



CITY OF WARRENVILLE BIKEWAY IMPLEMENTATION PLAN



Adopted December 1, 2008

Acknowledgements



Warrenville City Council

David L. Brummel, Mayor
Fred Bevier, Alderman, Ward 1
Stuart Aschauer, Alderman, Ward 1
Dave Schultz, Alderman, Ward 2
Bill Weidner, Alderman, Ward 2
Dan Leonard, Alderman, Ward 3
Matthew Wiesbrock, Alderman, Ward 3
Clare Barry, Alderman, Ward 4
Christopher Halley, Alderman, Ward 4

Warrenville Bicyclists and Pedestrian Advisory Commission

Alan Gard, Chair
Bob Duerr, Commissioner
Barry Glicklich, Commissioner
Tom Jones, Commissioner
Jerry Sugrue, Commissioner
Bill Weidner, Council Liaison

Staff

Jennifer McMahon, Assistant City Administrator

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Executive Summary

The purpose of the City of Warrenville Bikeway Implementation Plan is to promote increased bicycle use by improving conditions in order to provide a safer, more enjoyable bicycling experience. To accomplish this, a review of the existing context of the Warrenville bikeway system was performed. Problem areas and opportunities for improvement were identified and short-term and medium-term improvements to key intersections, existing routes, route gaps, and new facilities were identified.

Warrenville is a crossroads for several regional trails. Existing sidepaths and Illinois Prairie Path and Forest Preserve District of DuPage County trails form a supporting infrastructure for a citywide bikeway. However, there are a number of areas in the City that do not have adequate access to these existing routes. Most Warrenville residential streets are appropriate for cycling as-is. Therefore, the Commission determined that an arterial system would be an appropriate design for the City. It would be a system of streets, sidewalks, and paths with designated major cycling routes serving as the arterial routes. Quiet residential streets known as “collectors” would feed these arterial routes. Connectors between major routes would also be important considerations where gaps between major routes exist so that bicycles could traverse obvious and effective interconnections.

A review was performed to inventory the existing bicycling infrastructure and to determine areas of deficiencies. The review identified six major areas for improvement. They include a better connection between Cantera and the rest of Warrenville, the need for a north-south route along the western edge of the City, and improved signage along designated bike routes. Recommendations for facility improvements of deficient areas are provided. These are based on Bicycle Level of Service and Sidepath Suitability Score analysis, feasibility and cost.

Besides infrastructure improvements, education and enforcement are important aspects of a bikeway plan that increase safety. Education is important to ensure that both motorists and cyclists are aware of the traffic rules and regulations that pertain to cycling. Education can be provided through the Annual Bike Rodeo as well as in-school programs and written materials distributed to the public. Enforcement ensures that motorists and cyclists obey those rules and regulations. The police department should set the same enforcement priorities with cyclists as they do with motorists.

Recommendations concerning other general subjects such as wayfinding signage, hydration and bike parking facilities are also included.

1. Introduction

1.1 Background

Warrenville is surrounded by Blackwell, Warrenville Grove, and Herrick Lake Forest Preserves. Trails and paths cross the City, including the nationally recognized Illinois Prairie Path; the West Branch of the DuPage River is the City's most prominent natural element. Fermilab provides additional bikeways, connections, and open space.

Residents and bicyclists from surrounding communities use these amenities; therefore, it is important that citywide planning includes routes for bicyclists within its scope. As indicated in the City's 2005 Community Survey, the 2006 Old Town/Civic Center Sub-Area Planning Process, and the 2007 Strategic Plan, many residents and officials desire to improve, expand, and better identify pathways within the City.

In response to this input, the community formed the Warrenville Bicyclist Advisory Committee in 2005. The Committee's mission was to encourage bicycling, offer safety education, gather citizen input on bicycling amenities, and make bicycling-related recommendations to the City Council.

In 2006, the Mayor created the Warrenville Bicyclist and Pedestrian Advisory Commission, effectively replacing the Committee. The new Commission's purpose was to support, encourage, and promote safe bicycling and walking throughout the City through capital improvements, expanded amenities, special events, and the development of related programs. The Commission is responsible for addressing both bicyclist and pedestrian issues, but because a City Sidewalk Plan currently exists, the Commission initially focused on creating a City of Warrenville Bikeway Implementation Plan, which is one of its primary objectives.

The Commission's goals include the following:

- Recommend specific interactions with community organizations, municipalities, and other agencies in order to improve the safety of and connectivity and access to the Warrenville bikeway system
- Promote bicycle safety through community events such as the annual Bicycle Rodeo
- Gain designation as a Bicycle Friendly Community by creating a comprehensive City of Warrenville Bikeway Implementation Plan, which is an important prerequisite
- Improve directional and informational signage

1.2 Purpose

The purpose of the City of Warrenville Bikeway Implementation Plan is to promote increased bicycle use by improving conditions in order to provide a safer, more enjoyable

bicycling experience. More specifically, the Commission intends the Plan to help direct the following:

- Promote a sense of community and togetherness by providing links between all neighborhoods, government facilities, parks, shopping areas, and regional bikeway facilities
- Reduce congestion and pollution by providing an alternative means of transportation
- Support regional tourism by providing facilities, destinations, parking, and connections between regional trails
- Support Warrenville's commercial establishments by guiding residents and visitors downtown and to other shopping areas
- Provide safe, accessible bike and pedestrian access to schools, recreational facilities, and other neighborhoods
- Increase overall safety for bicyclists and pedestrians with a minimum effect on motorists

Many City streets are already suitable for bicycle traffic and will require little or no improvement. Others may benefit from the addition of striped bike lanes, improved intersections, additional signage, or increased maintenance of facilities. Recommended improvements, if implemented, will increase safety for bicyclists and motorists alike.

1.3 Scope

The City of Warrenville Bikeway Implementation Plan encompasses the following elements:

- A comprehensive bicycle trail map for Warrenville that shows existing, planned, and recommended routes
- A description of communitywide needs, such as new or improved intracommunity bike routes, increased safety on City streets, additional facilities for bicyclists, connections to surrounding communities, and the installation of additional bicycle racks, all elements that will collectively help to promote both work-related and recreational trips
- Priorities for recommended routes based on development cycles, usage, and interactions with current plans with the understanding that further analysis, designing, cost estimates, and planning are necessary
- Strategies to address education, enforcement, public relations, and bicycle-related facilities and to improve the effectiveness of the Plan by incorporating awareness into City events

1.4 Goals

The overarching goals for the Plan are to offer recommendations that the City may use to make informed decisions to improve bicycling opportunities within the community and to strengthen connections to existing trails, including those in Fermilab, the Forest Preserve District of DuPage County, and the Illinois Prairie Path trail systems.

The Plan includes the following specific goals:

- Review the existing context of the Warrenville bikeway system
- Identify problem areas and opportunities for improvement
- Identify short-term and medium-term improvements to key intersections, existing routes, route gaps, and new facilities
- Provide infrastructure recommendations for signs, restrooms, drinking water, emergency medical care, and rest areas
- Recommend policies, ordinances, and facilities that will increase safety using 1999 American Association of State Highway and Transportation Officials Guidelines for Developing Bicycle Facilities and the Manual on Uniform Traffic Control
- Formulate consensus-based improvement plans for routes that meet American Association of State Highway and Transportation Officials (AASHTO), Illinois Department of Transportation, and DuPage County Department of Transportation standards and local needs
- Develop an approach to funding recommended improvements and to identify specific grants to be pursued, recognizing that the possible need for cost estimates for each segment to support grant requests and project implementations
- Formulate priorities for the design and construction of proposed bike-route improvements
- Incorporate plans for recommended bike-route improvements into the transportation, land-use, and development plans of other units of government where appropriate
- Establish dates for periodic reviews and updates of the City of Warrenville Bikeway Implementation Plan

1.5 How Was the Plan Developed?

1.5.1 Inventory and Analysis of Existing Bicycling Conditions

The development of the Plan focused on emphasizing the interconnectivity of the system with adjacent communities as well as local and regional trails systems. The first step in the planning process generated a Comprehensive Trail Map (Section 4), which shows existing routes within Warrenville. The next step inventoried and analyzed the City's existing bicycling facilities and their conditions. This inventory included a Bicycle Level of Service (BLOS) analysis and a Sidepath Suitability Score (SSS) analysis, which are both discussed in detail in Appendix I.

Using this as a basis, and considering planned roadway and environmental improvement projects, sub-area development plans, and expected development within the City limits, the Advisory Commission outlined a proposed draft of improvements and additions to the Comprehensive Trail Map.

1.5.2 Public Input

Throughout the process, the Warrentville Bicyclist and Pedestrian Advisory Commission considered public input a valuable resource for ideas, concerns, and support. In order to best use public input, the Commission executed the following tasks:

- Worked with City staff and the Warrentville City Council
- Held several public meetings to elicit public feedback on the findings and recommendations outlined in the Plan
- Posted a copy of the Plan on the City's website along with survey forms to provide a means for persons who could not attend the public meetings to offer comments about the Plan.
- Incorporated existing public input from Warrentville's 2005 Community Survey, 2007 Old Town/Civic Center Sub-Area Plan, 2007 Strategic Plan, and 2006 Bicyclist Advisory Committee citizen survey
- Requested input from the League of Illinois Bicyclists
- Presented the Plan to the Warrentville Planning Commission, received and incorporated suggestions from the Commission and obtained their official support

2. Existing and Planned Bikeways

2.1 Viewing the Plan in a Regional Context

One key goal for the Plan is to improve individuals' abilities to bicycle within the community and to strengthen connections to regional trails and adjacent communities. To do so, the Plan needs to develop within the context of existing and planned regional trails in the area. Regional trails in DuPage County are maintained and coordinated by the DuPage County government.

For many years, DuPage County officials have planned bike routes throughout the county. The intention is to develop an interconnecting regional pathway network for recreation, transportation, and shopping. Many of the feasibility studies are complete. The proposed routes, when complete, will consist of a variety of bikeways. Concrete sidewalks, limestone trails, asphalt paths, and on-the-road shoulders and on-street bicycle lanes will combine to provide connectivity to the regional trail systems. Additional information regarding the County's Plan is posted at the following website: http://www.dupageco.org/bikeways/generic.cfm?doc_id=446.

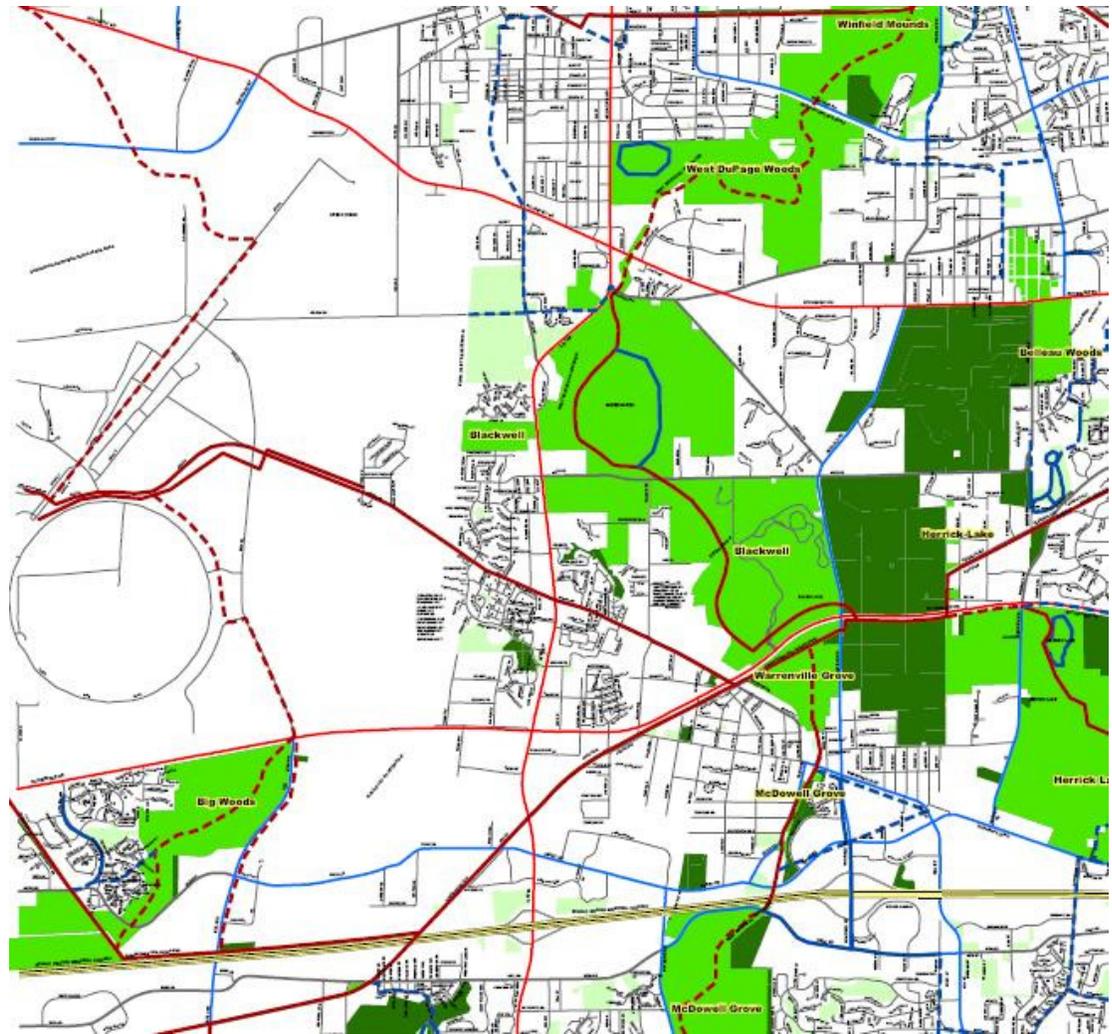
The following regional trails most directly affect Warrenville:

- Illinois Prairie Path
- The West Branch Regional Trail
- The DuPage Technology Corridor Trail
- Forest Preserve District of DuPage County trails through Blackwell and Herrick Lake forest preserves

Other trails further from Warrenville include the following:

- Southern DuPage County Regional Trail
- Salt Creek Trail
- North Central DuPage Regional Trail

The following map from the DuPage County Department of Transportation provides an excerpted view of current and planned regional bicycle routes in the Warrenville area. The solid dark red lines are existing trails; the dashed dark red lines are proposed trails.



