), ERIE CANAL AND LOCK, UNIVERSITY OF ROCHESTER

TRAIL HEAD/ACCESS POINT

PAVED CANALWAY TRAIL PROVIDES ACCESS FROM KENDRICK ROAD AND PARKING LOT THAT EXISTS FOR UNIVERSITY OF ROCHESTER USE ONLY. PARKING AREA LOCATED ON NORTH SIDE OF EAST RIVER ROAD. PARKING AREA AND ACCESS POINT HEADING NORTH - NOT WELL MARKED.

ROAD CROSSINGS

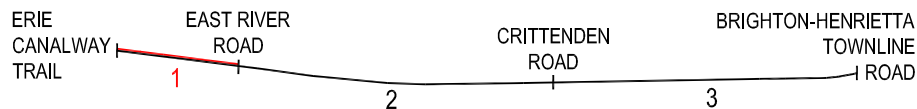
UNSIGNALIZED CROSSING OVER I-390 VIA OVERPASS, NO PAVEMENT MARKINGS OR SIGNAGE. UNSIGNALIZED AT-GRADE ROAD CROSSING AT EAST RIVER ROAD.

GENERAL COMMENTS

FOLLOWS OVERHEAD ELECTRIC/OLD RR CORRIDOR. PARKING AND WAYFINDING SIGNAGE ARE NEEDED. CANAL INFO SIGNS TO EAST ON CANAL TRAIL.



0 250 500
GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **B-1**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1" = 500'**

DATE: **03/12/2012**



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LEHIGH VALLEY TRAIL

MONROE COUNTY



TRAIL SEGMENT 2

FROM EAST RIVER ROAD TO CRITTENDEN ROAD (0.78 MI)

PAVEMENT MATERIAL, WIDTH

STONEDUST, 8 FT.

PAVEMENT CONDITION

GOOD

STRIPING

NONE

TRAIL ALIGNMENT/SIGHT DISTANCE

EXCELLENT

AMENITIES

NO SEATING, LIGHTING OR SIGNAGE. BOULDERS MARKING INTERSECTION WITH CRITTENDEN ROAD.

POINTS OF INTEREST

CONNECTION TO GENESEE VALLEY PARK TO WEST. WETLANDS TO THE EAST

TRAIL HEAD/ACCESS POINT

PARKING AREA SOUTH OF EAST RIVER ROAD AT U OF R ALUMNI CENTER. TRAIL CONNECTION FROM WEST CORNER OF PARKING LOT. BENCH AT SOUTHERN GATEWAY AT EAST RIVER ROAD.

ROAD CROSSINGS

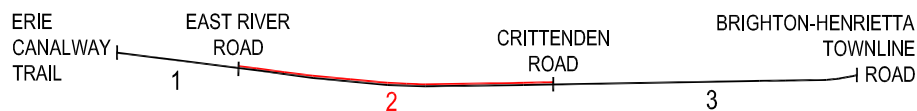
UNSIGNALIZED AT-GRADE ROAD CROSSING AT CRITTENDEN ROAD WITH PAVEMENT MARKINGS AND ACCESS GATES. SOME SIGNAGE PRESENT FOR BOTH TRAIL USERS AND VEHICLES. NO WARNING SIGNS, ONLY SIGNS AT CROSSING.

GENERAL COMMENTS

MISSING STOP SIGN ON NORTH SIDE FOR TRAIL USERS. OVERHEAD WIRES.



0 500 1000
GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

edr JOB NUMBER: **11085**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWING NUMBER: **B-2**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

SCALE: **1"=1000'**

DATE: **03/12/2012**



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LEHIGH VALLEY TRAIL

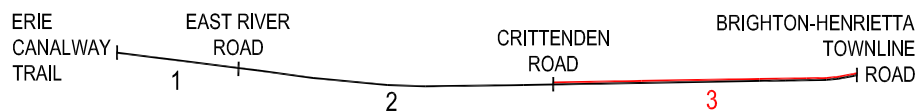
MONROE COUNTY



TRAIL SEGMENT 3	FROM CRITTENDEN RD TO BRIGHTON-HENRIETTA TOWNLINE RD (0.75 MI)
PAVEMENT MATERIAL, WIDTH	STONEDUST, 8 FT.
PAVEMENT CONDITION	GOOD
STRIPING	NONE
TRAIL ALIGNMENT/SIGHT DISTANCE	GOOD
AMENITIES	NO SEATING, LIGHTING OR SIGNAGE. BOULDERS MARKING INTERSECTION WITH CRITTENDEN ROAD.
POINTS OF INTEREST	LYNCH WOODS, COMMERCIAL AREAS, ROCHESTER INSTITUTE OF TECHNOLOGY (RIT), WATER TOWER, SIDE TRAIL SOUTH OF ACCESS ROAD, OLD STEEL RAILS.
TRAIL HEAD/ACCESS POINT	NONE, NEED TRAILHEAD AND AT-GRADE ACCESS AT TOWNLINE ROAD.
ROAD CROSSINGS	UNSIGNALIZED AT-GRADE CROSSING AT PRIVATE UTILITY ACCESS ROAD, NO PAVEMENT MARKINGS. BROKEN ACCESS GATE AT TOWNLINE RD.
GENERAL COMMENTS	TRAIL TERMINATES AT TOWNLINE ROAD. THE SURFACE CHANGES FROM STONEDUST TO CONCRETE SIDEWALK WITH GRANITE CURB. THE TRAIL HEADS WEST TO RIT THROUGH A SIGNALIZED RR CROSSING



0 500 1000
GRAPHIC SCALE (IN FEET)



PROJECT TITLE: **BRIGHTON BICYCLE & PEDESTRIAN MASTER PLAN**

DRAWING TITLE: **TRAIL ASSESSMENT**

DRAWN BY: **EMS**

CHECKED BY: **TMR**

edr JOB NUMBER: **11085**

DRAWING NUMBER: **B-3**

SCALE: **1"=1000'**

DATE: **03/12/2012**



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Bike Walk Brighton



Appendix D: Pedestrian and Bicycle Level of Service Data Sheets

Page 1 of 5

Page 2 of 5

Page 3 of 5

Page 4 of 5

Page 5 of 5

Bike Walk Brighton



Appendix C: Pedestrian and Bicycle Level of Service Models

APPENDIX C: BICYCLE AND PEDESTRIAN LEVEL OF SERVICE MODELS

Bicycle Level of Service Model. The statistically-calibrated mathematical equation entitled the *Bicycle Level of Service¹ Model (Version 2.0)* was used as the foundation of Rochester's existing bicycling conditions evaluation. This *Model* is the most accurate method of evaluating the bicycling conditions of shared roadway environments. It uses the same measurable traffic and roadway factors that transportation planners and engineers use for other travel modes. With statistical precision, the *Model* clearly reflects the effect on bicycling suitability or "compatibility" due to factors such as roadway width, bike lane widths and striping combinations, traffic volume, pavement surface conditions, motor vehicles speed and type, and on-street parking.

The *Bicycle LOS Model* is based on the proven research documented in *Transportation Research Record 1578* published by the Transportation Research Board of the National Academy of Sciences. It was developed with a background of over 100,000 miles of evaluated urban, suburban, and rural roads and streets across North America. It now forms the basis for the bicycle level of service methodology contained in the *Highway Capacity Manual*. Many urbanized area planning agencies and state highway departments are using this established method of evaluating their roadway networks. These include metropolitan areas across North America such as Atlanta GA, Baltimore MD, Birmingham AL, Philadelphia PA, San Antonio TX, Houston TX, Buffalo NY, Anchorage AK, Lexington KY, and Tampa FL as well as state departments of transportation such as, Delaware Department of Transportation (DelDOT), New York State Department of Transportation (NYDOT), Maine Department of Transportation (MeDOT) and others.

¹ Landis, Bruce W. "Real-Time Human Perceptions: Toward a Bicycle Level of Service" *Transportation Research Record 1578*, Transportation Research Board, Washington DC 1997 (see Appendix A).

Widespread application of the original form of the *Bicycle LOS Model* has provided several refinements. Application of the *Bicycle LOS Model* in the metropolitan area of Philadelphia resulted in the final definition of the three effective width cases for evaluating roadways with on-street parking. Application of the *Bicycle LOS Model* in the rural areas surrounding the greater Buffalo region resulted in refinements to the "low traffic volume roadway width adjustment". A 1997 statistical enhancement to the *Model* (during statewide application in Delaware) resulted in better quantification of the effects of high-speed truck traffic [see the $SP_t(1+10.38HV)^2$ term]. As a result, *Version 2.0* (now with FDOT-approved truck volume adjustment factor included) has the highest correlation coefficient ($R^2 = 0.77$) of any form of the *Bicycle LOS Model*.

Version 2.0 of the *Bicycle LOS Model* has been employed to evaluate the roads and streets that comprise the TPO's study network. Its form is shown below:

$$\text{Bicycle LOS} = a_1 \ln (\text{Vol}_{15}/L_n) + a_2 SP_t(1+10.38HV)^2 + a_3 (1/PR_5)^2 + a_4 (W_e)^2 + C$$

Where:

Vol_{15} = Volume of directional traffic in 15 minute time period

$$\text{Vol}_{15} = (\text{ADT} \times D \times K_d) / (4 \times \text{PHF})$$

where:

ADT = Average Daily Traffic on the segment or link

D = Directional Factor

K_d = Peak to Daily Factor

PHF = Peak Hour Factor

L_n = Total number of directional *through* lanes

SP_t = Effective speed limit

$$SP_t = 1.1199 \ln(SP_p - 20) + 0.8103$$

where:

SP_p = Posted speed limit (a surrogate for average running speed)

HV = percentage of heavy vehicles (as defined in the *Highway Capacity Manual*)

PR₅ = FHWA's five point pavement surface condition rating

W_e = Average effective width of outside through lane:

where:

$$W_e = W_v - (10 \text{ ft} \times \% \text{ OSPA})$$

$$\text{and } W_l = 0$$

$$W_e = W_v + W_l (1 - 2 \times \% \text{ OSPA})$$

$$\text{and } W_l > 0 \text{ \& } W_{ps} = 0$$

$$W_e = W_v + W_l - 2 (10 \times \% \text{ OSPA}) \quad \text{and } W_l > 0 \text{ \& } W_{ps} > 0 \text{ and a bikelane exists}$$

where:

W_t = total width of outside lane (and shoulder) pavement

OSPA = percentage of segment with occupied on-street parking

W_l = width of paving between the outside lane stripe and the edge of pavement

W_{ps} = width of pavement striped for on-street parking

W_v = Effective width as a function of traffic volume

and:

$$W_v = W_t \text{ if } ADT > 4,000 \text{ veh/day}$$

$$W_v = W_t (2 - 0.00025 \times ADT) \text{ if}$$

ADT ≤ 4,000 veh/day, and if the street/road is undivided and unstriped

$$a_1: 0.507 \quad a_2: 0.199 \quad a_3: 7.066 \quad a_4: -0.005 \quad C: 0.760$$

(a₁ - a₄) are coefficients established by multi-variate regression analysis.

The *Bicycle LOS* score resulting from the final equation is stratified into service categories A, B, C, D, E, and F (according to the ranges shown in Table D1) to reflect users' perception of the road segment's level of service for bicycle travel.

TABLE D1 Bicycle Level of Service Categories

LEVEL OF SERVICE	BLOS SCORE
A	≤ 1.5
B	> 1.5 and ≤ 2.5
C	> 2.5 and ≤ 3.5
D	> 3.5 and ≤ 4.5
E	> 4.5 and ≤ 5.5
F	> 5.5

This stratification is in accordance with the linear scale established during the referenced research (i.e., the research project bicycle participants' aggregate response to roadway and traffic stimuli).

Data Collection/Inventory Guidelines

Following is the list of data required for computation of the *Bicycle LOS* scores as well as the associated guidelines for their collection and compilation into the programmed database.

Average Daily Traffic (ADT)

ADT is the average daily traffic volume on the segment or link. The programmed database will convert these volumes to Vol_{15} (volume of directional traffic every fifteen minutes) using the Directional Factor (D), Peak to Daily Factor (K_d) and Peak Hour Factor (PHF) for the road segment.

Percent Heavy Vehicles (HV)

Percent HV is the percentage of heavy vehicles (as defined in the *Highway Capacity Manual*).

Number of lanes of traffic (L)

L reflects the total number of *through* traffic lanes of the road segment and its configuration (D = Divided, U = Undivided, OW = One-Way, S = Two-Way Left Turn Lane). The programmed database converts these lanes into directional lanes.

Posted Speed Limit (S_p)

S_p is recorded as posted.

W_t - Total width of pavement

W_t is measured from the center of the road, yellow stripe, or (in the case of a multilane configuration) the lane separation striping to the edge of pavement or to the gutter pan of the curb.

W_l - Width of pavement between the outside lane stripe and the edge of pavement

W_l is measured from the outside lane stripe to the edge of pavement or to the gutter pan of the curb. When there is angled parking adjacent to the outside lane, W_l is measured from the outside lane stripe to the traffic-side end of the parking stall stripes.

Width of pavement is the pavement striped for on-street parking (W_{ps})

W_{ps} is recorded only if there is parking to the right of a striped bike lane (not if the striped parking area is immediately adjacent to the outside lane).

OSPA %

OSPA% is the estimated percentage of the segment (excluding driveways) along which there is occupied on-street parking at the time of survey.

Pavement Condition (PC)

PC is the pavement condition of the motor vehicle travel lane according to the FHWA's five-point pavement surface condition rating shown below in Figure D1.

Designated Bike Lane

A "Y" is coded if there is a signed and marked bike lane on the segment; otherwise "N" is entered.

RATING	PAVEMENT CONDITION
5.0 (Very Good)	Only new or nearly new pavements are likely to be smooth enough and free of cracks and patches to qualify for this category.
4.0 (Good)	Pavement, although not as smooth as described above, gives a first class ride and exhibits signs of surface deterioration
3.0 (Fair)	Riding qualities are noticeably inferior to those above; may be barely tolerable for high-speed traffic. Defects may include rutting, map cracking, and extensive patching.
2.0 (Poor)	Pavements have deteriorated to such an extent that they affect the speed of free-flow traffic. Flexible pavement has distress over 50 percent or more of the surface. Rigid pavement distress includes joint spalling, patching, etc.
1.0 (Very Poor)	Pavements that are in an extremely deteriorated condition. Distress occurs over 75 percent or more of the surface.

Source: U.S. Department of Transportation. Highway Performance Monitoring System-Field Manual. Federal Highway Administration. Washington, DC, 1987.

Figure D1 Pavement Condition Descriptions

The *Pedestrian Level of Service (Pedestrian LOS) Model*¹ will be used for the evaluation of walking conditions. This model is the most accurate method of evaluating the walking conditions within shared roadway environments. It uses the same measurable traffic and roadway factors that transportation planners and engineers use for other travel modes. With statistical precision, the *Model* clearly reflects the effect on walking suitability or “compatibility” due to factors such as roadway width, presence of sidewalks and intervening buffers, barriers within those buffers, traffic volume, motor vehicles speed, and on-street parking. The form of the *Pedestrian Level of Service Model*, and the definition of its terms are as follows:

$$\text{Ped LOS} = -1.2276 \ln (W_{ol} + W_l + f_p \times \%OSP + f_b \times W_b + f_{sw} \times W_s) + 0.0091 (Vol_{15}/L) + 0.0004 SPD^2 + 6.0468$$

Where:

W_{ol} = Width of outside lane (feet)

W_l = Width of shoulder or bike lane (feet)

f_p = On-street parking effect coefficient (=0.20)

%OSP = Percent of segment with on-street parking

f_b = Buffer area barrier coefficient (=5.37 for trees spaced 20 feet on center)

W_b = Buffer width (distance between edge of pavement and sidewalk, feet)

f_{sw} = Sidewalk presence coefficient
 $= 6 - 0.3W_s$

W_s = Width of sidewalk (feet)

Vol_{15} = average traffic during a fifteen (15) minute period

L = total number of (through) lanes (for road or street)

SPD = Average running speed of motor vehicle traffic (mi/hr)

The Pedestrian LOS score resulting from the final equation is pre-stratified into service categories “A, B, C, D, E, and F”, according to the ranges shown below, which reflect users’ perception of the road segments level of service for pedestrian travel. This stratification is in accordance with the linear scale established during the research (i.e., the research project participants’ aggregate response to roadway and traffic stimuli).

¹ Landis, B.W., V.R. Vattikitti, R.M. Ottenberg, D.S. McLeod, M. Guttenplan, Modeling the Roadside Walking Environment: Pedestrian LOS, *Transportation Research Record 1773*, Transportation Research Board, National Research Council, Washington, DC, 2001.

Pedestrian Level-of-Service Categories

LEVEL-OF-SERVICE	Pedestrian LOS Score
A	≤ 1.5
B	> 1.5 and ≤ 2.5
C	> 2.5 and ≤ 3.5
D	> 3.5 and ≤ 4.5
E	> 4.5 and ≤ 5.5
F	> 5.5

The *Pedestrian LOS Model* is used by planners and engineers throughout the United States in a variety of planning and design applications. The *Pedestrian LOS Model* can be used to conduct a benefits comparison among proposed sidewalk/roadway cross-sections, identify roadways that are candidates for reconfiguration for sidewalk improvements, and to prioritize and program roadways for sidewalk improvements.

Additional Data Collection and Inventory Guidelines

Following is the additional list of data used in the computation of the Pedestrian LOS scores (beyond those previously described for the bicycle mode). Also described are the associated guidelines for their collection and compilation into the database.

Width of Buffer (W_b) – is the width of a grass buffer. The width of the buffer is measured from the edge of pavement or back of curb to the beginning edge of the sidewalk. If a sidewalk has trees planted within its surface, then the horizontal width of the sidewalk occupied by the trees is considered the buffer width.

Width of Sidewalk (W_s) – is the width of the sidewalk, measured from either the edge of pavement, if a grass buffer is not present. If a grass buffer is present, the width is measured from the edge of the buffer to the back side of the sidewalk.

Sidewalk Percentage – is the percentage of sidewalk coverage (estimated in increments of 25%) of the segment; this is to be collected directionally

Tree Spacing in Buffer – is the spacing of trees within a buffer, measured from the center (width of spacing between trees). Trees can either be in a grass buffer or in sidewalk islands.

Cross-section – a “C” is recorded if there is a curb and gutter on the segment, an “S” if there is an open shoulder. Note: Indicate any ditches or swales adjacent to the edge of pavement of the segment in the comments field.

Roadside Profile Condition – This data item is collected to assist in determining the lateral area available for bicycle lane or paved shoulder and sidewalk construction. It is the area between the outside edge of the pavement and the right-of-way line. The profile condition assists in determining the type of facility, hence its cost [i.e., bicycle lane or paved shoulder or bike path]. Roadside profiles were classified as one of the three types illustrated below. Condition 1, buildable shoulder, is defined as an area adjoining the edge of pavement with a minimum width of seven feet and a maximum cross-slope of 6%. Condition 2 is a swale. Condition 3 is a ditch or canal. The ARC is to provide total right-of-way width.

Bike Walk Brighton



Appendix B: Active Transportation Survey Results

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Demographics

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- Brighton Residency
- Neighborhood/Area Residency
- Work Location
- Years of Residency in Brighton/Rochester Region
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- Automobiles in Household
- Bicycles in Household

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- Bicycling; How Frequently and Reasons for Usage
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- Walking; How Frequently and Reasons for Usage

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- Walking; Reasons and Rationale
- Walking; Primary Restricting Barriers
- Bicycling; Primary Restricting Barriers
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- Roadway Segments that would Most Benefit from a Bicycle and/or Pedestrian Facility and Type Needed
- Spot Specific Locations that are in Need of Improvement and Type Needed
- Key Destinations that would Benefit from Improved Bicycle and/or Pedestrian Access

Additional Commentary

- Comments Regarding Bicycling and Walking in Brighton

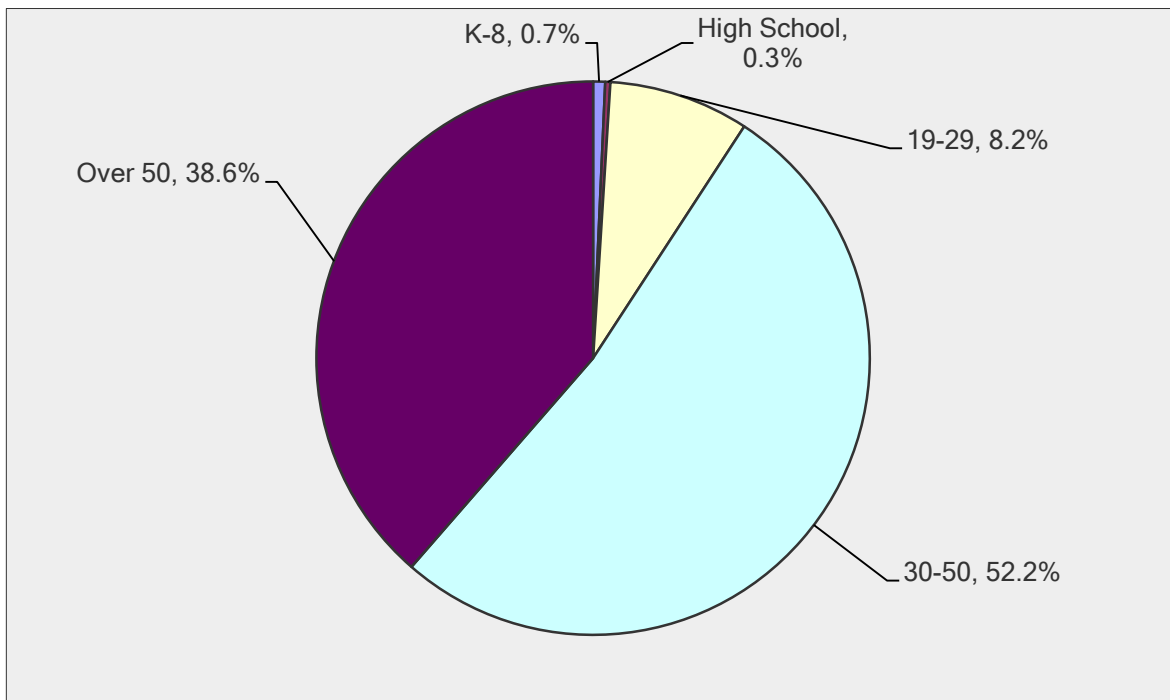
Section One: Demographics

Question One: Age Group

Response Summary

Age Group		
Answer Options	Response Percent	Response Count
K-8	0.7%	2
High School	0.3%	1
19-29	8.2%	24
30-50	52.2%	153
Over 50	38.6%	113
<i>answered question</i>		293
<i>skipped question</i>		8

Participating Age Groups (%)