2.2 Source Data

The planning and analysis process included collecting data to inventory existing regional and Warrenville bikeway networks. The Commission also determined the locations of new or changing bikeways. The latter effort was critical to understand and integrate regional bicycle-planning efforts that affect Warrenville. This inventory consisted of the following elements:

- A field survey
- Bicycle Level of Service analysis
- Sidepath Suitability analysis
- A review of existing transportation and planning data
- Meetings with groups such as the Warrenville Bicyclist and Pedestrian Advisory Commission, the Forest Preserve District of DuPage County, the DuPage County Division of Transportation, Warrenville City staff, local bicyclist organizations, and the public

2.3 Existing Warrenville Bikeways

A variety of bikeways exist in Warrenville. Many of the routes are sidepaths along arterial and collector streets. A sidepath is an 8- to 10-foot-wide trail that is parallel to, but separated from, a roadway. These bikeways include the Illinois Prairie Path as well as the West Branch Regional Trail, which links to several forest-preserve systems. Other routes, such as along Continental Drive, have on-street bike routes. All of these bikeway facilities create Warrenville's existing bikeway system.

2.3.1 Diehl Road

There is a sidepath along the south side of Diehl Road between the West Branch of the DuPage River and Mill Street.

2.3.2 Winfield Road

There is a sidepath along the west side of Winfield Road between Diehl Road and Warrenville Road.

2.3.3 Ferry Road – Naperville Section

A sidepath exists on the north side of Ferry Road from Raymond Avenue to the Illinois Prairie Path bridge over Ferry Road just west of Route 59. East of Raymond Avenue, it becomes a standard sidewalk.

2.3.4 Ferry Road – Warrenville Section

A sidepath exists on the south side of Ferry Road from the West Branch of the DuPage River to Mill Street.

2.3.5 Herrick Road

For most of the distance between Warrenville and Butterfield roads, there is a 7-foot-wide striped shoulder suitable for cycling. At Butterfield Road, the shoulder ends about 100 feet short of the intersection.

2.3.6 Warrenville Road

For most of Warrenville Road east of Mill Street, there is a wide, paved shoulder on either side of the road. Bicyclists use this route for traveling from Warrenville to Naperville, Lisle, and Downers Grove.

2.3.7 Batavia Road

A sidepath along Batavia Road extends to Fermilab. At the east end, it connects with the Illinois Prairie Path and with sidewalks along Batavia Road through Warrenville. At the

west end, it connects with a sidepath through Fermilab, which connects to a sidepath along Kirk Road, which in turn connects to the Batavia Spur of the Illinois Prairie Path.

2.3.8 Mack Road

From Route 59 to Continental Drive, bicyclists use a 7-foot-wide striped shoulder, which motorists use for parking. Note that roads with this type striped shoulder need to have very low parking occupancy so that bicyclists are not tempted to weave in and out of the shoulder.

2.3.9 Continental Drive

From Mack Road to Batavia Road, bicyclists use a 7-foot-wide striped shoulder, which motorists use for parking.

2.3.10 Summary

Many of these routes are isolated paths and do not have formal connections to other routes or areas of the City. Significant gaps exist within the local bikeway system that this Plan addresses. Those gaps create difficulties for local bicyclists in accessing desirable areas of the City or connecting to regional trail systems.

2.4 Proposed Warrenville Trails

2.4.1 Butterfield Road Trail

IDOT plans to widen Butterfield Road to four lanes from Naperville Road to Route 59. A bike sidepath is part of the engineering design for this project and would run along the north side of Butterfield Road from Naperville Road to Barkley Avenue.

This expansion includes the possibility to interconnect with the existing Blackwell Forest Preserve trail system, which has a short spur that dead-ends just short of Butterfield Road, a short distance east of the DuPage River. Connecting the two would provide access to the southern section of Blackwell without having to enter through either the main automobile entrance on Butterfield Road or the trail entrance at Butterfield and Winfield roads.

2.5 Existing Regional Trails

2.5.1 The Illinois Prairie Path

The 61-mile Illinois Prairie Path extends from Cook County through DuPage County and into eastern Kane County. Each year, more than 400,000 hikers, dog walkers, joggers, bicyclists, cross-country skiers, horseback riders, and other self-propelled outdoor adventurers use the trail, which is open every day of the year. The trail surface is mostly crushed limestone with some short distances of asphalt. Drinking fountains and

restrooms are conveniently stationed along the path. There is no fee to use the trail, which the DuPage County Department of Transportation maintains with assistance from an active group of volunteers.

The main stem of the path has its eastern terminus at First Avenue in Maywood. From Maywood, the path extends west 15 miles to Volunteer Park in Wheaton, where it forks. The 14-mile northwesterly fork connects to the Fox River Trail in Elgin. The 13-mile northeasterly fork connects to the Fox River Trail in Aurora.

Two segments called “spurs” extend from the two main forks. The Geneva Spur splits from the Elgin fork and extends 11 miles through West Chicago to connect with the Fox River Trail in Geneva. The Batavia Spur splits from the Aurora fork and extends 6 miles into Batavia.

Access to the Illinois Prairie Path, including parking, is available in every city and village through which the trail passes. Users can access the main trail and the segments that fork toward Aurora and Elgin from Wheaton at Volunteer Park. They can access the Elgin branch from Timber Ridge Forest Preserve in West Chicago and Pratt’s Wayne Woods Forest Preserve in Wayne. Trail users can reach the Aurora branch from Herrick Lake Forest Preserve in Wheaton or from Blackwell or Warrenville Grove forest preserves in Warrenville.

In Warrenville, parking for the Illinois Prairie Path is available at the southwest corner of Winfield and Butterfield roads and in downtown Warrenville on Batavia Road just east of Butterfield Road. The trail passes through downtown Warrenville in front of the library. Near the library there are picnic benches, a water fountain, and a portable toilet.

2.5.2 Blackwell Trails

Blackwell Forest Preserve adjacent to the north border of Warrenville has a 6.3-mile crushed-limestone trail system, which the Forest Preserve District of DuPage County maintains. Bicyclists, hikers, and cross-country skiers can park on the north side of Butterfield Road in the forest preserve’s main lots, which are near picnic areas, shelters, a family campground, flush toilets, vending machines, and boat-rental building, or in the lot near McKee Marsh on the north side of Mack Road. Both locations offer access to the West Branch Regional Trail.

Blackwell’s trail system connects to the Illinois Prairie Path, to trails at Herrick Lake and Warrenville Grove forest preserves, and to the West Branch Regional Trail, which leads to McDowell Grove Forest Preserve. The developing West Branch Regional Trail will eventually extend north and south along the West Branch of the DuPage River for about 24 miles. As mentioned above, the trail system has a spur that ends just short of Butterfield Road, a short distance east of the DuPage River.

2.5.3 Fermi National Accelerator Laboratory Trails

Fermi National Accelerator Laboratory, which the U.S. Department of Energy operates, straddles western DuPage and eastern Kane counties and features about 30 miles of asphalt roads, trails, and paths. Trail users may enter the lab from 6 a.m. to 8 p.m. every day of the week; however, the property is closed to visitors if there is a security alert.

Bicyclists can enter Fermilab from Warrenville on the east or from Batavia on the west. From the east, the entrance is located on Batavia Road west of Route 59; a small parking lot is on the north side of Batavia. From the west, the entrance is at Pine Street east of Kirk Road; there is adequate parking near the visitor center.

Bicyclists can travel through Fermilab on either roads or on a sidepath along Batavia Road and reconnect with the Illinois Prairie Path. Bicyclists exiting west at Pine Street and Kirk Road can turn south on the sidewalk on the west side of Kirk Road and within a mile reunite with the Batavia Illinois Prairie Path spur. Some continue west on Pine Street at the far end of Fermilab to take a more direct route to the Fox River Trail. Riders pedaling east can parallel Batavia Road on an 8-foot-wide path and reunite with the Illinois Prairie Path east of the intersections at Batavia and Butterfield roads in Warrenville.

2.5.4 Fox River Trail

The 35-mile-long Fox River Trail follows the Fox River from Crystal Lake in McHenry County through St. Charles, Geneva, Batavia, and Aurora in Kane County and to Oswego in Kendall County, although conceptual plans exist to extend the trail to Yorkville. The Forest Preserve District of Kane County maintains the Fox River Trail system, which is a locally and regionally popular bikeway. North of Crystal Lake, the trail veers away from the river and becomes the Prairie Trail.

From Warrenville, bicyclists can access the Fox River Trail via the westbound Illinois Prairie Path using either the Aurora or Batavia branches or by going through Fermilab using the Batavia Road sidepath.

2.5.5 Herrick Lake Trails

Herrick Lake Forest Preserve in Wheaton has a 6.5-mile crushed-limestone trail system, which the Forest Preserve District of DuPage County maintains. The main entrance is on the south side of Butterfield Road, 1 mile west of Naperville Road and 0.25 mile east of Herrick Road. The south parking lot is located on the east side of Herrick Road, 0.25 mile south of Butterfield Road.

The National Parks Service has recognized Herrick Lake's trail system as a National Recreation Trail, an exemplary trail of local and regional significance and a featured part of America's national system of trails. There are several marked looped trails and connections at Herrick Lake as well as a 1-mile trail that circles the lake. The system connects with Danada Forest Preserve trails to the east. A 1.5-mile path extends west,

paralleling Butterfield Road, and links with both Blackwell Forest Preserve trails and with the Illinois Prairie Path near Warrenville Grove Forest Preserve.

From the northwest corner of the forest preserve, bicycles can reach the Illinois Prairie Path via a sidepath along the west side of Wiesbrook Road, which connects to the Illinois Prairie Path 0.5 mile north at the south end of the grounds at Wheaton-Warrenville South High School.

2.5.6 McDowell Grove Trails

McDowell Grove Forest Preserve in Naperville has a 6.3-mile trail system of mostly crushed limestone with some short distances of asphalt. The Forest Preserve District of DuPage County maintains the trail system.

McDowell Grove is near the south boundary of Warrenville on the east side of Raymond Drive south of Interstate-88. The main entrance and parking area is on Raymond Drive 0.3 mile south of Diehl Road and about 1 mile north of Ogden Avenue.

The McDowell Grove trail is part of the West Branch Regional Trail. About 5 miles pass through mature woodlands and open fields along the banks of the West Branch of the DuPage River. An important 1.8-mile trail connects McDowell Grove to the Cantera corporate area and to pathways near Diehl Road and Interstate-88.

A 1.5-mile trail extends south from the turnaround at the south end of the McDowell Grove parking lot on the east side of Raymond Drive. It is a 10-foot-wide limestone trail for about 1.25 miles.

2.5.7 Great Western Trail DuPage County

The eastern trailhead of the Great Western Trail is in Villa Park 1 block north of the Illinois Prairie Path at Villa Avenue. The western trailhead is north of Kline Creek Farm in Timber Ridge Forest Preserve in West Chicago. The trail extends 11.4 miles through DuPage County and is mostly crushed limestone with some short distances of asphalt.

Parking for the Great Western Trail is available along Villa Avenue in downtown Villa Park. There is a small parking area at Churchill Woods Forest Preserve on the east side of Swift Road in Glen Ellyn about 0.25 mile north of St. Charles Road. At the west end of the Great Western Trail, parking is available at Kline Creek Farm on the west side of County Farm Road about 0.25 miles south of the trail in Winfield.

The trail, which connects the east and west sides of the county, is mostly flat and constructed of limestone screenings maintained by the DuPage County Department of Transportation. With the exception of the bridge over Interstate-355, most crossings are unprotected for hikers and bikers. At its western terminus, trail use can continue along the Illinois Prairie Path Elgin Spur or Geneva Spur or enter Kane County at Leroy Oakes

Forest Preserve in St. Charles, from which the trail extends through Wasco, Lily Lake, and Virgil, ending in Sycamore.