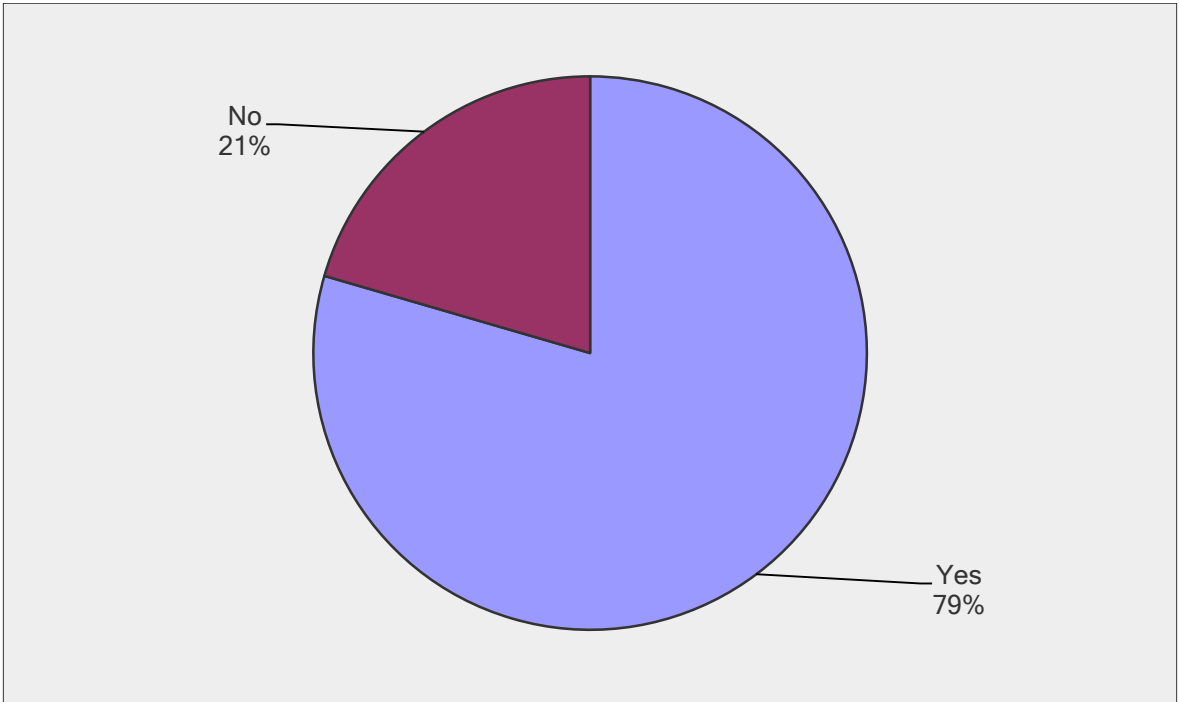
Section One: Demographics

Question Two: Are You a Brighton Resident?

Response Summary

Are you a Brighton resident?		
Answer Options	Response Percent	Response Count
Yes	79.5%	233
No	20.5%	60
answered question		293
skipped question		8

Participating Brighton Residents vs Non-Resident Participants (%)



Section One: Demographics

Question Three: If So, In Which Neighborhood/Area Do You Live?

Response Summary

Answer Options	Response Count
	245
<i>answered question</i>	245
<i>skipped question</i>	56

Neighborhoods/Areas Participants Reside In

(#) = number of respondents for that location

12 Corners (4)	Highland Ave between Clinton and Monroe
12 Corners [Continental Dr.] (2)	Highland Park
12 Corners / Ashbourne	Highland Park area
19th Ward	Highland Winslow Parkwood
Ashley Dr.	Home Acres (9)
Avon, NY	Lac De Ville (3)
Barclay Square	Landing Road North
Bel Air (24)	Mc Farlan Farms
Brighton Meadows	Meadow Drive
Brightwoods Lane (2)	Meadowbrook (10)
Browncroft	Monroe Meadows (8)
Central Brighton	Near Indian Landing School
Chartwell	Near Seton School
Clintwood	Nunda Blvd
Clover (near Harley School)	Park Ave (2)
Clover and Warren	Orchard off Monroe
Clover Street	Pickwick
Clover/Monroe (2)	Pinnacle Hill
Clover/Towpath	Rhinecliff Drive
Cobb Terrace (10)	Rochester - East End
Cobbs Hill	Rochester, South Wedge.
Council Rock (5)	Roseland
Council Rock Estates (4)	Roselawn (24)
Dunrovin off Edgewood	Rowland (4)
Eastbrooke	S. Grosvenor Rd.
Eastbrooke Condominiums	Schilling Ln (2)
Eastbrooke Lane	Schoolhouse Lane
Edgewood Ave (3)	South Wedge
Edgewood/Monroe	Stonybrook Drive
Ellison Park	Struckmar (5)
Ellison Park Heights (2)	Summit Heights (Summit Drive)
Elmwood	Sunnyside Drive
Elmwood Ave, between 12 corners and 590	Town Hall Area
Elmwood – Clinton (5)	University of Rochester
Elmwood Manor	Upper Monroe
Elmwood near UR	Victory Gardens (3)
Elmwood Terrace	Viennawood
Elmwood/590 crossing	Village Lane (2)
Elmwood/Valley Road	Virginia Colony (8)
Evans Farm (15)	Warren Ave/Edgewood
Fairfield Dr.	Webster
Fairhill Drive	West Brighton (5)
Fairport	West Henrietta Road
French Road	Westfall Heights
French Road Elementary School area (2)	Whipple Park / West Brighton (2)
Harvard St.	Whitney Lane
Highland / Winslow / Parkwood	Willowbend (6)
Highland Ave (2)	Wilmot Road

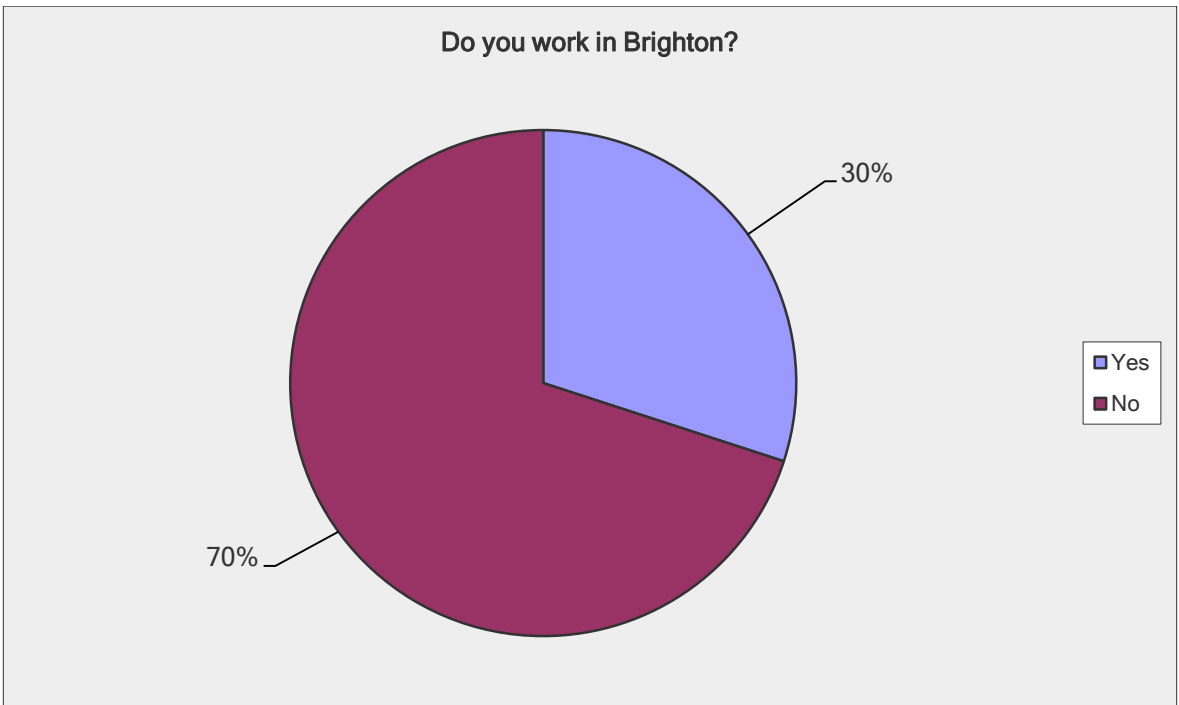
Section One: Demographics

Question Four: Do You Work In Brighton?

Response Summary

Do you work in Brighton?		
Answer Options	Response Percent	Response Count
Yes	30.0%	87
No	70.0%	203
<i>answered question</i>		290
<i>skipped question</i>		11

Participants That Work In Brighton (%)



Section One: Demographics

Question Five: How Many Years Have You Lived In Brighton
(Or The Rochester Region)?

Response Summary

For how many years have you lived in Brighton (or the Rochester region)?	
Answer Options	Response Count
	288
<i>answered question</i>	288
<i>skipped question</i>	13

Time Span (Years) Participants Have Resided In Brighton or the Rochester Region

0 – 5 years	6 – 10 years	11 – 15 years	16 – 20 years	More than 20 years
43	45	38	48	114

Question Six: Number of People That Provided an Email Address for Correspondence

Email address (if you would like to be informed of upcoming plan meetings and other activities):	
Answer Options	Response Count
	157
<i>answered question</i>	157
<i>skipped question</i>	144

Question Seven: Number of Adults That Reside In Your House

Response Summary

Number of adults:	
Answer Options	Response Count
	291
<i>answered question</i>	291
<i>skipped question</i>	10

Number of Adults That Reside at Participant Household

1 Adult	2 Adults	3 Adults	4 or More Adults
41	228	16	6

Section One: Demographics

Question Eight: Number of Children That Reside In Your Household

Response Summary

Number of children:	
Answer Options	Response Count
	277
<i>answered question</i>	277
<i>skipped question</i>	24

0 Children	1 Child	2 Children	3 Children	4 or More Children
106	52	76	32	11

Question Nine: Number of Automobiles Per Household

Response Summary

Number of automobiles:	
Answer Options	Response Count
	292
<i>answered question</i>	292
<i>skipped question</i>	9

Number of Automobiles In Participant Household

0 Automobiles	1 Automobile	2 Automobiles	3 Automobiles	4 Automobiles	5 Automobiles
5	60	195	26	4	2

Question Ten: Number of Bicycles In Your Household

Response Summary

Number of bicycles:	
Answer Options	Response Count
	293
<i>answered question</i>	293
<i>skipped question</i>	8

Ten: Number of Bicycles In Participant Household

0 Bicycles	1 Bicycles	2 Bicycles	3 Bicycles	4 Bicycles	More Than 4 Bicycles
9	40	52	48	67	77

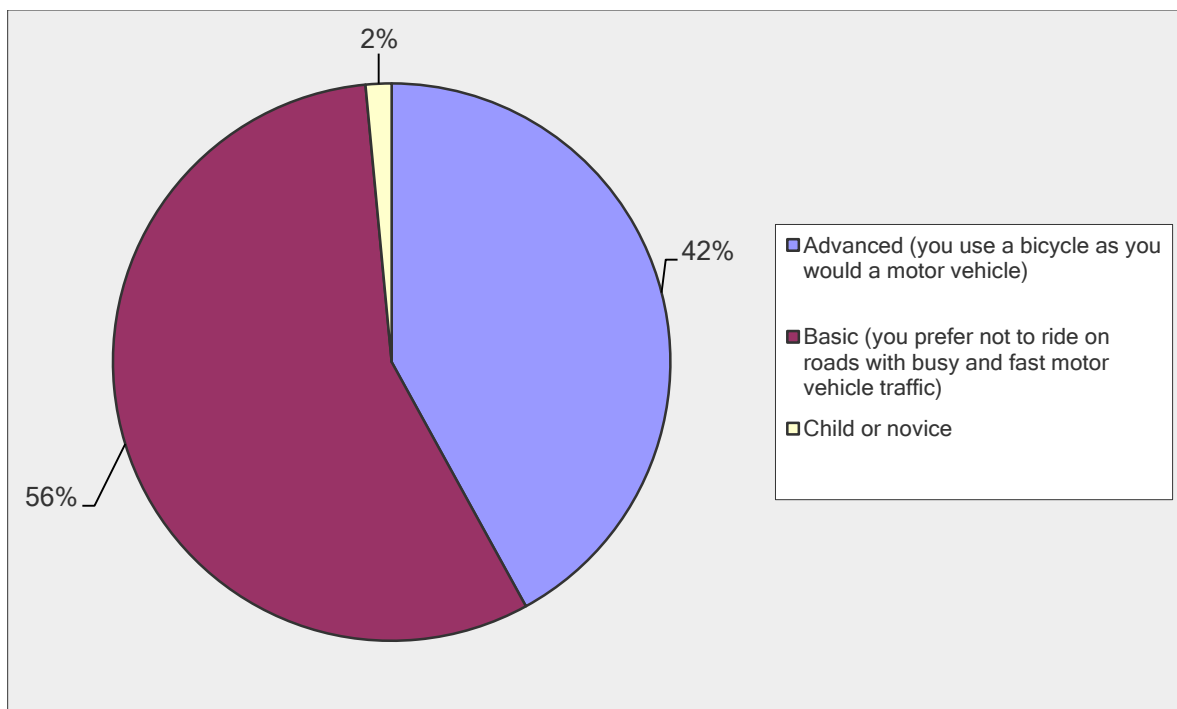
Section Two: Current Bicycling & Walking Habits

Eleven: Indicate Which of the Following Best Describes Your Personal Bicycling Experience

Response Summary

Indicate which of the following best describes your personal bicycling experience level:		
Answer Options	Response Percent	Response Count
Advanced (you use a bicycle as you would a motor vehicle)	42.0%	110
Basic (you prefer not to ride on roads with busy and fast motor vehicle traffic)	56.5%	148
Child or novice	1.5%	4
<i>answered question</i>		262
<i>skipped question</i>		39

Eleven: Participant Bicycling Experience Level (%)



Section Two: Current Bicycling & Walking Habits

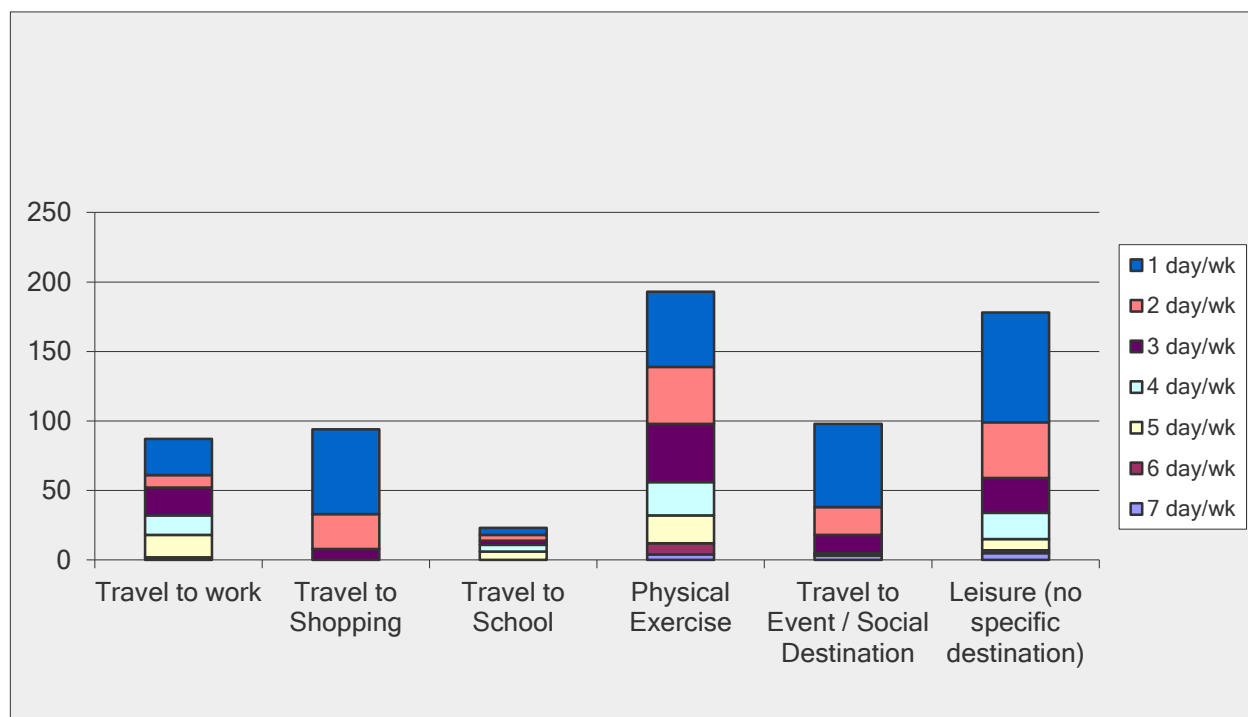
Twelve: How Often And Why Do You Ride A Bike? In A Typical Week In The Past Year, How Often Have You Ridden A Bicycle For Which Of The Following Reasons?

Response Summary

Tell us about how often and why you ride a bike: In a typical week of the past year, how often have you ridden a bicycle for the following reasons? Choose all that apply.

Answer Options	1 day/wk	2 day/wk	3 day/wk	4 day/wk	5 day/wk	6 day/wk	7 day/wk	Response Count
Travel to work	26	9	20	14	16	2	0	87
Travel to Shopping	61	25	8	0	0	0	0	94
Travel to School	5	4	3	5	6	0	0	23
Physical Exercise	54	41	42	24	20	8	4	193
Travel to Event / Social Destination	60	20	13	1	1	0	3	98
Leisure (no specific destination)	79	40	25	19	8	2	5	178
<i>answered question</i>								229
<i>skipped question</i>								72

How Frequently and for What Reason the Participant Bicycles (%)



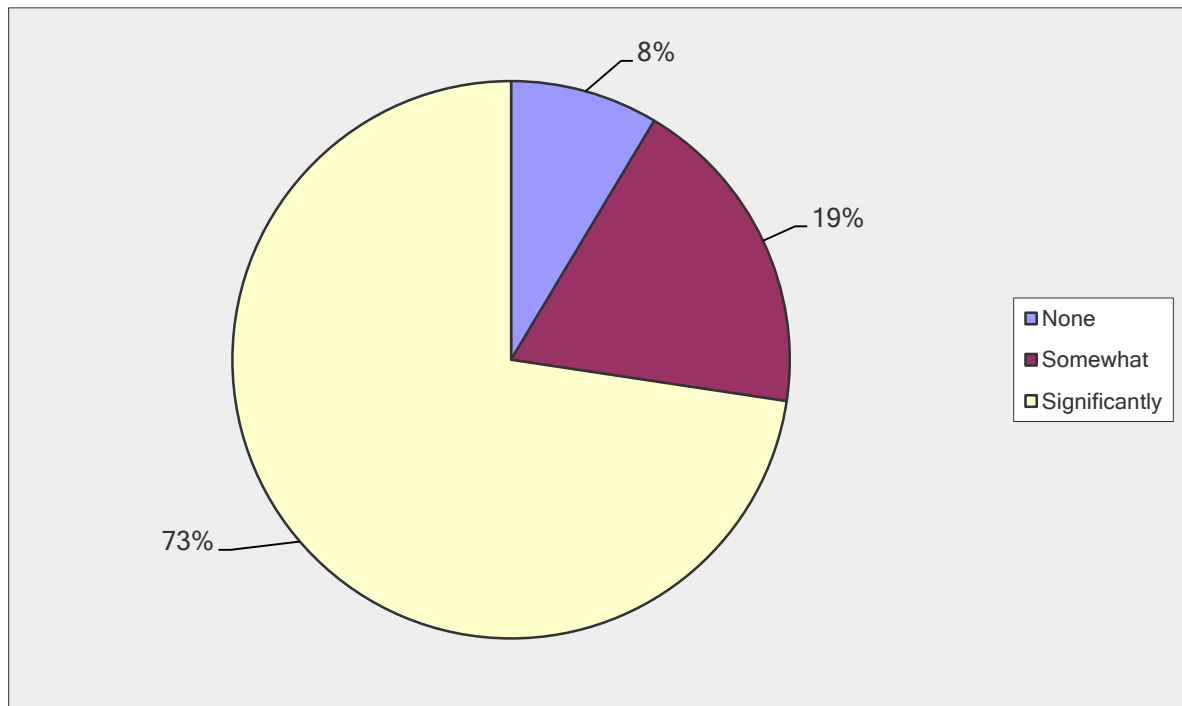
Section Two: Current Bicycling & Walking Habits

Thirteen: To What Degree Does Your Bicycling Activity Vary By Season?

Response Summary

To what degree does your bicycling activity vary by season:		
Answer Options	Response Percent	Response Count
None	8.6%	22
Somewhat	18.8%	48
Significantly	72.7%	186
<i>answered question</i>		256
<i>skipped question</i>		45

Seasonal Variability of Participants Bicycling Activity (%)



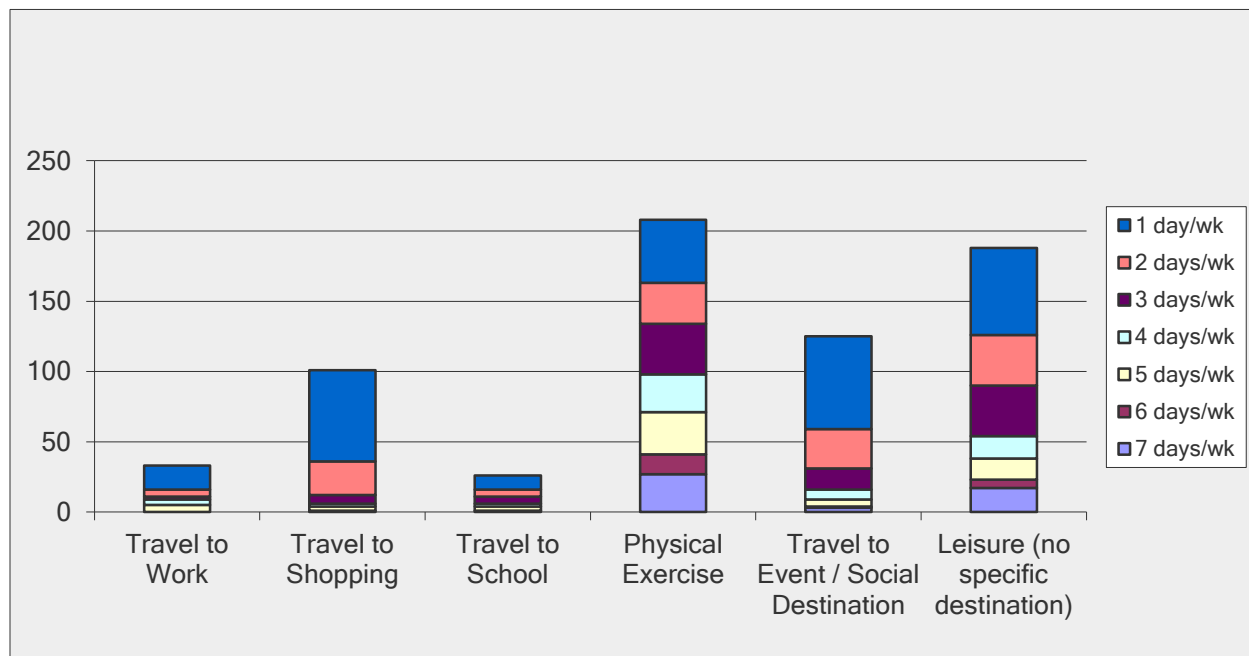
Section Two: Current Bicycling & Walking Habits

Fourteen: How Often And Why Do You Walk? In A Typical Week In The Past Year, How Often Have You Walked And For Which Of The Following Reasons?