2.5.8 Chicagoland Bicycle Map

This map, developed by Chicagoland Bicycle Federation, a nonprofit advocacy group that represents bicyclists in northeastern Illinois, is currently in its fourth edition. The map recommends routes for bicycling from one area of Chicagoland to another. Local cyclists recommend the routes based on traffic speed and volume, the width of outside lanes and shoulders, intersection layouts, and pavement conditions. Many of the recommended routes are not “ideal,” but local cyclists have judged them as the best in each area.

2.6 Proposed Regional Trails

2.6.1 West Branch Regional Trail – A Partially Built Project

Upon completion, the West Branch Regional Trail will be 24 miles of crushed limestone with short stretches of asphalt. It will extend from the north end of DuPage County to Will County, generally following the West Branch of the DuPage River.

From the southern DuPage County, there are access points at Pioneer Park and McDowell Grove Forest Preserve in Naperville, at Warrenville Grove and Blackwell forest preserves in Warrenville, at West Branch Forest Preserve in Bartlett, and at Mallard Lake Forest Preserve in Hanover Park. There will be additional access points when the trail is completed.

The West Branch Regional Trail will extend through 12 DuPage County forest preserves, 16 community parks, and several historic and cultural sites. The planned multipurpose trails will provide links to existing and future trails, which will form a network of trail systems through neighboring communities.

For more details on the West Branch Regional Trail, contact DuPage County at (630) 681-2221, or visit: http://www.dupageco.org/bikeways/generic.cfm?doc_id=447-6.

2.6.2 DuPage Technology Corridor Trail — Proposed

The Plan’s intent was to create a 16-mile north-south trail on DuPage County’s western border to link the Elgin and Batavia spurs of the Illinois Prairie Path through Fermilab into the DuPage Technology Park, DuPage Airport, and Pratt’s Wayne Woods and Big Woods forest preserves. The proposed trail will provide links to Wayne, West Chicago, St. Charles, Batavia, Aurora, Geneva, Warrenville, Bartlett, and Naperville.

According to DuPage County’s Web site, “The next step in the development process would be to undertake the detailed engineering needed to define the specific trail route. While development of the concept Plan was coordinated by the DuPage County

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Department of Economic Development and Planning, like all regional trail projects in the county, implementation will require several agencies working together in partnership to construct the trail. Project partners identified as part of the planning process thus far include DuPage County, Fermi National Accelerator Laboratory, DuPage Technology Park, DuPage Airport Authority, the FPDDC, Wayne Township, Village of Wayne and the City of West Chicago. A specific schedule for implementation has not been developed, and it is expected the trail will be implemented over several years.”

More information is available by contacting Deborah Jan Fagan, DuPage County Trail System Coordinator, at (630)-407-6883 or visiting:

http://www.dupageco.org/bikeways/generic.cfm?doc_id=447#tech.

2.6.3 Northeastern Illinois Greenways and Trails Implementation Program

The Northeastern Illinois Planning Commission and Openlands Project developed this report and adopted it in June 1997. The regional map, an update to a 1992 study, depicts existing and proposed major open spaces and trails and provides recommendations for new and revised greenway and trail corridors and linkages.

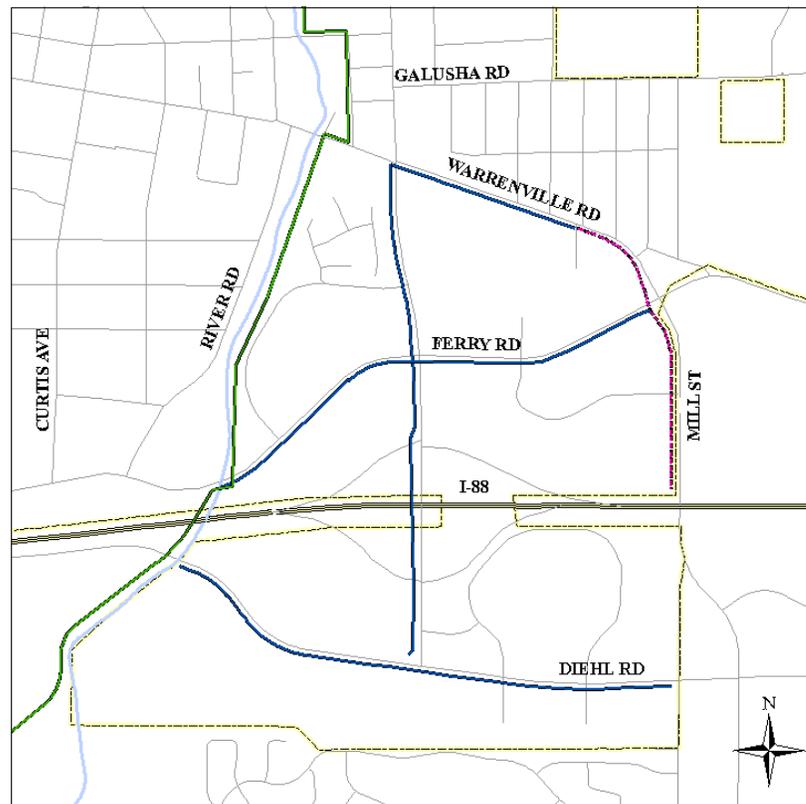
3. Major Findings from Existing Bikeway Inventory

Warrenville is a crossroads for several regional trails. Existing sidepaths and Illinois Prairie Path and Forest Preserve District of DuPage County trails form a supporting infrastructure for a citywide bikeway. However, as the map in Section 4 shows, there are a number of areas in the City that do not have access to these existing routes. The Warrenville Bicyclist and Pedestrian Advisory Commission identified six major areas for improvement:

- Access to Cantera, which is isolated from the rest of Warrenville
- Access to the Galusha Road area, which is isolated from the rest of Warrenville
- Access from the Old Town area to regional trails
- Access from the Butterfield-Batavia-Route 59 Triangle area to regional trails
- Access to the Illinois Prairie Path for the Summerlakes neighborhood
- A Maple Hill access route to Warrenville's bikeway system

This section of the Plan will discuss the findings, and the following section will expand those findings into recommendations. See Section 4, Warrenville Bikeway System Recommendations. The overall map located at the beginning of Section 4 provides a legend for the color-coding of bike facilities in this section's maps.

3.1 Cantera Area



While the major streets in Cantera have sidepaths, the area is isolated from the rest of Warrenville's bikeways, attractions, and City center. The only connection is at Ferry Road and the Forest Preserve District of DuPage County's West Branch Regional Trail along the east side of the DuPage River. Thus, a cyclist wanting to go to Cantera would have to travel east on the Illinois Prairie Path, ride to the West Branch Regional Trail in Warrenville Grove Forest Preserve just west of Winfield Road, proceed south to Ferry Road, travel east on Ferry Road to Winfield Road, and then ride south on Winfield Road to Diehl Road.

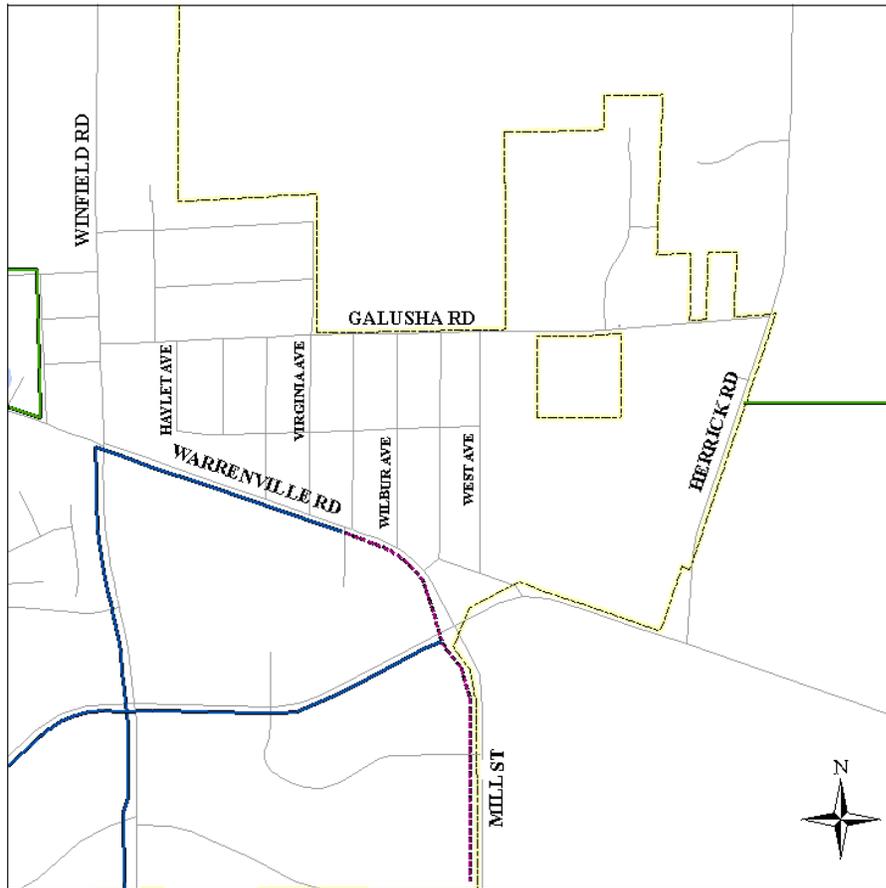
A more obvious connection would be at Winfield and Warrenville roads, but no sidepaths or shoulders exist along Warrenville Road toward Batavia Road.

The sidepath along Diehl Road continues west but stops at the bridge over the DuPage River. A cyclist could cross the bridge to get to the West Branch Regional Trail but would need to ride across the bridge without an escape route due to the lack of a shoulder or a sidepath on the bridge. Once over the bridge, there is no connection to the trail that runs along the river under the bridge.

The immediate area around the Warrenville Road, Mill Street and Ferry Road intersection contains no sidepaths or paved shoulders yet is a critical part of an interconnected trail system. Cyclist wanting to go west on Warrenville Road and connect to Cantera or the West Branch Regional Trail along the river must ride a section of the road with a 45 mph speed limit in a car travel lane.

Bicycle parking has been provided and planned near almost every existing and proposed restaurant, hotel, shopping, entertainment, and service facility in Cantera. Some offices complexes also provide safe and convenient bike racks for those commuting on bicycles.

3.2 Galusha Area



The Galusha Road area is essentially isolated from existing cycling facilities. Access to or from the Illinois Prairie Path is a 4-foot-wide sidewalk along the east side of Winfield Road between Warrenville and Butterfield roads.

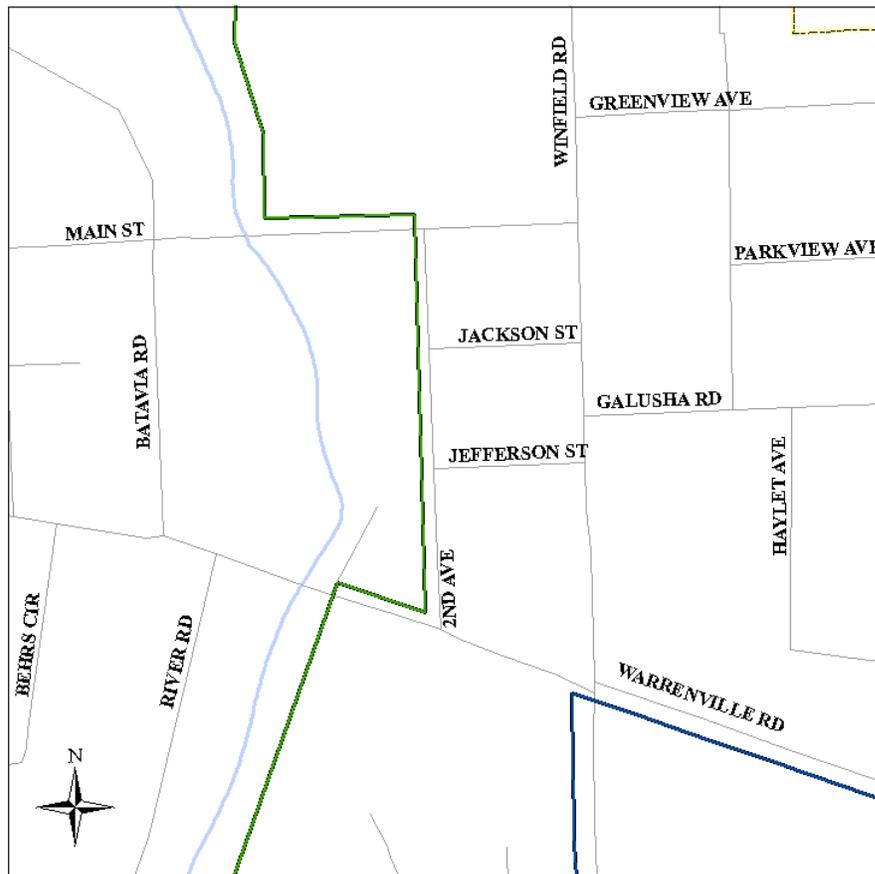
Access to the Warrenville Grove Forest Preserve is through the Warrenville and Winfield Roads intersection, not a bicycle-friendly intersection. This also provides access to a southern route to Naperville along the east side of the DuPage River also known as the West Branch Regional Trail. There is a crosswalk across Warrenville Road just east of the river.