Response Summary

Tell us about how often and why you walk: In a typical week of the past year, how often have you walked for the following reasons? Choose all that apply.								
Answer Options	1 day/wk	2 days/wk	3 days/wk	4 days/wk	5 days/wk	6 days/wk	7 days/wk	Response Count
Travel to Work	17	5	2	4	5	0	0	33
Travel to Shopping	65	24	6	2	3	1	0	101
Travel to School	10	5	5	2	3	0	1	26
Physical Exercise	45	29	36	27	30	14	27	208
Travel to Event / Social Destination	66	28	15	7	5	1	3	125
Leisure (no specific destination)	62	36	36	16	15	6	17	188
<i>answered question</i>								254
<i>skipped question</i>								47

How Frequently And For What Reason The Participant Walks (%)



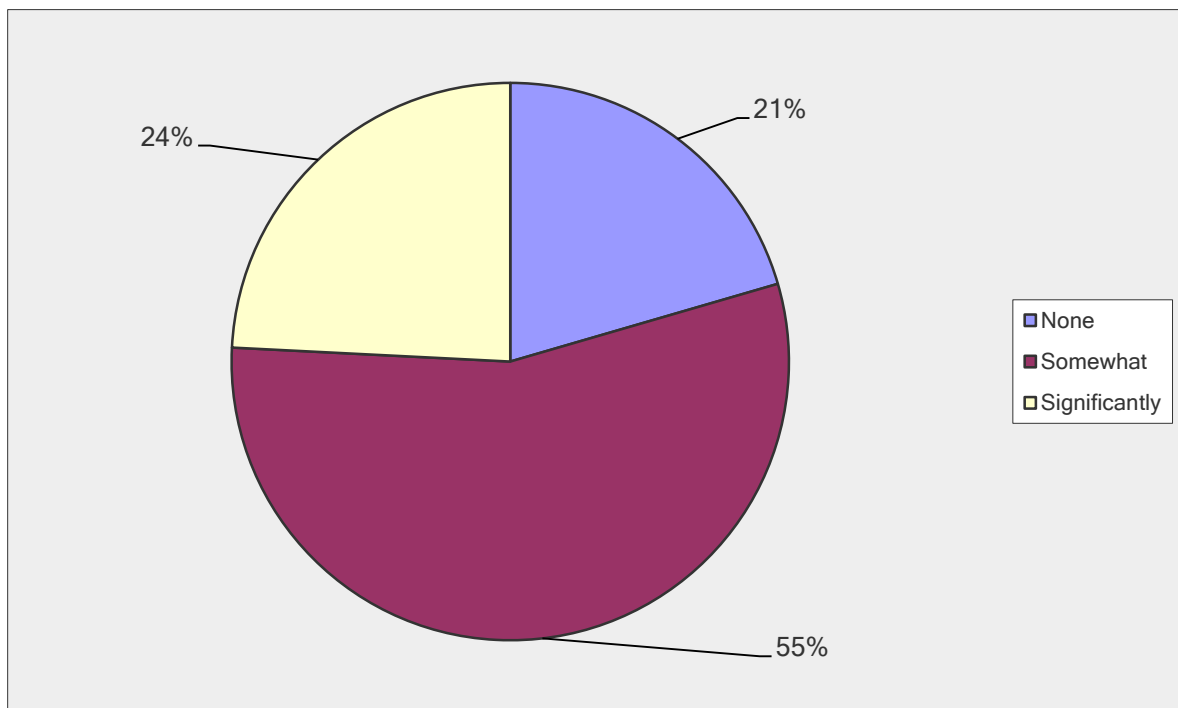
Section Two: Current Bicycling & Walking Habits

Fifteen: To What Degree Does Your Walking Activity Vary By Season?

Response Summary

To what degree does your walking activity vary by season:		
Answer Options	Response Percent	Response Count
None	20.5%	54
Somewhat	55.3%	146
Significantly	24.2%	64
<i>answered question</i>		264
<i>skipped question</i>		37

Seasonal Variability of Participants Walking Activity (%)



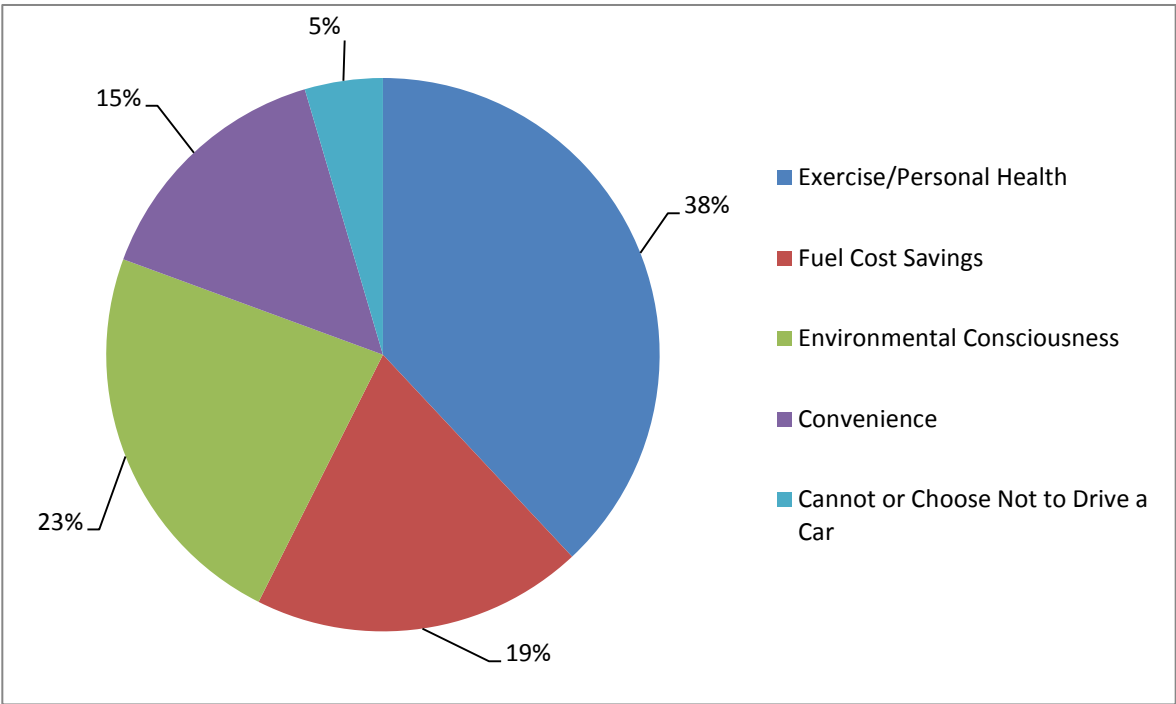
Section Three: Attitudes Toward Bicycling & Walking

Sixteen: For Which Of The Following Reasons Do You Choose To Ride A Bicycle?

Response Summary

For which of the following reasons do you choose to ride a bicycle (choose all that apply):		
Answer Options	Response Percent	Response Count
Exercise/Personal Health	98.4%	241
Fuel Cost Savings	50.2%	123
Environmental Consciousness	60.0%	147
Convenience	38.4%	94
Cannot or Choose Not to Drive a Car	11.8%	29
Other (please specify)		54
<i>answered question</i>		245
<i>skipped question</i>		56

Recorded Reasons To Bicycle (%)



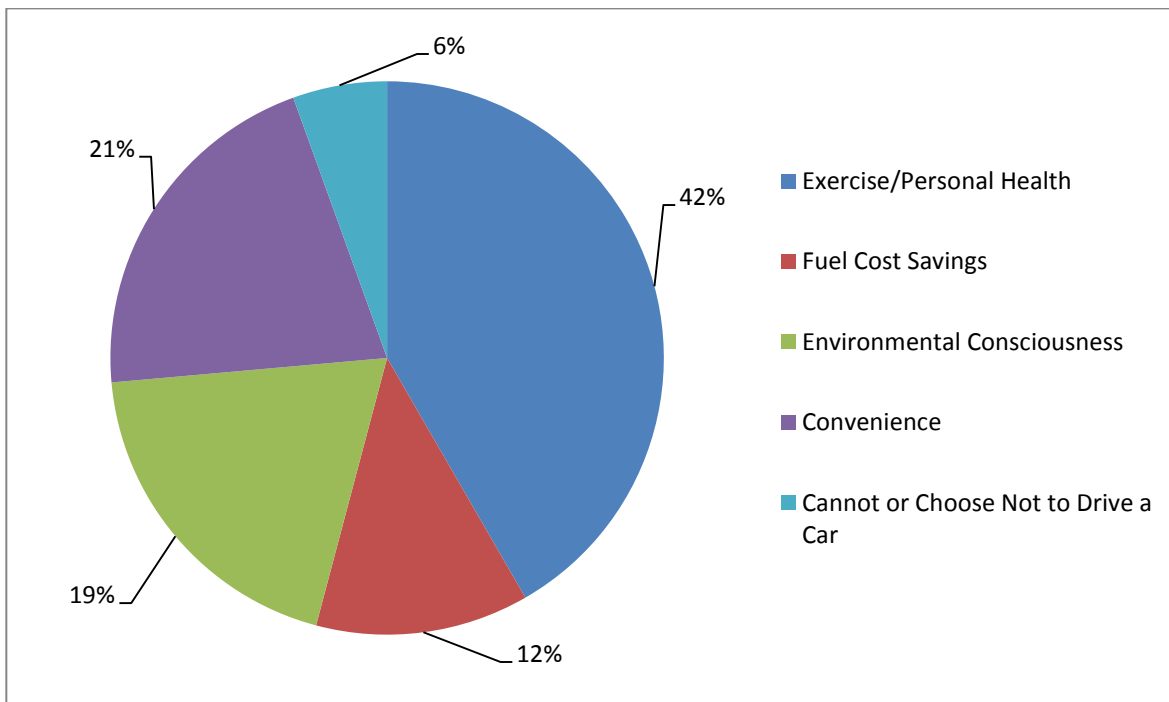
Section Three: Attitudes Toward Bicycling & Walking

Seventeen: For Which Of The Following Reasons Do You Choose To Walk?

Response Summary

For which of the following reasons do you choose to walk (choose all that apply):		
Answer Options	Response Percent	Response Count
Exercise/Personal Health	92.3%	227
Fuel Cost Savings	27.6%	68
Environmental Consciousness	43.1%	106
Convenience	46.3%	114
Cannot or Choose Not to Drive a Car	12.2%	30
Other (please specify)		48
answered question		246
skipped question		55

Recorded Reasons To Walk (%)



Section Three: Attitudes Toward Bicycling & Walking

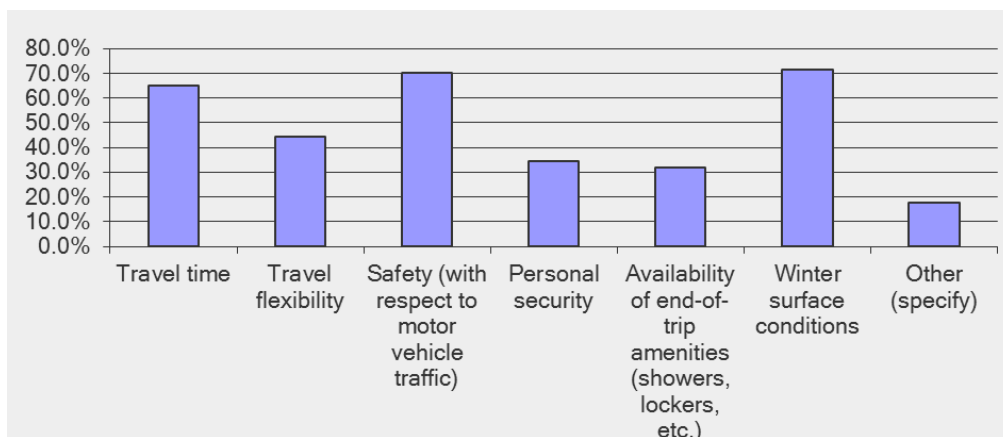
Eighteen: What Do You Consider To Be The Primary Barriers To Walking In Brighton That Keep You From Walking More Often?