Access to Herrick Lake Forest Preserve is also limited. A gravel service road connects Herrick Road several hundred yards south from Galusha Road with the trails in the preserve. Bicyclists also use Herrick Road as a north-south bikeway from some of the Cantera east-west routes, especially from Warrenville Road. In many cases, “road bicyclists” use Warrenville Road to access other routes, but few recreational bicyclists use these routes because of access, traffic, road conditions, and crossings.

Although there is an east-west route north of this area along Butterfield Road on the Illinois Prairie Path, there is neither an adequate east-west passage through the Galusha Road area nor an adequate crossing at Herrick or Winfield roads near Galusha Road.

This will become a larger issue with the construction of the District 200 middle school, which will create additional car and bicycle traffic, including students who bike to school. Commission members have observed large numbers of bicycles at the existing middle school facility.

3.3 Old Town Area



The Old Town area connects to the Illinois Prairie Path and the Batavia Road sidepath along its north, but connections along the east and south are lacking.

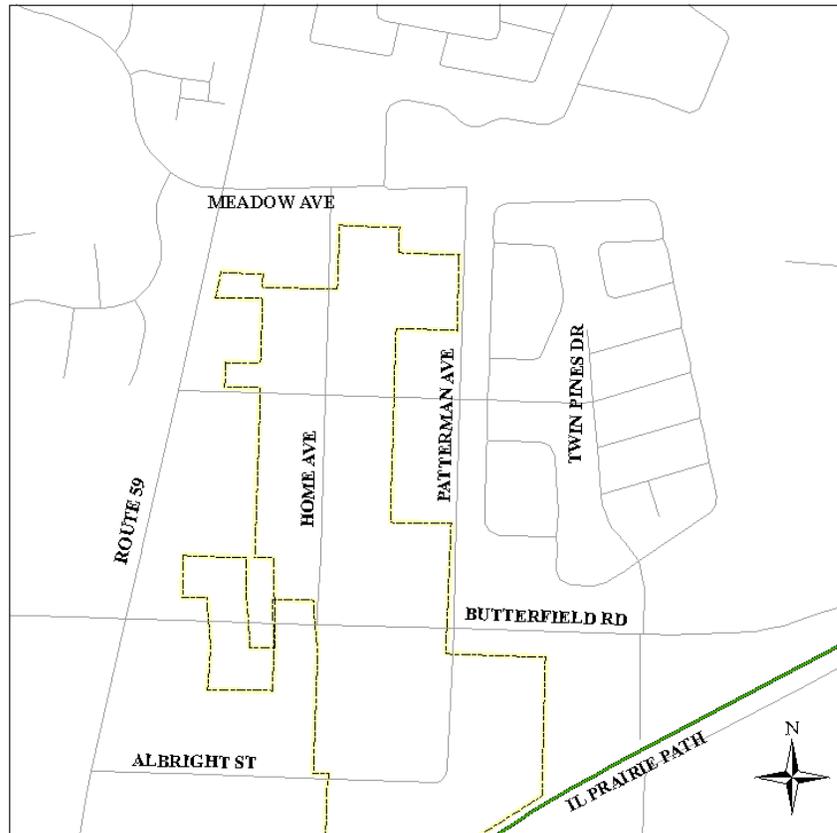
The stretch of Warrenville Road between Batavia and Winfield roads (owned by DuPage County) is key to providing a connection between Batavia Road, Warrenville Road, the Galusha Road area, the Cantera sidepaths, and the West Branch Regional Trail. It is used by bicyclists heading east at the end of Batavia Road, those traveling south on Second Street from Warrenville Grove Forest Preserve, those traveling north from Cantera on Winfield Road, and those traveling east or west on Warrenville Road.

Unfortunately, this section of Warrentville Road has no paved shoulders. There is a sidewalk between Batavia Road and First Avenue on the north side, but it is narrow and in poor condition. From First Avenue to Second Avenue, a wide sidepath exists on the north side of Warrentville Road as part of the West Branch Regional Trail. From Second Avenue to Winfield Road, there is a standard sidewalk on the north side.

On the southwest corner of Warrentville and Winfield roads, there is a sidepath within the boundaries of the gas-station property, but there are no facilities for bicycles west of that property.

This area, addressed in the adopted Old Town/Civic Center Subarea Plan, will become very attractive to bicyclists as it makes its transformation. The Plan includes bicycle and pedestrian bridges, paths, parking, and other facilities. This problem could be resolved during that transformation; however, there needs to be some near-term relief for bicyclists.

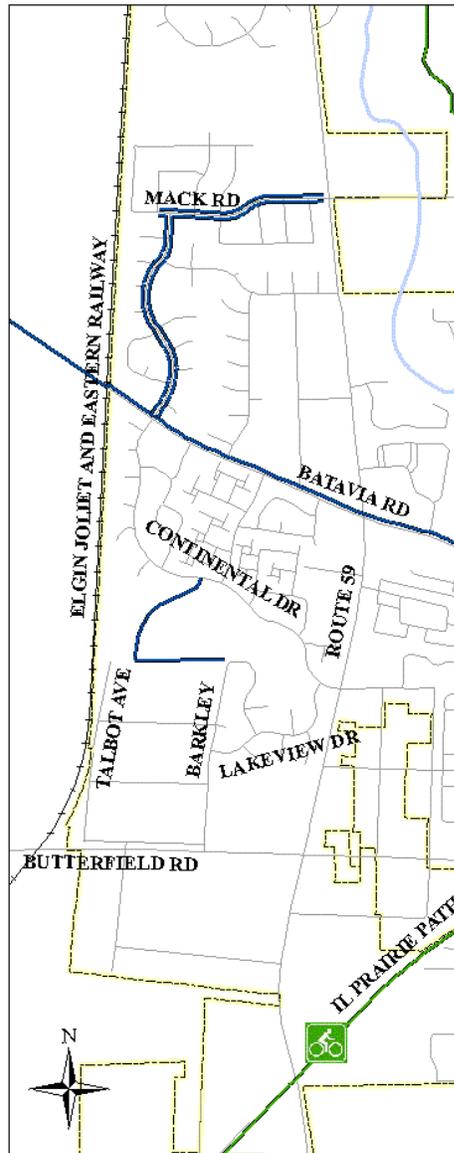
3.4 Butterfield-Batavia-Route 59 Triangle Area



Cyclists from the Home Avenue / Twin Pines Drive area have stated that they cut across Butterfield Road at Twin Pines Drive, an uncontrolled intersection across a high-speed highway, to get to this section of the Illinois Prairie Path. In about 2002, the City performed a traffic study at this intersection to determine if it met the criteria for a traffic light installation. It did not and IDOT refused to install a traffic light. Without a light or crosswalk at the Twin Pines Drive intersection, a dangerous situation exists.

IDOT plans to widen Butterfield Road in the area of this intersection. Once completed, the situation will become a larger safety issue.

3.5 Summerlakes Area



For the Summerlakes area, cyclists have direct access only to the Batavia Road sidepath. While the white-edged line on Continental Drive north of Batavia Road provides a BLOS A-rated route to the sidepath, the section south of Batavia Road has only B-rated routes.

The only identified access to the Illinois Prairie Path is at Batavia and Butterfield roads. Cyclists from the Summerlakes subdivision who want to travel southwest toward Aurora on the Illinois Prairie Path have to travel east along Batavia Road to Butterfield Road and then back west along the Illinois Prairie Path. The alternative is to ride west through Fermilab, south along Kirk Road, and then east on the Batavia Spur to connect to the Aurora Branch of the Illinois Prairie Path.

3.6 Maple Hill Area



The Maple Hill area of Warrenville is isolated from existing bikeways and trails in Warrenville. Bicyclists can only access Warrenville pathways and the Illinois Prairie Path by riding along the east or west side of Route 59 on the paved shoulder. At the Mack Road and Route 59 signaled intersection, bicyclists can turn west on Mack Road to Continental Avenue. From this location, a cyclist can connect to the established Warrenville bikeway system and travel on marked roadways to Batavia Road.

Access to Blackwell Forest Preserve trails is also limited and can only be gained by crossing Route 59 at the Mack Road signal. From that intersection, bicyclists experience a narrow road without a shoulder, sidewalk, or pathway. Few recreational bicyclists use these routes because of access, traffic, crossings, and road conditions on both Route 59 and Mack Road. There are not any painted crosswalks or walk signals at Route 59 and Mack Road.

4. Warrenville Bikeway System Recommendations

The existing Warrenville bikeway system is a combination of on- and off-road facilities. As described, this includes collector streets, designated and marked streets, wide sidewalks, and specific sidepaths. The routes connect some areas of the City to each other and provide important regional connections to surrounding communities and regional trails.

Many of the residential streets in Warrenville have traffic volumes that are low enough to be suitable in an “as-is” condition for cycling. Therefore, the Warrenville Bicyclist and Pedestrian Advisory Commission determined that an arterial system would be the appropriate design for the City. It would be a system of streets, sidewalks, and paths with designated major cycling routes fed by quiet residential streets known as “collectors” for the arterial routes. Connectors between major routes would also be important considerations where gaps between major routes exist so that bicycles could traverse obvious and effective interconnections.

In determining the location of potential routes, the Commission reviewed existing bicycle facilities in the City. This initial step, outlined in Section 3, identified areas where gaps occurred in arterial routes or where adequate collectors did not exist. It also identified deficits in existing routes, such as key linkages, signage, and intersection and other improvements.

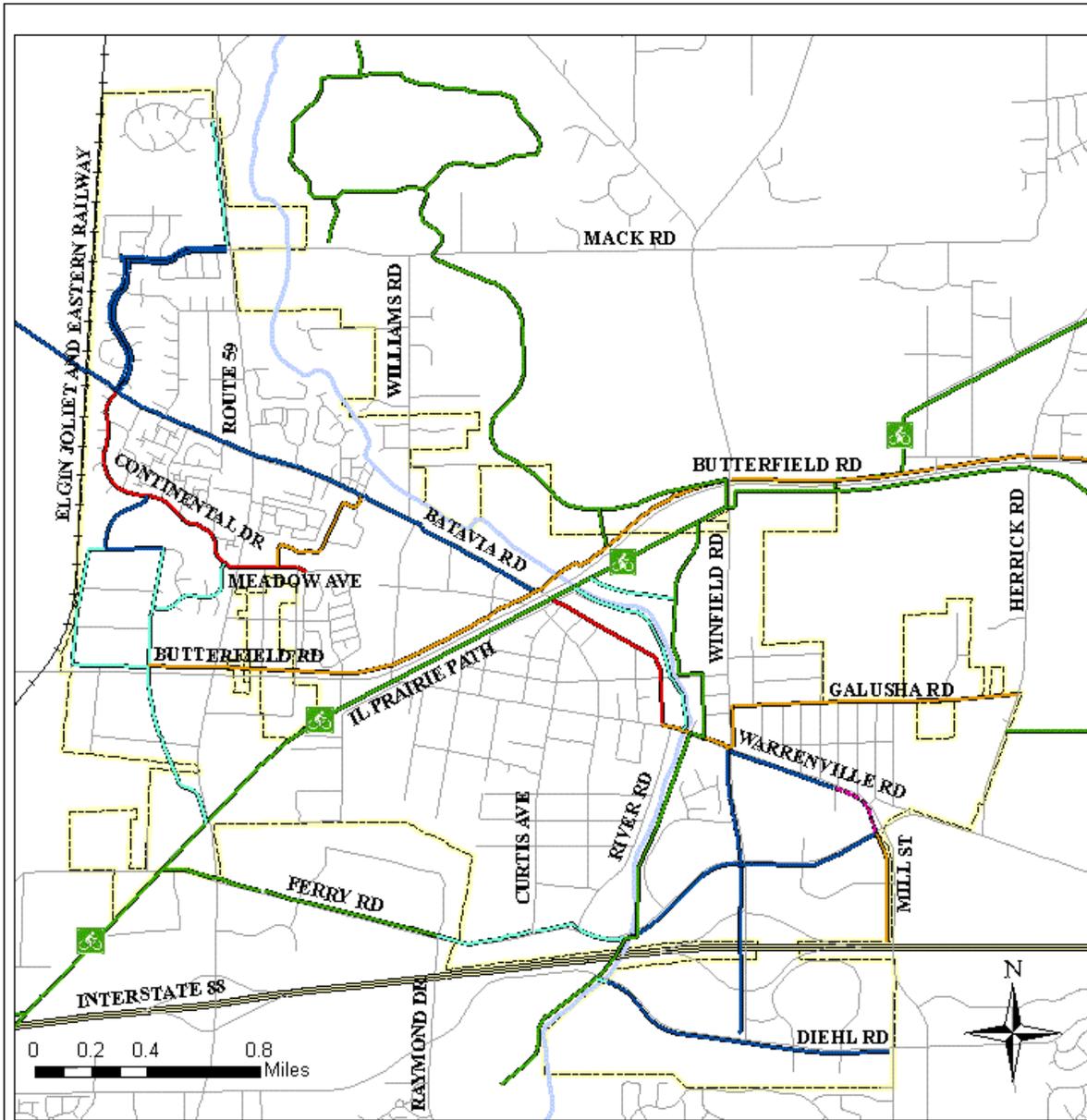
The Commission then discussed and analyzed various methods for improving the inadequacies. As a result, it recommended specific improvements for each identified area and made general recommendations for planned and ongoing developments.

Choosing an appropriate bicycle facility involves both public input and technical recommendations. Depending on the situation, the best technical choice may be an on- or off-road improvement or signs for route that may already be adequate. Two planning tools were employed in this Plan to objectively assess existing conditions: the Bicycle Level of Service, which measures on-road suitability, and the Sidepath Suitability Score, which rates bicycling on a sidewalk or sidepath.

Later, the Commission used these tools to gauge the feasibility — and the resulting benefits — of different bicycle facility options. These analyses considered bicycle usage, traffic speed, traffic volume, pavement condition, lane width, and the presence of on-road bike lanes, paved shoulders, or other bikeway options, such as sidewalks and specific bikeway or pedestrian paths. These tools are further described in Appendix I.

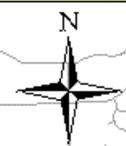
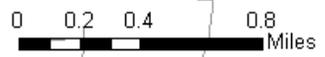
In general, more experienced and traffic-tolerant cyclists prefer roads that have a BLOS rating of C or better. More casual cyclists may be comfortable on roads that are B or better. The least traffic-tolerant may bike only on A roads or on trails and sidewalks. Other bikeway plans have called for a design policy with a minimum level of C for all roads and B for roads with high latent demand, those near important destinations, major through routes, etc. In the case of Warrenville’s Plan, since only arterial routes are specifically addressed, recommendations are based on achieving a B rating or better.

As discussed in Appendix I, sidepaths are generally not recommended over on-road bicycle facilities because of two major concerns: the lack of visibility between motorists and cyclists and the lack of connections to other facilities at the end, which results in cyclists who tend to travel the wrong way on a street. However, in some instances in Warrenville, a sidepath is the only feasible improvement. For example, Winfield Road north of Warrenville Road lacks a shoulder and has high traffic volumes and relatively high traffic speeds. Students going to or from the Hubble Middle School may use that route. Clearly, an on-road facility on Winfield Road would not be appropriate. In cases where a sidepath is recommended, the Sidepath Suitability Score was used to ensure that the proposed path had an appropriate rating. Engineering designs of any new sidepaths should pay particular attention to the visibility, should ensure that crossings are clearly marked, and that the ends of the sidepaths connect with other bicycling facilities.



Legend

- EXIST'G IPP/FP PATH
- EXISTING BIKE PATH
- HIGH PRIORITY
- MEDIUM PRIORITY
- LOW PRIORITY
- UNDER CONSTRUCTION
PENDING FINAL APPROVALS
- CITY LIMITS
- ILLINOIS PRAIRIE PATH



City of Warrenville
 Prepared By: Lee Spencer
 September 22, 2008

4.1 Cantera Area

These recommendations would establish a more direct connection for bicyclists while encouraging them to see Cantera as a destination. Bicycle parking should remain an important aspect of any new development process to ensure that cyclists have safe areas to secure their bicycles when visiting Cantera destinations.

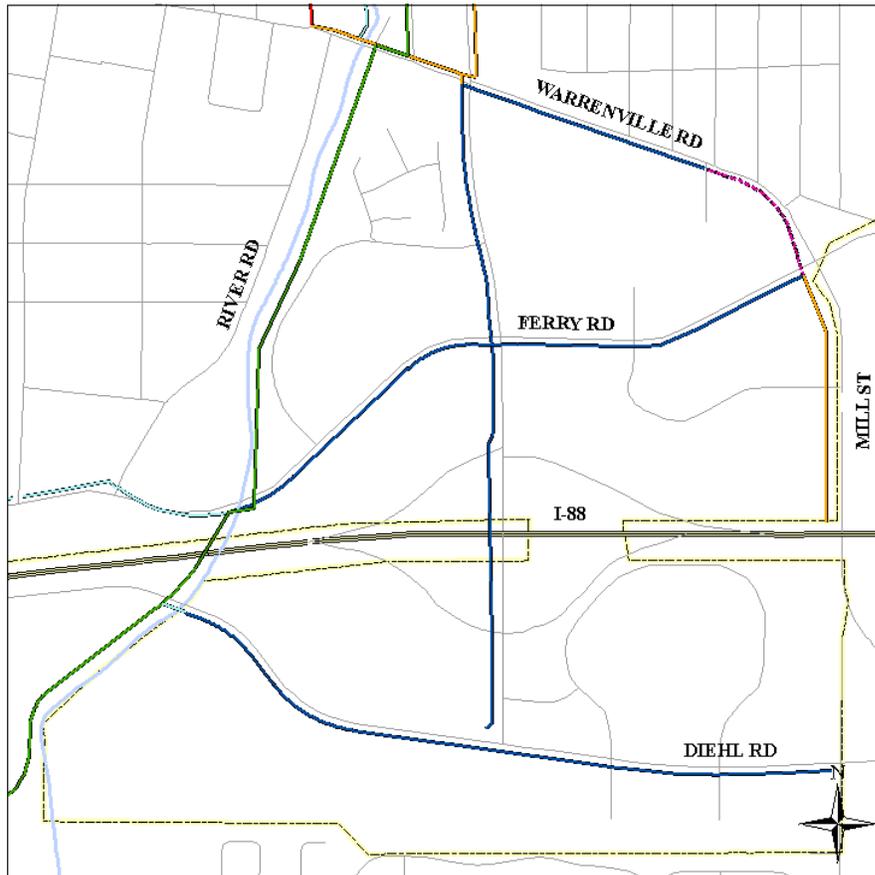
4.1.1 Warrenville Road



The sidepath along the south side of Warrenville Road east of Winfield Road ends at Virginia Avenue. From there, cyclists traveling east have to ride in the car-travel lanes. The sidepath should be continued from Virginia Avenue to the intersection with Mill Street. With a crossing at Ferry Road, this path would connect with the existing sidepath on the south side of Ferry Road. Note that this sidepath extension is included in the site plan for the new hotel on the northwest corner of the Warrenville-Ferry-Mill intersection. The crossing at Village Green Boulevard should be striped as well as the crossing with Lorraine Avenue and any future entrances. These improvements would raise the Suitability Score from a 12, not suitable, to a 5, most suitable.

Adding a sidepath eastward from the Warrenville-Ferry-Mill intersection would connect those sidepaths with the existing wide paved shoulders on Warrenville Road to the east.

4.1.2 Diehl Road Bridge



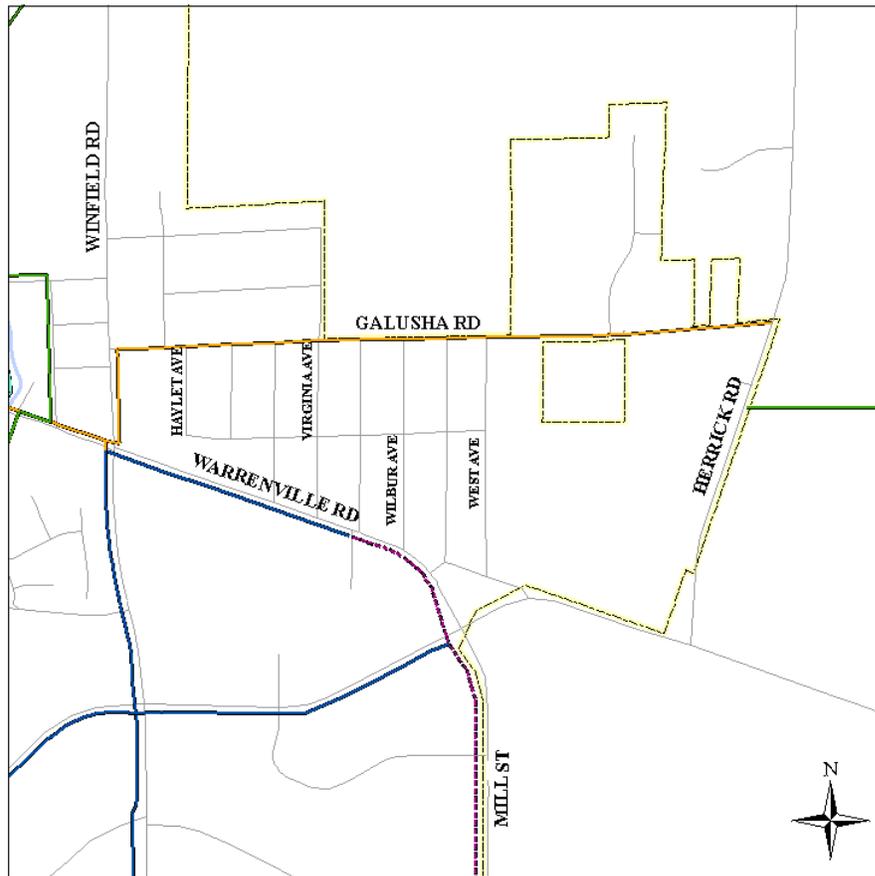
Adding an attached sidepath on the south side of the existing bridge over the DuPage River would provide a connection between the southern portion of Cantera and the West Branch Regional Trail. By taking the trail north, cyclists could connect with the Old Town area via the proposed sidepath at Ferry Road (see 4.3.1), at Warrenville Road, or the Illinois Prairie Path.

As work on the West Branch Regional Trail progresses, more long-distance cyclists will use it. An easy connection with the Diehl Road sidepath will encourage them to visit restaurants, stores, and the movie theater along Diehl Road.

4.1.3 Diehl and Winfield Roads Intersection

There is a properly marked crosswalk across Diehl Road on the west side of the intersection; however, the markings are in poor condition and barely visible. They should be repainted and a maintenance schedule established. The crosswalk lights at the intersection should be checked to ensure that they are properly timed. This intersection is under the jurisdiction of and maintained by DuPage County.

4.2 Galusha Area



4.2.1 Galusha Road

Warrenville considered constructing a sidepath from Herrick Road to Winfield Road on the south side of Galusha Road. This would create a link between the Galusha Road area and the rest of Warrenville and the Illinois Prairie Path.

Residents along Galusha Road raised questions concerning the proposed sidepath. The two main questions concerned whether the width could be reduced from 10 feet to 5 feet and whether the sidepath would be better situated on the north side of Galusha Road.

A sidepath is used for two-way traffic. Sidepaths are generally constructed with a 10-foot width so that cyclists traveling in opposite directions can pass without risk of collision. That 10-foot width also allows a cyclist to safely pass a pedestrian or another cyclist. The suggested 5-foot width does not provide sufficient width for those cases. It should be noted that the Batavia Road sidepath is 8 feet wide and demonstrates that such a width is adequate for the number of users seen in Warrenville. Therefore, the proposed sidepath could be reduced to 8 feet wide, but a 5-foot-wide design is not recommended.

The suitability of a sidepath is determined by a number of factors, including the number of street crossings and driveways within a given distance, the adequacy of crossing markings, and the connectivity of the end of sidepath to other cycling facilities. There are 12 driveways and eight crossings between Winfield Road and West Avenue on the south side. On the north side, there are 13 driveways and two street crossings. It should be noted that the driveways and street crossings on the north side are located over a shorter stretch of road than on the south side. A higher density of crossings tends to lower the suitability rating.

As noted in sections 4.2.2 and 4.2.3, the Plan recommends that provisions be made to connect the Galusha Road sidepath to the Old Town area and the trails in Herrick Lake Forest Preserve. Thus, the Galusha Road sidepath was intended to be part of a wider network of interconnecting cycling paths.

Entering the above factors into the Sidepath Suitability algorithm yields a score of 2 for the north route and 3 for the south, essentially the same rating. However, two factors favor a sidepath on the south side. First, a north route would require most cyclists to cross Galusha Road twice. Since it is anticipated that students would use the sidepath for access to the new middle school, it would be preferable to reduce or eliminate the number of times Galusha Road needs to be crossed. Secondly, the setback of the houses on the north side of Galusha Road seems on average to be less than on the south side. Locating a sidepath on the north would have a greater impact on the front yards of those houses. For these reasons, a sidepath along Galusha be located on the south side of the street appears preferable.

In response to residents' concerns, the City Council decided to install a sidewalk instead of a sidepath along Galusha Road. Therefore the recommended improvement for Galusha Road is to designate it as a bicycle route since it has a 'B' BLOS rating and install appropriate signage.