Response Summary

What do you consider to be the primary barriers to walking in Brighton that keep you from walking more often (please rank as many as apply, with "1" representing the most significant barrier):

Answer Options	Response Percent	Response Count
Travel time	65.1%	149
Travel flexibility	44.5%	102
Safety (with respect to motor vehicle traffic)	70.3%	161
Personal security	34.5%	79
Availability of end-of-trip amenities (showers, lockers, etc.)	31.9%	73
Winter surface conditions	71.6%	164
Other (specify)	17.5%	40
<i>answered question</i>		229
<i>skipped question</i>		72

Recorded Reasons Not To Walk (%)



Other Reasons

Distance (2)
 Have to carry laptop & other stuff to work
 Lack of conveniently located quality retail & restaurants
 Lack of sidewalks, or existing in poor condition (14)
 Little kids in tow
 Too many cars, not enough greenway.
 Busy roads - not pleasant even with sidewalks.
 Cannot walk everywhere with my 4 kids
 Facilities (esp., @ which to shop) at end of trip
 I run more than walk
 Inadequate number of Xings!
 Laziness

Low density
 Monroe Ave is a popular destination and it's extremely loud and hard to cross (2)
 No "downtown" to stroll through
 No barriers (4)
 No streetlights on secondary streets
 Puddles - poor drainage
 Things so far apart, stores, etc,
 Traffic and poor shoulder/greenery on main streets!!
 No cross-walks
 Very dark in Brighton to walk at night
 Weather

Section Three: Attitudes Toward Bicycling & Walking

Nineteen: What Do You Consider To Be The Primary Barriers To Walking In Brighton That Keep You From Walking More Often?

Response Summary

What do you consider to be the primary barriers to bicycling in Brighton that keep you from bicycling more often (please rank as many as apply, with "1" representing the most significant barrier):

Answer Options	Response Percent	Response Count
Travel time	46.9%	112
Travel flexibility	41.8%	100
Safety (with respect to motor vehicle traffic)	89.1%	213
Personal security	33.9%	81
Availability of end-of-trip amenities (showers, lockers, etc.)	41.8%	100
Winter surface conditions	73.6%	176
Other (specify)	17.2%	41
<i>answered question</i>		239
<i>skipped question</i>		62

Recorded Reasons Not To Bicycle (%)



Section Three: Attitudes Toward Bicycling & Walking

Other Responses

Balance	Night riding too dangerous because of vehicles
Condition of sidewalks	No adequate facilities---shoulders or dedicated lanes---major roads, e.g. Elmwood or Monroe
Crummy roads	No biking routes
Daylight	No dedicated bicycle lanes-car drivers lack of awareness about bikers
Difficulty of getting to shopping destinations on bike	No good east/west route
Distance (2)	None apply. I ride Lehigh Valley Trail - North Branch.
Don't like to ride on roads	Not enough trails
Have to cross major intersections to get anywhere good	Parking my bike (2)
Don't have a bike :-(but want one!	Potholes on shoulders
Lack of bike lanes/crossings	Rough road surfaces/drain grates
Lack of bike racks	Safety safety safety
Lack of shoulders or bike lanes on key roads	Too much stuff to carry (3)
Lack of sidewalks (2)	Weather
Laziness	Would not want to shower at work even if I could - too much
Leaves in fall	STUFF involved
Little kids in tow (4)	Yard waste in spring/summer
Monroe Ave is unsafe	
Need east west path!!	

Section Three: Attitudes Toward Bicycling & Walking

Twenty: The Provision Of Which Facility Types Or Amenities Would Be
Most Likely To Increase Your Current Level Of Bicycling Or Walking Activity

Response Summary

The provision of which facility types or amenities would be most likely to increase your current level of bicycling and/or walking activity (please rank as many as apply, with "1" representing the most desired facility/amenity type):

Answer Options	Response Average	Response Total	Response Count
Signed bicycle routes	3.70	433	117
Bicycle boulevards (low-volume and low-speed streets that have been optimized for bicycle travel through treatments such as traffic calming and traffic reduction, signage and pavement markings, and intersection crossing treatments)	2.25	443	197
Designated (signed and marked) on-street bike lanes	2.49	463	186
Sidewalks	3.05	397	130
Improved sidewalk maintenance	4.05	446	110
Shared use paths (adjacent to road)	3.13	517	165
Shared use paths (not adjacent to road)	3.01	506	168
Pedestrian signals and crosswalks at intersections	4.40	458	104
Availability of secure, weather-protected bicycle parking	4.89	489	100
Availability of end-of-trip amenities (showers, lockers, etc.)	6.31	454	72
Availability of a bike share program	8.02	425	53
Other (specify)	4.00	48	12
<i>answered question</i>			255
<i>skipped question</i>			46

Section Four: Key Areas Of Needed Improvement

Twenty One: List Roadway Segments Within The Town Of Brighton That You Feel Would Most Benefit From A Bicycle Or Pedestrian Facility (Sidewalk, Bike Lane, Or Shared Use Path) And Indicate The Needed Facility Type

Response Summary

The answers to this question were varied and not precise so we selected the road sections that were most frequently mentioned.

List Roadway Segments Within The Town Of Brighton That You Feel Would Most Benefit From A Bicycle Or Pedestrian Facility (Sidewalk, Bike Lane, Or Shared Use Path) And Indicate The Needed Facility Type

Roadway Segments (A full list of comments is available upon request.)

Elmwood Ave from Route 590 to South Clinton Ave.
Monroe Ave. from Highland Ave. to Westfall Road
Westfall Rd. from Monroe Ave. to South Clinton Ave
Winton Rd. from Highland Ave to Brighton Henrietta Town Line Rd.
Clover St. from East Ave to Monroe Ave.
Twelve Corners, out to the nearest intersection.
South Clinton Ave. from Highland Ave
West Henrietta Rd.

answered question

200

skipped question

101

Section Four: Key Areas Of Needed Improvement

Twenty Two: Please List Locations Where A Spot-Specific Improvement (Intersection Improvement, Mid-Block Crossing, Maintenance Issue, Hazard) Is Needed To Improve Bicycling Or Walking Conditions And Specify The Needed Improvement Type

Response Summary

Please list up to five specific locations where a spot-specific improvement (intersection improvement, mid-block crossing, maintenance issue, hazard, etc.) is needed to improve bicycling and/or walking conditions and specify the needed improvement type.

139 respondents provided 473 locations. Many of these locations were similar as well as were the need for improvements. A sampling is provided below. (A full list of comments is available upon request.)

<i>answered question</i>	139
<i>skipped question</i>	162

The Following Are Samples Of The Responses And Suggestions Collected From Participants

Locations:

As with most of the survey, Twelve Corners is mentioned several times for both positive and negative reasons. The main roads, Highland Ave., Winton Rd., Monroe Ave. Clover St., Elmwood Ave. and Westfall Rd are also mentioned frequently. Several side streets were also mentioned in this section. This is most likely related to where the respondents live or work and their familiarity with the road conditions.

Hazards / Improvements:

The list of **hazards** includes, but is not limited to: lack of (or poor) sidewalk conditions, poor road conditions, specifically potholes, raised drainage grates, missing crosswalks, poorly designed intersections, lack of bike lanes, and lack of signage or signals.

The list of **improvements** includes, but is not limited to: better paving and road marking, bike lanes, increased signage and signals, and better road and curb design.

It is interesting to **note** that comments included bicycle improvements but also pedestrian improvements, as well as comments regarding the use of strollers and wheelchairs. Also comments were made regarding people walking with their children, and children playing near and needing to cross certain roads.

Section Four: Key Areas Of Needed Improvement

Twenty Three: Please List Key Destinations (Schools, Parks, Shopping Areas, Transit, Other) Within The Town Of Brighton That Would Benefit From Improved Bicycle Or Pedestrian Access

Response Summary

Please list up to five key destinations (schools, parks, shopping areas, transit, other) within the Town of Brighton that would benefit from improved bicycle and/or pedestrian access.		
More than half of the participants responded and at least half provided more than one destination. (A full list of comments is available upon request.)	Response Percent	Response Count
1.	100.0%	168
2.	78.6%	132
3.	54.8%	92
4.	34.5%	58
5.	17.9%	30
answered question		168
skipped question		133

Destinations:

The majority of destinations listed were educational institutions (Brighton H.S, MCC), parks (Buckland Park, Meridian Park), and shopping (Wegmans, CVS, Twelve Corners). Interestingly, also mentioned were trails, such as Corbett's Glen, the Erie Canalway Trail, and the Auburn Trail.

Section Four: Key Areas Of Needed Improvement

Twenty Four: Please Use The Space Below To Provide Any Other Comments You May Have Regarding Bicycling And Walking In Brighton

Response Summary

Please use the space below to provide any other comments you may have regarding bicycling and walking in Brighton.	
Less than half of the participants offered additional comments. (A full list of comments is available upon request.)	Response Count
	134
<i>answered question</i>	134
<i>skipped question</i>	167

The Following is a Summary of The Responses And Suggestions Collected From Participants

The majority of comments are positive and residents are looking forward to improvements in travel and safety in the Town of Brighton.

Bike Walk Brighton



Appendix A: Public Input Summary

Open House March 29, 2012

Display Station Comments

BENEFITS OF ACTIVE TRANSPORTATION

1. Greater sense of community
2. Money
3. It's fun to ride into school with the kids
4. Love sightseeing in the neighborhood to see what is happening, etc.

INVENTORY OF EXISTING CONDITIONS

- BHTL Rd / S. Clinton Ave. = limited or no crosswalk. Difficult for bicyclists to turn.
- Highland Ave. road conditions from S. Clinton Ave. to Monroe Ave.
- E. Henrietta Rd. at Rt. 390
- Monroe Ave. anywhere – 30 year old pot holes near Highland Ave. – infrastructure must be very poor.
- S. Clinton Ave. and Westfall Rd.
- Edgewood Ave. at Westfall Rd. – no sidewalks, narrow or no shoulders.
- Unlawful use of Lynch Woods Park. Bow Hunting, ATVs
- Highland Ave. sidewalk ends at David Ave., 3 houses short of connecting to the City sidewalk on Highland Ave.
- Better interface with City and neighboring town sidewalks.
- Bike / Pedestrian access with Buckland Park Entrance.
- Lynch Woods Park is being overrun by motor bikes, ATVs, and hunters. Protect parkland until it can be developed into active recreation, Hiking, Biking, Skiing, Nature Preserve

Comments / Ideas:

- ✓ Bike lockers near or part of bike rack.
- ✓ Bike showers.
- ✓ Like to see improvements to BHTL Rd. to get to MCC safely.
- ✓ Please focus monies on the stretch of Monroe Ave. between TCMS and 590 interchange. We need a bike lane.
- ✓ Browncroft Blvd. at Shaftsbury Rd is dangerous for bikers/pedestrians. Address Clover St. CSX crossing. It is a muddy trail now. Traffic calming at E. River Rd. Work with County DOT.
- ✓ Need to have a connecting bridge over 590 between Buckland Park and Meridian Center. Also need a dedicated bike path from Buckland to Town Hall/Library.
- ✓ Priority destinations.