It is possible that a southeast access path to the Hubble Middle School may be developed. That could provide the possibility of an alternate route for a sidepath servicing the Galusha Road area. The alternate route would be on the north side of Warrenville Road and run east from Winfield Road to about West Avenue, and connecting to the existing sidewalk east of Lorraine Avenue. From there, it could pass through the industrial park north of Warrenville Road and Mill Street and then to the school access path. Having the bike path cross the school property to Herrick Road would establish a connection to the trails at Herrick Lake Forest Preserve. The exact path of the school access path is uncertain, so this route may have to be modified accordingly.

4.2.2 Winfield Road

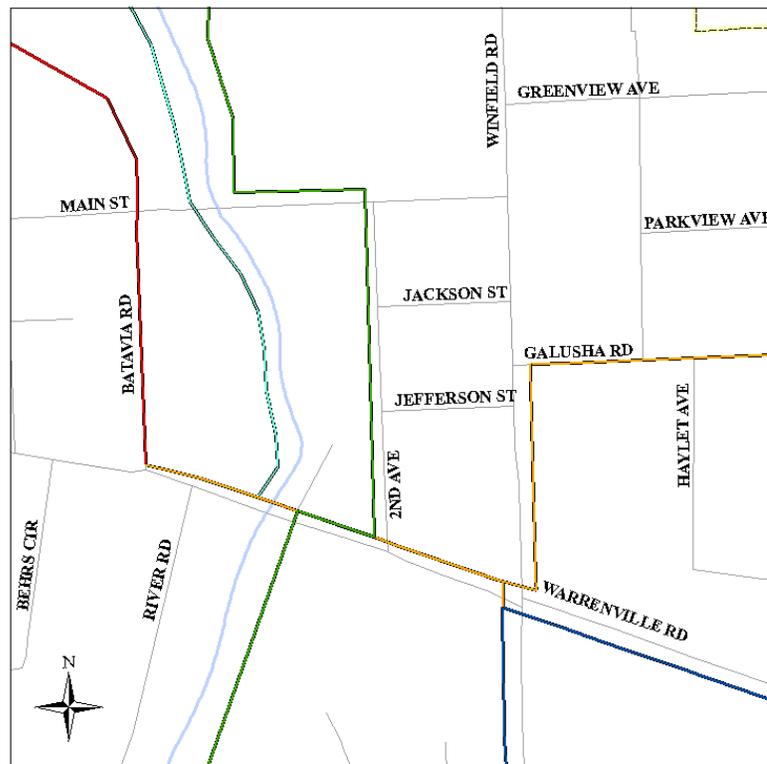
Widening the existing sidewalk to 8 to 10 feet to create a sidepath on the east side of the Winfield Road from Galusha Road to Warrenville Road would provide a connection to Cantera, the West Branch Regional Trail, and the Old Town area via Warrenville Road. The crossings at the entrances to the three businesses located along the sidepath segment

should be striped. These improvements would raise the Suitability Score from a 7, somewhat suitable, to a 4, most suitable.

4.2.3 Herrick Road

Working with the DuPage County Department of Transportation could create a sidepath or a marked shoulder along Herrick Road, either from the gravel service road that leads to the Herrick Lake Forest Preserve trail system 300 feet south of Galusha Road or to the existing Forest Preserve entrance to the north.

4.3 Old Town Area



4.3.1 East-West Sidepath Along Ferry Road

There is an existing sidepath along the south side of Ferry Road between Mill Street and the DuPage River that connects with the West Branch Regional Trail along the river. A sidepath also exists along the north side of Ferry Road from the Illinois Prairie Path to Raymond Avenue. Widening the sidewalk between the two sidepaths would provide residents on the south end of Warrenville access to the West Branch Regional Trail, westbound Illinois Prairie Path, and the Cantera area. The proposed route includes the following elements:

- From Raymond Avenue to River Road, the sidewalk on the north side should be widened to 8 to 10 feet.

- The light at the Ferry and River roads intersection would provide a safe crossing to the south side of Ferry Road.
- From River Road to the River, the sidewalk on the south side of Ferry should be widened to 8 to 10 feet.

4.3.2 Incorporation of Existing Sub-Area Plans

In April 2007, the Warrenville City Council adopted the City of Warrenville Old Town/Civic Center Sub-Area Plan to improve two specific areas. The Plan was developed by the City staff and the Community Development Committee with support of community members and was recommended to the council by a group of outside consultants and the Sub-Area Planning Commission after being reviewed by residents. The Plan envisions “enhancements within and along the Butterfield Road right-of-way that improve bicyclist, pedestrian, and vehicular access to the District and provide it with a distinct identity.”

The Sub-Area Plan is described in detail in a 132-page, two-volume final report with detailed diagrams showing alternatives plans, which are included in miniature below.

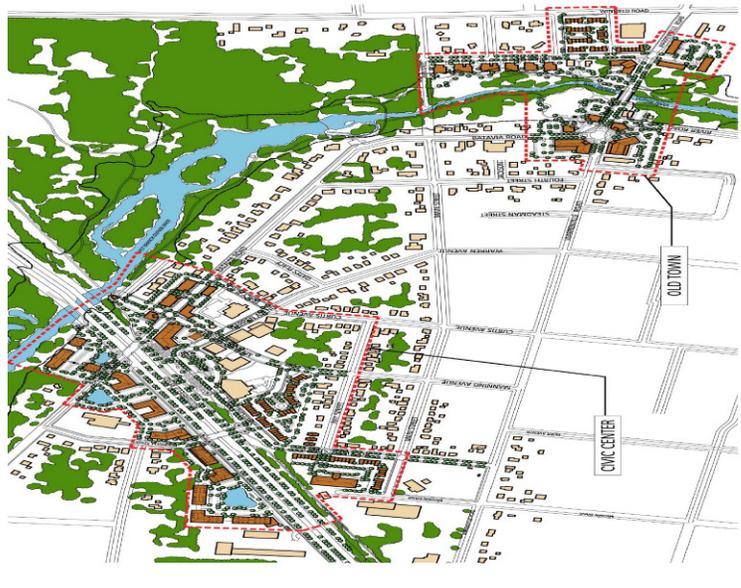


Figure 1
Sub Area Plan Diagram

Figure 1 shows the areas involved with the Sub-Area Plan. The Sub-Area Plan is significant to the City of Warrenville Bikeway Implementation Plan in that it details the concepts of bicycle traffic within the two planning areas. It also describes the expected outcomes of several aspects of the both the DuPage River cleanup and restoration projects and the Butterfield Road widening project with regards to crossing at the DuPage River and the Batavia and Butterfield roads intersection.

Within the Plan, certain assumptions need to be confirmed and expanded and managed for the Batavia Road area between Butterfield and Warrenville roads, including the following:

- Creation of the Butterfield Road sidepath as described in section 2.4.1
- Connection of the Blackwell Forest Preserve to the Butterfield Road sidepath at the DuPage River
- Connection to a new north-south path on the west side of the DuPage River onto the existing north-south path on the east side of the DuPage River at Warrenville Road, which would be created from the access road needed for the river cleanup and restoration
- Development of a path along the DuPage River north of Butterfield Road that may be provided as the result of the river cleanup and that could connect with the Forest Preserve District of DuPage County's Cenacle property
- Planned intersection crossing at Batavia and Butterfield Roads and Rockwell Street and Butterfield Road
- New bridge crossing the DuPage River near the proposed parking lot by the Warrenville History Museum

Both the Planning Commission and its consultants attempted to address some of these issues with the following diagram.

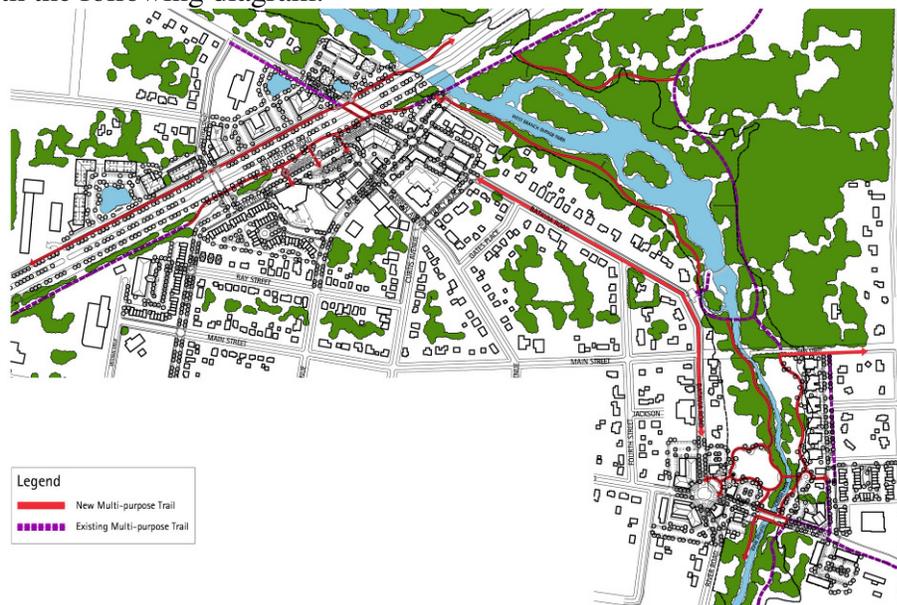


Figure 2
Sub Area Planning Trail View

Although this diagram shows pedestrian and bicyclist trails, it does not address implementation of those facilities, which will need to be monitored and managed as the development of the sub-area progresses.

Several potential grant sources are available to fund infrastructure improvements of the type recommended in the Sub-Area Plan. Grant sources are described in section 6 of this Plan.

4.3.3 Warrenville Road

There are several recommendations depending on the section of road:

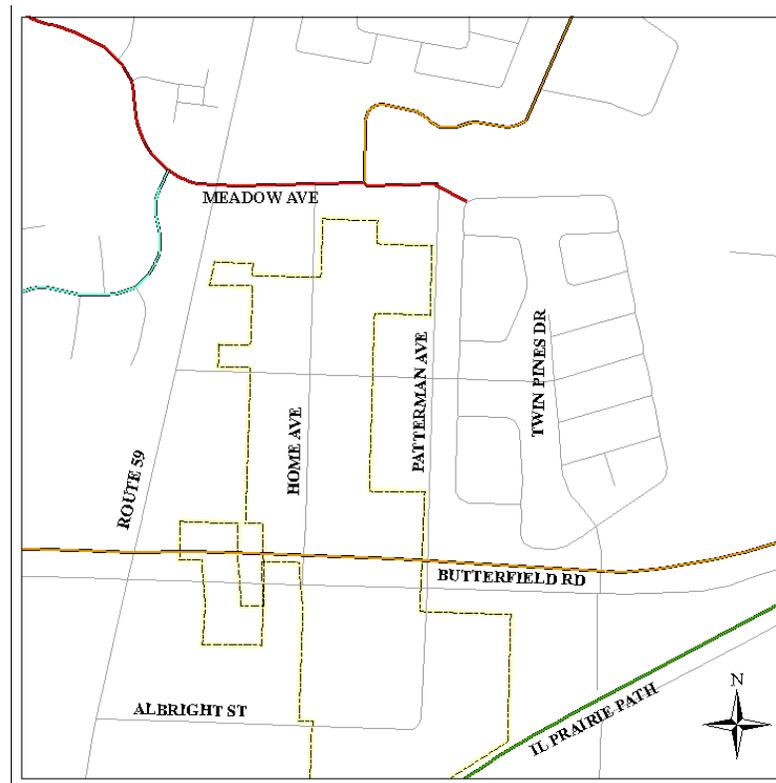
- Butterfield Road, the Illinois Prairie Path, to Batavia Road. This section has recently been rebuilt, but there is an inadequate right-of-way for a sidepath or designated on-road bike lanes. Batavia Road to Winfield Road
- The Old Town Sub-area Plan recommends a traffic circle for the intersection with Batavia Road. The addition of a bike lane around the outside of the circle with a widened sidepath on the north and south side of Warrenville Road from Batavia Road to Winfield Road would provide a proper connection between Batavia Road, Warrenville Road, the Galusha Road area, the Cantera sidepaths, and the West Branch Regional Trail

4.3.4 Batavia Road

Many road cyclists use Batavia Road between Butterfield and Warrenville roads. Adding a 4-foot bike lane without parking along both sides of the road would raise the BLOS rating from 'C' to 'B'. Lane markings should follow the AASHTO Guide for the Development of Bicycle Facilities, and the striping should connect to the bikeway system at Batavia Road's eastern end, where it intersects with Warrenville Road to provide access to Cantera, eastern routes on Warrenville Road, and the West Branch Regional Trail. In order to complete this link from Batavia Road, additional striping and sidepath improvements will be needed along Warrenville Road from Batavia to Winfield roads.

A crosswalk is also needed at the Warrenville Grove Forest Preserve parking lot so that bicyclists, as well as pedestrians, using the sidewalk along Batavia Road can easily access the Forest Preserve trails. However, given that the entrance is located on a curve, careful consideration as to the feasibility, exact location and best design of such a crossing will be required.