ACTIVE TRANSPORTATION TOOL BOX

- Concerned about access at the new Diverging Diamond
- Buffer strip between curb and sidewalk prevents car splash on pedestrians
- We would like to convert Rt. 96 to sharrows (much like on East Av. in the City) Rt. 96 is too narrow for 4 lanes of traffic.
- Maintenance of neighborhood linkages.

Open House March 29, 2012

Interactive Map Comments

- Connections to area colleges
- Southside Elmwood Multi-Use Trail
- FLHH Advocacy
- Public Awareness Campaign
- Connections to Canal Trail
- Legal trails to connect with Tryon Trails
- Public education! Critical to inform motorists
- Difficult crossing = Browncroft Rd and Shaftsbury Rd.
- Better connection needed at Clover St. and Pehnurst Rd. by the RR tracks.
- Lack of speed reduction, no transition on Browncroft near Landing Rd. N.
- Railroad underpass on Penfield Rd. Poor lighting, narrow, wet.
- Evan's Farm, High School & Middle School walking route.
- Clover St., no bike lanes.
- No breakdown lane on Allen's Creek Rd. or Edgewood Ave.
- Poor pavement conditions at Allen's Creek Rd. and Winton Rd.
- From Lock 62 to Pittsford Plaza, neither of the two options is that great.
- Raised crossing at Canalway Trail and Edgewood Ave.
- Better marking for pedestrian and bike crossing. Flash red or yellow. Push button.
- Allen's Creek Rd., no sidewalk near the Edgewood intersection.
- Sewer grates are an issue on Monroe Ave. at Monroe Pkwy.
- Extend connection between sections of Meadow Dr. at Sunset Dr.
- Extend connection between S. Grosvenor Rd and Babcock Dr.
- Develop the RR bed in the 590, Village Ln., Hillside Ave. area.
- Highland Ave in Brighton is good for cycling.
- Connect Templeton Rd to Ashbourne Rd.
- Winton Rd. near Brighton HS, shoulder width is narrow.
- Westfall Rd. at Evans La., kids cross here.
- Highland Ave. between Monroe Ave. and S. Clinton Ave. needs shoulder on the road.
- Highland Ave. between Monroe Ave. and S. Clinton Ave., vehicles drive too fast in this area.
- Highland Ave. between Monroe Ave. and S. Clinton Ave., too narrow and pot holes are an issue.
- Highland Ave. at David Ave., connect to City Sidewalk.
- Persimmons Park should be wheel chair accessible.
- Connect Ashley Dr. and Brandywine La.
- Lac deVille Blvd. between Elmwood Ave. and Westfall Rd. is dangerous.
- Sidewalk needed on both sides of Elmwood Ave.
- Street lights needed on Westfall Rd.
- Devote lanes to pedestrians and cyclists in Buckland Park.
- Need a pedestrian connection between Brighton Town Park and Buckland Park.
- Bike lanes needed on the canal bridge on Winton Rd.
- No walk access to Brighton Town Park.
- No pedestrian access to Buckland Park.

Open House March 29, 2012

Interactive Map Comments

- Trail from MCC to Canal Trail (north of canal) under I390 bridges along south side of canal (owned by Canal Corp) and across bridge at Rt. 15A.
- MCC needs to be accessible from all approaches.
- BHTL Rd. should have a bike path. Too much traffic for sharrows or calming.
- Lynch Woods Park, develop for hiking, biking and skiing.
- Update crossing light at Crittenden Rd. and West Henrietta Rd.
- Need sidewalk on West Henrietta Rd. between Crittenden Rd. and the City.
- Need sidewalk on Crittenden Rd. east of West Henrietta Rd.
- Leverage abandoned RR bridge.
- Better linkage with the U of R and planning for State I390 project.

Open House March 29, 2012

Interactive Map "Red Dot" Problem Locations

Problem Areas

- Browncroft and 590
- Browncroft and Shaftsbury Lane
- Penfield Rd and Landing Rd. North
- Ambassador Dr. and East Ave
- Highland Ave and Monroe Ave
- Highland Ave and South Clinton Ave
- Elmwood Ave and South Ave
- Lac DeVille Blvd and New Hillel School
- 12 Corners
- Elmwood and 590
- Monroe Ave and Edgewood Ave
- Allen's Creek Rd and Edgewood Ave
- Allen's Creek Rd and Monroe Ave
- Monroe Ave and 590
- Monroe Ave and Shoreham Dr.
- Lock 62 - Canal Park
- Westfall Rd and Evans Lane
- Winton Rd S and Columbus Way - Montessori School
- Winton Rd S and 590 West Entrance
- Winton Rd S and 590 West Exit
- Winton Rd S and French Rd
- Winton Rd S and Canal Trail
- Winton Rd S and BHTL Rd
- Canal Trail and Edgewood Ave
- BHTL Rd and S Clinton Ave
- MCC Access
- Westfall Rd and E Henrietta Rd
- Canal Trail and Kendrick Rd
- East River Rd and Mt Hope Ave
- Crittenden Rd and W Henrietta Rd
- Lynch Woods Park and Crittenden Rd
- BHTL Rd and west of W Henrietta Rd
- Westfall Rd and S Clinton Ave

Meeting Sign In Sheets From Town Open House March 29, 2012

First Name	Last Name	Street Address	Zip Code	Phone Number	Email Address	Comments
Tom	Stephenson	324 Avalon Dr.	14618	585-244-1475	tstephen@frontiernet.net	Please try to separate auto and bike traffic as much as possible.
Robert	Block	74 Eastland Ave.	14618	585-271-6159	roblock2001@yahoo.com	No Comment
Craig	Watkins	12 Roby Dr.	14618	585-224-9865	Not given	Great info. Knowledgeable people.
David	Burrows	313 Hollywood Ave.	14618	585-442-3239	burrowsarchitect@yahoo.com	No Comment
Susan	Friedman	114 Buckland Ave.	14618	Not given	Not given	No Comment
Alex	Paine	114 Buckland Ave.	14618	585-360-4834	Not given	No Comment
Bob	Paine	114 Buckland Ave.	14618	585-360-4834	Not given	Sounds like a great thing!
Paul	Tankel	70 Penarrow Rd.	14618	Not given	ptankel@gmail.com	No Comment
Christina	Bray	152 Branford Rd.	14618	Not given	Not given	Nice project-looking forward to being able to enjoy the final result. Thank you!
Pam	Stiles	70 Penarrow Rd.	14618	Not given	Not given	Although I don't generally bicycle, because I'm afraid of cars-bike friendly=Better Community, though whether I bike or not???
Nicholas M.	Graver	276 Brooklawn Dr.	14618	585-244-4818	ngraver@rochester.rr.com	I'm a walker & bike owner. If bikers ride on sidewalks, please require them to have a light for twilight & dark conditions and a bell to sound as they encounter walking pedestrians. This will be difficult to enforce, but it should be promoted. Thanks for listening.
Brian	Gee	1150 South Winton Rd.	14618	585-242-5005	brian-gee@bcsd.org	No Comment
Tim	Anderson	1941 Elmwood Ave.	14620	585-784-5288	tim.anderson@townofbrighton.org	No Comment

First Name	Last Name	Street Address	Zip Code	Phone Number	Email Address	Comments
Bill	Lampeter	Not given		Not given	Not given	Allow mtn biking in Washington Grove Park; see Leipzig Germany for how to lay out paths; add two-way cycle path on Elmwood from Town Hall to UR
Colegride M.	Gill	55 Fairmeadow Dr.	14618	585-442-8634	xcski81506@aol.com	No Comment
Joel	Novros	116 Seminole Way	14618	585-244-3533	jnodoz@rochester.rr.com	No Comment
Elizabeth	King Durand	100 Kilbourn Rd.	14618	585-381-0679	ekdurand@frontiernet.net	No Comment
Scott	Ladin	258 Hollywood Ave.	14618	585-820-5205?	scottladin@yahoo.com	No Comment
Rick	Vacchetto	179 Orchard Dr.	14618	Not given	rvacchetto@gmail.com	No Comment
Daniel	Aman	2300 Elmwood Ave.	14618	585-784-5242	daniel.aman@townofbrighton.org	Thanks for all your hard work on this. As someone who walks to work every day, I'm looking forward to the positive impact you are going to have on Brighton.
Sheldon D.	Ruda	15 A Clintwood Dr.	14618	585-360-4851	donruda@rochester.rr.com	No Comment
David	Shrier	Meadowbrook	14618	Not given	dshrier@frontiernet.net	No Comment
Helena	Shrier	352 Antlers Dr.	14618	Not given	dshrier@frontiernet.net	No Comment
Eric	Winter	26 Brightwoods Ln.	14623	585-530-0808	ericwinter45@gmail.com	Avid biker
Daniel	Morotini	2035 Monroe Ave.	14618	585-773-0270	dan_morotini@bcscd	No Comment
Edward W.	Cramp, Jr.	10 Mt. Pleasant Pk., Apt. #1	14608	Not given	crampe@pas.rochester.edu	No Comment
Carol	Santos	120 Lackine Dr.	14618	585-241-3796	carolsantos45@yahoo.com	No Comment
Ted	Kidd				tedkidd@eesny.com	No Comment
Tina	Kolberg	401 Brooklawn Dr.	14618	585-442-8238	tinak@alumnilehigh.edu	No Comment
Danielle	Benoit	130 Sunset Dr.	14618	720-470-0507	danielleswbenoit@gmail.com	No Comment
John K.	Steinbrenner	63 Branford Rd.	14618	585-461-4373	jsteinbrenner1@rochester.rr.com	No Comment

First Name	Last Name	Street Address	Zip Code	Phone Number	Email Address	Comments
John	Vyverberg	83 Sylvan Rd.	14618	585-442-4038	johnvmass@aol.com	No Comment
Sonja	Thorley	156 Eastland Ave.	14618	585-473-8144	sonja_thorley@bcasd.org	I am thrilled that Brighton is working to become more pedestrian & bike friendly. The idea of off-road & ski trails would also be very exciting.
Frank	Regan	41 Belmont Street	14620	585-224-9075	frankregan@rochesterenvironment.com	More count-down street lights!
Charlotte	Baltus	41 Belmont Street	14620	Not given	charlotte339@frontier.com	Please, please do something to make Monroe Ave. walkable. Have been completely drenched by water splashing from cars. It's a disgrace.
Matthias	Boettrich	57 Eastland Ave.	14618	585-256-1613	matt.boettrich@frontier.com	No Comment
Michael	Bouwmeester	212 Coniston Dr.	14610	585-750-4280	mbouw21@gmail.com	No Comment
Chris	Werner	118 Palmerston Rd.	14618	585-244-7263	cwerner@boylanbrown.com	No Comment
Larry	Berking	242 Bastian Rd.	14623	585-272-9919	lberkingTZ@gmail.com	No Comment
Tong	Zheng	242 Bastian Rd.	14623	585-272-9919	zhengYuanYuan@msn.com	No Comment
Ruth E.	Hyde	61 Fernboro Rd.	14618	585-461-9266	rhyde@	1. I would like a ROW connecting the two parts of Fernboro so that I could have a shorter route to walk without walking on major roads or concrete sidewalks. 2. I would like a better surface to walk on when on sidewalks on Winton, Elmwood & Monroe. Concrete is too hard, especially for those with knee problems. Also, I would like a green strip between me & the road when I walk on busy streets and also wider paths, possibly shared with bikes.