4.4 Butterfield-Batavia-Route 59 Triangle Area



4.4.1 Meadow Avenue and Timber Drive

Meadow Avenue and Timber Drive could provide a route for cyclists in this area to connect to the Batavia Road sidepath or Summerlakes Park via the wide shoulders on Continental Road. Timber Drive is not wide enough to allow for a striped shoulder on either side, but traffic volume is low enough that the BLOS score for the road is a 'B' and is thus suitable for cycling. The road should be signed to indicate that it is a bike route. At the east end of Timber Drive, a marked crosswalk should be added across Batavia Road to provide a connection to the Batavia Road sidepath.

Although Meadow Avenue is 35 feet wide, for 200 feet on the west end, it is marked as two travel lanes with a turning lane for left turns onto Route 59. Thus the area is not wide enough to add wide marked shoulders or bike lanes on the street. There are sidewalks on either side of the street, but they are only 3 feet wide. These same conditions exist at the east end of Continental Drive on the west side of Route 59. One possible treatment for the intersection would be to use sharrow markings on the right side of the through lanes to guide cyclists through the intersection and to warn motorists that cyclists may be in the lane. The marking would be in conjunction with "Share the Road" signs. Further investigation would be required to determine the most feasible design for the intersection at Meadow Avenue, Continental Drive and Route 59.

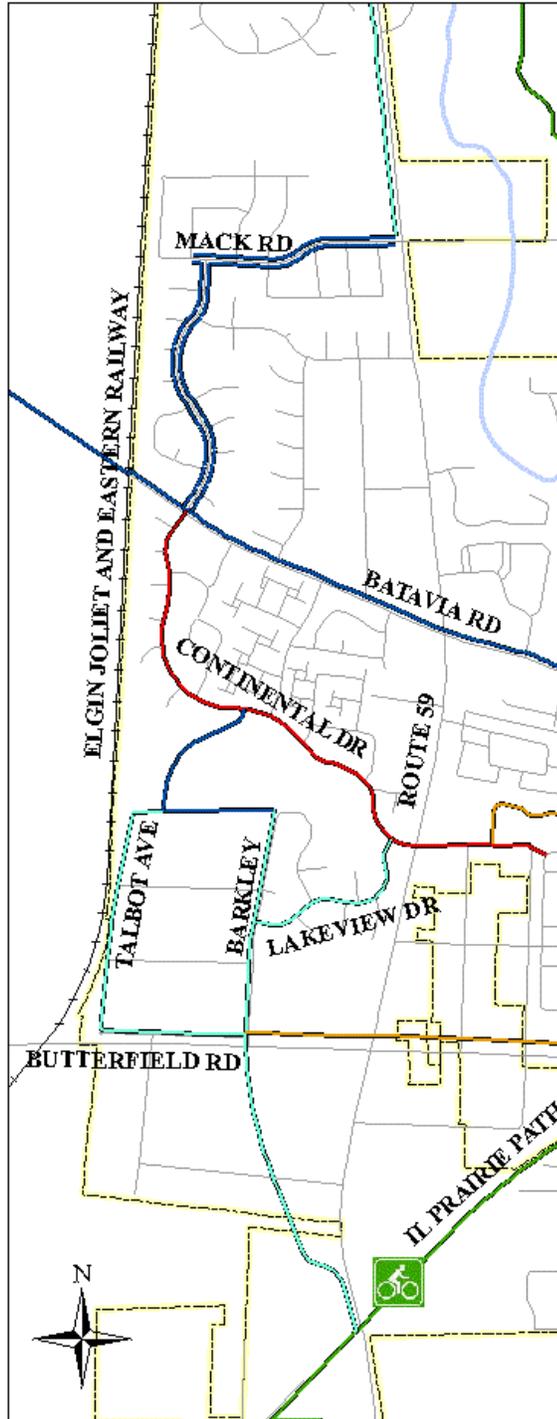
4.4.2 Ferry Creek Bridge

Adding a bridge over Ferry Creek would link the Candlewood Lane area to Kiwanis Park and the Meadow Avenue-Timber Drive route. The original Illinois Prairie Path bridge over the West Branch of the DuPage River was acquired and installed for this use.

4.4.3 Butterfield Road

The potential sidepath along Butterfield Road, when expanded, would provide another route for cyclists to reach the Illinois Prairie Path at Batavia Road or Summerlakes Park to the west. The sidepath would be accessed via Home Avenue, Patterman Road or Twin Pines Drive.

4.5 Summerlakes Area



4.5.1 North-South Bicycle Route

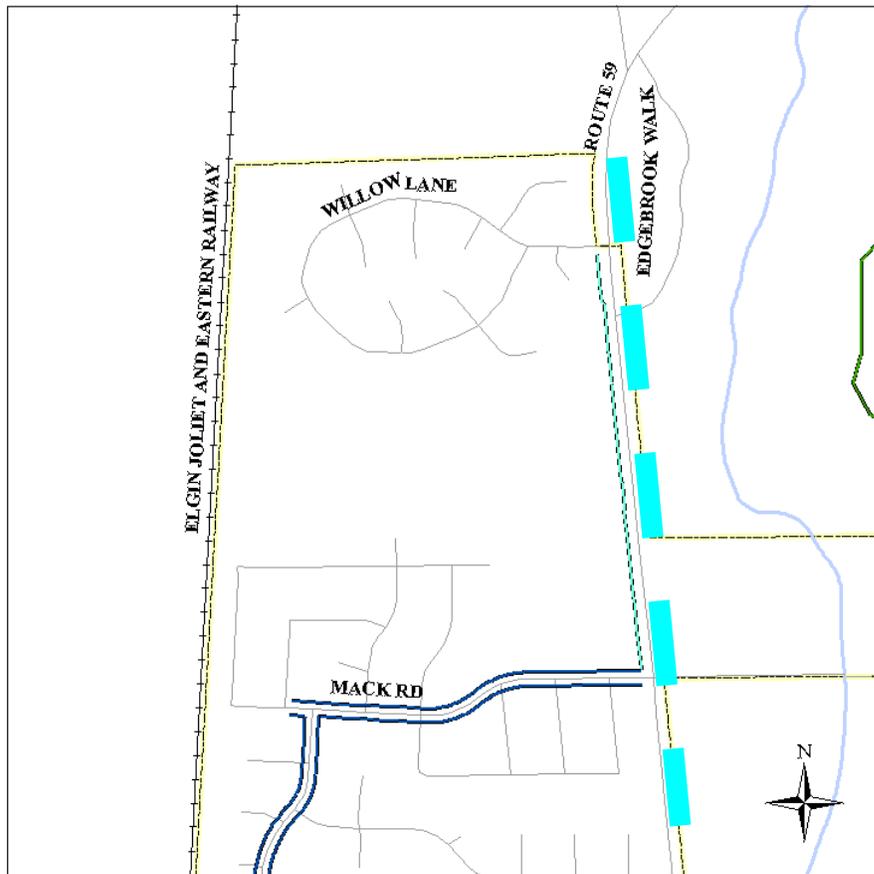
As described in section 3.5, the only existing and specified access to the Illinois Prairie Path for the Summerlakes area is at Batavia and Butterfield roads. The Committee thought it desirable to provide an access route to the path that does not require cyclists to travel so far east in order to ride west.

A north-south route within the Summerlakes area would resolve this issue. The proposed route is as follows:

- Mack Road from Route 59 to Continental
The road is striped on both sides with white edge lines designating 7-foot parking lanes that have a low percentage of parking. This road has an 'A' BLOS rating. Residents can use collector roads to access Mack Road.
- Continental Road from Mack Road to Batavia Road
This road is striped on both sides with white edge lines designating 7-foot parking lanes that have a low percentage of parking. This road has an existing 'A' BLOS rating.
- Improved Crossing at Continental and Batavia Roads
The intersection is already striped with crosswalks, so the addition of signage indicating a bicycle crossing should be sufficient.
- Continental Road from Batavia Road to Route 59
This road has an 'A' BLOS rating. Striping on both sides with white-edge lines designating 7-foot parking lanes would provide a more defined area for cycling and raise the comfort level of cyclists. Again, access to this route for local residents would be through connecting streets south of Batavia Road. Residents east of the school would use the proposed striping on Continental Road heading west to the school.
- Access Summerlakes Park Trails via Johnson School Parking Lot
There is a sidewalk between the park trails and the sidewalk along Continental Drive. If used as a bike path, it would need to be widened to 8 to 10 feet and have an added curb cut at the west entrance to the parking lot. An alternative would direct cyclists through the parking lot itself. The curb cut would be required between the path and the parking lot. Signage will be an important part of this portion of the route to direct cyclists along the route. Since this section would connect to the Summerlakes Park trail, coordination with the Warrenville Park District would be required.
- Multiuse Trails through Summerlakes Park
These trails connect the parking lot at Johnson School with Talbot and Barkley avenues.
- Talbot Avenue
This street has very low traffic volumes and a 'B' BLOS rating. Adding a 3-foot-wide striped shoulder on both sides would maintain a 12-foot travel lane and improve the BLOS rating. The addition of bike route signage is recommended.
- IDOT-Proposed Sidepath on North Side of Butterfield Road
Currently, the Butterfield Road frontage road could be used with the addition of 3-foot striping. It currently has a BLOS rating of 'B'.

- Proposed crosswalk at Barkley and Route 56
A traffic signal would be installed with a marked crosswalk and pedestrian lights. This is indicated in the City's Sub-area Plan for the southwest corner of Butterfield Road and Route 59
- Path to the Illinois Prairie Path Before Ferry Road
Part of this path is already part of the City's Sub-area Plan for the southwest corner of Butterfield Road and Route 59.

4.6 Maple Hill Area

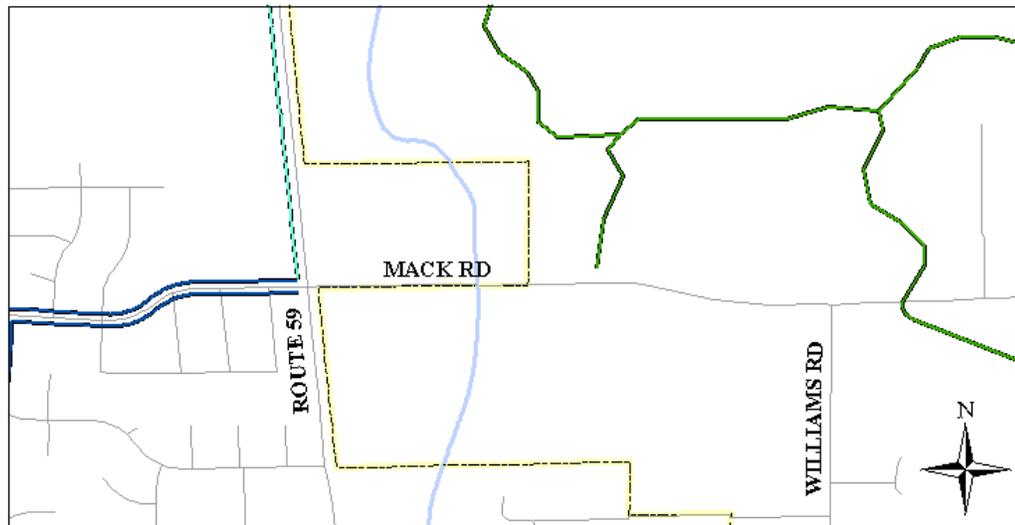


The Maple Hill area is separated from the Fox Hollow area by a portion of the Blackwell Forest Preserve. There is an informal path that leads north from the end of Avon Drive. The forest-preserve ground consists of wetlands, making it difficult to get approval for an official path. Even if a path were feasible through the preserve, there would be nowhere along the south edge of Maple Hill that would not place the path in a resident's backyard. The only possible route for a bicycle facility would be to create a sidepath along the west side of Route 59 between Willow Lane and Mack Road. Route 59 is under the jurisdiction of and maintained by IDOT. Additional studies and negotiations with IDOT would be needed to determine the feasibility of such a route.

4.7 Route 59 Recommendations

This Plan recommends improvements at all crossings from sidepaths, painted bike lanes, and any businesses that will cater to bicyclists along Route 59. This will require collaboration with IDOT, the agency responsible for maintenance of the road.

4.8 Mack Road



Although the section of Mack Road east of Route 59 is outside of Warrenville, cyclists traveling to Blackwell Forest Preserve and points east use that road extensively. It is recommended that Warrenville coordinate with the Forest Preserve District of DuPage County and with Winfield Township to establish either a sidepath or a safer on-road facility for cyclists.

5. General Recommended Updates to City Code

5.1 Signage

Signing the Warrenville bikeway system is an important step in encouraging the use of bikes for transportation. A well-signed system helps cyclists find the most efficient and safest routes, which in turn encourages people to bicycle. The Manual on Uniform Traffic Control Devices provides a comprehensive guide for the use of signs, pavement markings, and traffic signals. Part 2, Guide Signs, and Part 9, Traffic Control for Bicycle Facilities, provide information related to bicycle operation on both roadways and multiuse paths.

Bike route signs should be located every ¼ mile, at all turns, and at all major signalized intersections along a bike route.

The City of Warrenville Bikeway Implementation Plan will focus on three specific aspects of signage:

- Way-finding and location
- Information
- Automotive traffic

For the first and second aspects, Warrenville should create and integrate signage for a mapping system consistent with the vision of the City.