First Name	Last Name	Street Address	Zip Code	Phone Number	Email Address	Comments
Lisa Michelle	Hand	125 Fairhill Dr.	14618	585-354-4589	lisahand@frontiernet.net	Yahoo! Thanks for doing this!
Ralph	Shoemaker	303 Wilmot Rd.	14618	585-739-2165	ralphshoe3@gmail.com	No Comment
Tim	Dixon	4 Chelsea Way, Fairport	14450	585-223-2527	timothy.dixon@xerox.com	No Comment
Luke	Lovenzo	77 Summit Dr.	14618	585-442-5950	lukelovenzo3@gmail.com	No Comment
Kurt	Sertl	280 Pelham Rd.	14610	Not given		No Comment
Louise	Novros	116 Seminole Way	14618	585-244-3533	linovros@aol.com	No Comment
Blaine	Grindle	58 Stony Ridge Dr., Honeoye Falls	14472	585-624-8199	bgrindle@monroecc.edu	Also representing MCC (W) 585-292-2804
Ralph	VanHouten	2305 Elmwood Ave.	14618	585-270-8148	rvanhaul@rochester.rr.com	No Comment
Jason	DiPonzio	570 Antlers Dr.	14618	585-461-4952	jdiponsio@diponsiolaw.com	No Comment
Bill	Price	305 Sylvan Rd.	14618	585-721-8555	wmprice99@yahoo.com	No Comment
Corinne	Chiogna	305 Sylvan Rd.	14618	585-256-7461	corinne.chiogna@wegmans.com	No Comment
Sue	Geier	311 Varinna Dr.	14618	585-442-3388	suegeier@yahoo.com	
Ed	O'Connell	160 LacKine Dr.	14618	585-241-9872	eoconnell@mindspring.com	
Estelle	O'Connell	160 LacKine Dr.	14618	585-241-9872	estelleoconnell@yahoo.com	
Ronald	Wood	71 Wilshire Dr.	14618	585-271-0287	ronaldwood@gmail.com	

E-Mail Comments (as of April 30, 2012)

John Yager

jyager@rochester.rr.com

Mar 22

priority_intersections01: 01: Winton Road and Monroe Avenue
 priority_intersections02: 02: Elmwood Avenue and Winton Road
 priority_intersections03: 03: Elmwood Avenue and Monroe Avenue

feedback: My priority for safety is getting sidewalks installed on Bonnie Brae Ave. between Elmwood and Glen Ellyn. The fact that this block of Bonnie Brae is the only one in the Roselawn neighborhood without sidewalks is a joke. Pedestrians, including families with young children, are forced into the street when walking in this part of the neighborhood. It is dangerous. The plan was voted down 8-10 years ago because some of our politicians, including Sandra Frankel, chose the well-being of trees over the safety of our children.

Name: Roger Janezic

eclair@frontiernet.net

Mar 23

Comments: Hi, heard about your effort through U of R. I work at UR/LLE on East River Road. Have been bike commuting year round from South Wedge for 11 years. Not sure if I can attend open house. If I can be of any help please contact me at 465-9191 or by email.
 Roger Janezic

Name: Rachel Carmen

Mar 23

rcarmen@hr.rochester.edu

Comments: To Whom it May Concern,
 I am the new Senior Health Project Coordinator for the University of Rochester's wellness program and I understand that Shaquana Divers was involved with this effort in the past. I would like to be part of this group as well, if possible. Could someone please contact me at your earliest convenience to discuss?
 Best Regards,
 Rachel Carmen
[585.275.1756](tel:585.275.1756)

sindy cantor

sindy.cantor@simon.rochester.edu

Mar 23

priority_intersections01: 08: Monroe Avenue and Westfall Road
 priority_intersections02: 10: West Henrietta Road and Crittenden Road
 priority_intersections03: 04: South Clinton Avenue and Elmwood Avenue

feedback: As I ride my bike to the U of R, I am looking for an alternative to the canal path. I don't always feel safe on the canal path. Riding from my home on French Road, Winton Road/Monroe Avenue/Westfall Road and Elmwood Avenue are all very busy roads to ride on. Sidewalks are not always available and traffic is too heavy during commuting hours to safely ride in the street.

Brian Poligone

bpoligone@yahoo.com

Mar 23

priority_intersections01: 05: East Avenue and Penfield Road
priority_intersections02: 02: Elmwood Avenue and Winton Road
priority_intersections03: 03: Elmwood Avenue and Monroe Avenue

Name: Karen S. Lankeshofer

karen-bike@gmx.de

Mar 25

Comments: I would find it helpful if, on the North Branch of the Lehigh Trail, small road signs were posted at Crittenden Road, East River Road and Brighton-Henrietta TL Road for people who are not familiar with the area. It will give them a better sense of where they are when they are riding.

Karen S. Lankeshofer

karen-bike@gmx.de

Mar 29

Comments: I would like to suggest that, when new bike lanes are marked on the streets, the markings should continue through the intersection (possibly as a dotted line) instead of stopping at the crosswalk or turning the corner and ending at the curb, which is the case on E. Henrietta Road by MCC. This would make cars coming from the side streets much more aware that cycle traffic could be coming. I have been cut off many times by drivers who want to make right turns on red and either ignore me or don't notice me.

Owen Zacharias

ozacharias@gmail.com

Mar 26

priority_intersections01: 01: Winton Road and Monroe Avenue
priority_intersections02: 02: Elmwood Avenue and Winton Road
priority_intersections03: 03: Elmwood Avenue and Monroe Avenue

Jon

jonc19@gmail.com

Mar 29

Comments: Do you know when the next meeting will be. I couldn't make this last one. Thanks.

Don Ruda

donruda@rochester.rr.com

Mar 30

Comments: Am trying to take the survey, but it is rejecting me. (I am @ the 60% mark and it says that my response is not in an acceptable format. It will not let me continue. Any change in my format would be dishonest.) What do I do now? How do I complete the rest of the survey? My telephone no. is [585.360.4851](tel:585.360.4851)

Meeting Sign In Sheets From Town Open House June 28, 2012

First Name	Last Name	Street Address	Zip Code	Phone Number	Email Address	Comments
Melissa	Bronstein	219 Danbury Cir. S.	14618	585-730-4363	Mzb99@hotmail.com	None
Roy	Bent	92 Marquette	14618	585-802-2431	rhartwellb@aol.com	Don't waste money on Monroe Ave. Pave Lehigh and work on East – West connection.
Steve	Fine	10 Brandywine Ln.	14618	585-242-9650	sfine@hotmail.com	Don't forget to consider snowplowing.
Jackie	Machand	2340 Elmwood Ave.	14618	585-242-9613	Jmarc24017@yahoo.com	I run an international bicycle touring company and try to bike whenever I can locally. I am in strong support of any efforts to make Brighton more Bike/Ped friendly. Let me know how I can help.
Maria	Raynor	Seminole Way	14618	585-271-2982	mariaraynor@rochester.rr.com	
Philip	Katzman	103 Tarrytown Rd.	14618	585-473-3834	Philip_katzman@urmc.rochester.edu	It would be helpful to keep existing roads well maintained (i.e. fill potholes) for biking while this project moves forward. Also, what budget is available for the improvements?
Zack	DeClerck	661 South Ave. Apt.211	14620		zackdeclerk@gmail.com	No recommendations for western stretch of Jefferson? Southern stretch of W. Henrietta? Road diets for Elmwood from City to Twelve Corners. All of Monroe Ave., all of East Ave.
Carol	Santos	120 Lac Kine Dr.	14618	585-241-3796	Carolsantos45@yahoo.com	Great progress!
Michael L.	Scott	54 Laconia Pkwy.	14618	585-271-2143	scott@cs.rochester.edu	See notes below.
1-In general I prefer on-road bike lanes to off-road mixed use paths. Pedestrians and bicycles don't mix well. 2-In general I won't use off-road paths (or bicycle boulevards) that follow too convoluted a route. 3-It would help enormously if we switched to an into-the-curb storm drain design rather than the current in-road design. 4-Is there a way (zoning? Tax incentives) to encourage shops & offices to install bike racks? 5-A connector from the canal path to the E. side of MCC is a good start, but we need better bicycle access to the W. side of MCC. One possibility, a short bike path connecting the NW corner of Corporate Woods to the adjacent office park would help a lot, as would a striped bike lane on E. River Rd. from Kendrick to W. Henrietta and on W. Henrietta from E. River Rd. to Crittenden Rd. 6-There is a dirt path across Brighton HS from Northumberland to Avalon. It should be paved. 7-Upgrading the Auburn Trail is a wonderful idea. It would be better yet if Pittsford could be persuaded to improve it from the town line to the Pittsford Village Center (current quality is quite low) and if the N end connected well to bicycle corridors in the City.						
Michael	Ross	116 Chadbourne Rd.	14618	585-546-5049	mross@bergmannpc.com	
Jeanne	Holden-Wiltse	211 Avalon Dr.	14618		jholdenw@hotmail.com	Love the multi-use trail concepts. Elmwood and Farash prep plans are great. Twelve Corners plan great. Less interested in Henrietta and Crittenden road interstate changes. Great Presentation.

Meeting Comments From Town Open House June 28, 2012

Easel Pad Comments from the June 28th Public Meeting #2

- E. Henrietta Westfall Rd. to the expressway needs rehab
- Connection to front of MCC
- Connection through office park to MCC
- Connect Brighton to U of R via Elmwood
- Side inlet catch basins
- Concern Re: Storm Grates
- Town Hall to Canal
- Like bike boulevards. Signage? Road Markings?
- Elmwood connection
- Connect N. Umlerland to Avalon – across from H.S. property
- Barrier to active transportation – School bus fumes/exhaust
- Bike parking / area to lock bikes
- Bike registry in Town of Brighton
- Bike access through cut out (South Ave.)
- Cease snow in bike lanes in winter
- Valet bike parking @ major events – Secure location
- Plow paths in winter – Canal
- Why spend the money fixing main streets when you can just create multiple bike boulevards?
- What are ways to create a bike boulevard towards U of R (Elmwood)
- Supportive of 3 lane road diet – concern for cyclists during peak hours
- Storm grates need to be out of road
- Yield to pedestrian S.B Winton @ Monroe
- Reduce turn radii on 12 Corners decreasing walking distances
- Higher priority to improve existing sidewalks vs. installing new ones
- More manpower – younger people and retired people involved
- Colgate Divinity School (Ithaca)
- Reach out to businesses – What this can do for you.
- Cross walks are too close to main traffic lanes/lines. Set them back off the road a little more *
- Left hand turn signals N. & S. on Winton – School/Student crossing – Blind spot, got hit almost 4 times in a year and the frequency is increasing. *
- School Zone signs. * (*comments from crossing guard)
- Jackie Marchand – President of “Woman Tours” – Great contact+

Meeting Comments From Town Open House October 3, 2012

Boards were set up at three stations. The following comments were made at each station.

Board 1

Priorities: Policies / Programs

Maintenance policy – sidewalk snow removal, expand to local / residential streets.

Street Lighting

Monroe/Westfall need immediate improvements as recommended. Crosswalks, Countdown timer (low cost)

Auburn Trail is 1/8th mile from intersection which is a destination for bike/ped recreation and commuter travel.

Board 2

Auburn Trail – Consider stone dust vs. paving

Monroe Ave – What will other cross-sections include

Raised median

Curb extensions

Priority Sidewalks – Winton near the Jewish Home

Modify curb radius to slow vehicles at the ramps

Board 3

Connection to Erie Canal from Buckland

The Henrietta portion of the Erie Canal Trail needs plowing for U of R access

Concerns about parking lot placement in Farash Property

Westfall & Winton

Westfall to the west – Bike lanes?