5.1.1 Way Finding and Location

Way finding and location are used to position riders within the Warrenville bicycle system. These signs include showing a specific location on a map (“You Are Here”), mile markers, and distance and directional markers denoting destinations. The latter would be at key crossroads.

This type of sign helps the bicyclist or traveler identify their location. For Warrenville, this type of sign should consist of signage that allows riders to clearly know where they are, clearly understand where they are going, understand route alternatives, and locate resources and facilities.

This system could also be integrated into paper and online systems. The paper system would consist of large maps with “you are here” designations and would be strategically positioned at all major bicycle route entrances to the City as well as at major designations within the City such as; the Warrenville Historical Museum, City Hall, the Warrenville Public Library, and the Warrenville Park District Recreation Center. The online system would be made available on the City’s website, <http://www.warrenville.il.us/>.

The maps should have a combination of roads and routes that are marked by a legend designating shared use, specific use, and surfaces. The maps should also have a way for the user to define distance to and from different locations within the City. These maps should include points of interest as well as landmarks.

There are several options for these maps and all are used by different trail systems:

- Vertical versus diagonal
- Paper under plastic versus vinyl
- Relief versus flat versus textured
- Wood versus metal or other material
- Physical design
- Contemporary
- Rustic

The signs at entrances to the City also serve as welcome messages, defining Warrenville as friendly to bicyclists.

5.1.2 Informational Signs

This Plan suggests another option by providing information to bicyclists regarding locations and resources within Warrenville, including restrooms, water fountains, vending machines, tire air, picnic areas, merchants that allow access to restrooms, restaurants, repair facilities, scenic locations and historic landmarks. This type of signage should be consistent with the map signs and with other signs within the community and should provide information about the rules of the road.

In most cases, directional signs could be as simple as arrows on a post. Sections of signs for merchants could be self-supporting through donations or other arrangements provided by the merchants.

5.1.3 Automotive and Traffic Signs

These signs, which are similar to traditional traffic signs and markings, have two target audiences: motorists and bicyclists. For motorists, the signs signal to be on the lookout for bicyclists and to recognize that Warrenville has a bicycle-friendly system, which will attract additional residents and visitors to the City's trail system.

For bicyclists, these signs signal that paths are designed for bicycle and shared use. A series of signs could clearly designate Warrenville bicycle routes, including joint-use roads, trails or paths, and sidewalks. Sign specifics would be based on BLOS ratings and the Chicago Bicycle Route Plan, and would include icons that are permanently marked on joint-use streets, where applicable. The Manual on Uniform Traffic Control Devices (MUTCD) from the US Department of Transportation provides information on the various types of signs.

The City should provide signs that direct bicyclists to parks, public restrooms, hydration facilities, and bike-related retail stores. To avoid excessive signs, signs should note a limited number of features, and mileages should be limited to one-mile increments.

Suggestions for crosswalks, places where trails cross streets, include the following:

- “Use Caution” painted on multiuse trails at hazardous intersections
- Removal of visual obstructions
- Display of “Bicycle Crossing” signs 250 feet before arterial crossings to warn motorists, including possible addition of green reflector strips on signposts, especially in high-traffic areas, such as schools, the Batavia Road crossing at Williams Road, and other community destinations
- Railroad signage

The majority of the Warrenton bikeway system is on shared-use roadways. Standard signs for these routes should include destination signs displayed in conjunction with “Bike Route” signs at regular half-mile intervals along bikeways. The bike-and-chevron image exhibited can be used on roadways with high amounts of on-street parking and bicycle traffic.

5.2 Drinking Water and Toilets

Where possible, the City should provide amenities like drinking water and toilets for bicyclists and pedestrians. Drinking water facilities are important for bicyclists; they not only help to replenish fluids but also serve as starting and ending points and intermediate rest areas. A drinking fountain may be appropriate in some cases, but bicyclists also need a way to fill water bottles and hydration packs, through the use of an auxiliary spigot or faucet. Hydration also goes beyond water, and vending machines or convenience stores could provide commercial beverages.

In Warrenton, several places on public property could serve as vending locations, including the library and the Warrenton Park District Recreation Center. The Recreation Center has vending machines that offer these beverages.

Consideration should be given when replacing or adding fountains in City parks, and constructing new way stations or pavilions. The new fountains should provide a faucet or other means to allow easy filling of water bottles and hydration packs. Hydration options, with the proper directional signs, could also be added near features like bike racks, portable toilets, picnic tables, and parking lots.

5.3 Bicycle Parking

Bicycle parking is important to encourage bicycling as an alternative mode of transportation. The City has provided parking at public buildings and restrooms and should encourage retail establishments to provide parking as well. Warrenton should create a development ordinance to specify the amount of bicycle parking that should be provided per land use and other parking requirements. The City Code of the City of Naperville provides an example of such an ordinance.

Adult commuters and others prefer the continuous wave-type Type II rack design for long-term, secure parking. This type is appropriate at locations like offices, public-

transportation stations, schools, colleges, and libraries. As shown on the right, a Type II rack locks a bike at two locations on the frame.



A Type III rack, shown to the right, is the least secure design. These racks are not recommended since they can damage a bike if the bike tips over while the front wheel is in the rack.

(Sources: SAA Image, www.bicyclinginfo.org, www.pedbikeimages.org)



5.4 Maintenance

Because bicycle tires are narrower and more easily punctured than automobile tires, bicycle routes require more maintenance than streets. Bicycle routes, lanes, and off-street paths require more frequent sweeping to remove glass, gravel, and other debris. Additionally, drainage grates that could catch bicycle tires need to be replaced, and landscaping at intersections along paths must be trimmed to maintain adequate sight distances. Striping and other on-street markings must be regularly repainted to maintain legibility, including pavement striping on all four segments intersection crosswalks. Cyclists should be encouraged to report roadway hazards to the Public Works Department. Funding will need to added to the Public Works Department budget to support maintenance.

5.5 Coordinate with Regional Planning Organizations

Numerous local and regional bicycle-planning efforts exist for bikeways within the Warrenville planning area. The Warrenville Bicyclist and Pedestrian Advisory Commission made every attempt to review these plans, incorporate them into its Plan, and, where possible, suggest improvements or other modifications. In many cases, these modifications need to be coordinated with the individual planning group. Efforts with the greatest affect on Warrenville's bikeway system include the following:

DuPage County	Aurora	Forest Preserve District of DuPage County
West Chicago	Naperville	Chicagoland Bicycle Federation
Wheaton	Fermilab	League of Illinois Bicyclists
Illinois Prairie Path	Winfield	IDOT

Adopted December 1, 2008

The Commission recommends that the City communicate regularly with these organizations.

5.6 Outside of Scope

5.6.1 Signaled Intersections

While there are numerous signalized intersections within the City limits of Warrenton, none are wholly within the City's jurisdiction: At least one road is controlled by the county or the state. The City should work with the appropriate agency to ensure that signal timing and intersection markings are appropriate and adequately maintained.

6. Funding Sources

6.1 Introduction

Funding assistance for bicycle facilities and maintenance projects is generally available from state and federal governments, which recognize the need to establish programs to assist local governments and public agencies with funding diverse transportation projects that include a bicycle component. Funding is also available through local budgets and land-dedication requirements.

The level of funding-assistance requirements and grant-administration methods varies by program. Several that provide funding are listed below. Local governments are generally required to provide a percentage of matching funds to participate in state and federal funding programs. The three most reliable sources of bicycle funding assistance are the Congestion Mitigation and Air Quality Improvement Program, the Illinois Transportation Enhancement Program, and the Illinois Bicycle Path Grant Program. The National Recreational Trails Program is also a reliable source but gives priority to other non-motorized uses (e.g., equestrian, hikers), and is typically only used when certain conditions or environments exist, such as a rail crossing or a natural area.

6.2 Federal Funding Sources

Congestion Mitigation and Air Quality Improvement Program

This program is administered by the Chicago Metropolitan Agency for Planning and targets projects that reduce congestion and improve air quality. Funds are administered through the Chicago Area Transportation Study; applications are due in January. The annual allocation for bicycle projects in northeastern Illinois in the past few years has been between 5 and 7 million dollars. Funded projects generally involve bike facilities that parallel major roadways or projects that increase the availability of parking facilities for bicycles and promote the use of bicycles over automobiles (80% federal or state, 20% local matching funds). CMAQ uses selection criteria related to cost divided by population/employment density of a buffer area around the project. Indications are that projects in the range of \$150,000 - \$300,000 would be appropriate for Warrenville's size. The cost would include basic project costs as well as administrative costs.

Illinois Transportation Enhancement Program

The program allocates resources to well-planned projects that provide and support alternate modes of transportation, enhance transportation systems through preservation of visual and cultural resources, and improve the quality of life for communities. Eligible projects include bicyclist and pedestrian facilities, "streetscaping," and landscaping. Federal reimbursement is available for up to 50 percent of the cost of right-of-way and easement acquisitions and 80 percent of the cost for preliminary engineering, utility relocations, construction engineering, and construction costs. Application cycles for this program have been irregular in recent years. The deadline for grant submittals will be announced after the next Federal Transportation Act is passed.

Surface Transportation Program

The program provides flexible funding for certain road, sidewalk, and trail improvements. The DuPage Mayors and Managers Conference administers the program and provides a portion of the funding.

Safe Routes to School

This relatively new program, administered by IDOT, is still in its initial stages. The scope of available grant funding covers projects that enhance pedestrian and bicycle safety along routes potentially used by children to travel to school. The program is limited for grades K-8.

6.3 Illinois Funding Sources

Illinois Bicycle Path Grant Program

This program was created in 1990 to financially assist eligible units of government to acquire, construct, and rehabilitate public, nonmotorized bicycle paths and related support facilities. Grants are available to any local government agency having statutory authority to acquire and develop land for public bicycle-path purposes. Financial assistance up to 50 percent of approved project costs is available. Maximum grant awards for development projects are limited to \$200,000 per annual request; no maximum exists for acquisition projects. Revenue for the program comes from a percentage of vehicle title fees collected pursuant to Section 3-821(f) of the Illinois vehicle code. Applications for grant assistance must be received by the Illinois Department of Natural Resources by March 1 of each year. (50 percent state, 50 percent local)

6.4 Local Funding Sources

Capital Improvements and Budget

Bicycle-facility improvements can be funded through Warrenville's capital improvements budget, depending on the facility. If the facility is a path through a park, the money should come from the Warrenville Park District. Improvements to the roadways to accommodate bicycles such as signs, paved shoulders, or re-stripped roads should be done by the Public Works Department and come from the City's general fund.

Local Dedications from Developers

Land-dedication ordinances may require developers to dedicate for public use the future right-of-way for a greenway corridor pedestrian walkway or bike trail and to develop the trail through the corridor as it crosses their development. By indicating the future greenways and trails on the official map, the dedication may be required prior to final action on a subdivision or a development requiring planning action.

Tax Increment Financing

Warrenville has used this locally permissible municipal financing technique. The program allows a municipality to acquire and prepare property for redevelopment and

make needed public improvements. The City is currently working on establishing a third TIF district to implement the Old Town/Civic Center Plan, which includes a number of trails.

7. Education, Enforcement and Encouragement

In addition to creating infrastructure improvements, it is also important to provide education, law enforcement, and encouragement so cyclists can use the bikeway system safely. Education involves instructing not only cyclists but also motorists about the rules of the road as they pertain to cycling. Law enforcement relates to City codes and ordinances that improve the cycling infrastructure and provide enforcement for those rules when violations occur. Cyclists can be encouraged to ride with information on bike routes and with facilities such as bike racks, drinking water, and restrooms.

7.1 Education

A bicyclist who understands the rules of the road is more likely to be a safe bicyclist. In Illinois, bicycles are classified as vehicles and must follow the same traffic laws as automobiles. A motorist who understands that bicycles are vehicles and treats them as such is more likely to drive safely around bicyclists. In Warrenville, bicyclists and motorists must be aware that they may encounter each other around any turn or at any intersection. Focused educational efforts are necessary to make motorists and bicyclists aware of this reality so they may operate their respective vehicles safely. An effective, ongoing educational initiative has a different message and technique for delivery for each audience it is trying to reach. Warrenville can target three groups: children and their parents, adults, and motorists.



Children are quick learners and will copy what they see. Basic bike-safety courses will reach most children if offered through public and private elementary schools in Warrenville. The Illinois Department of Transportation offers a pamphlet, “Kids on Bikes in Illinois,” which is geared toward children ages 9 to 11. Physical education teachers can present this pamphlet, which increases children’s cycling abilities, teaches the rules of the road, and helps them to avoid dangerous situations. Some communities in Illinois offer bicycle-safety education during popular, optional summertime classes, such as Safety Town or Safety Camp, which are coordinated by civic groups like the Junior Women’s League and are conducted by law enforcement officers.



Park and recreation departments around the state sponsor bike-safety classes that are taught by instructors certified by the League of American Bicyclists. A course for children in kindergarten through third grade covers bike and helmet fit, safety, and basic bike-handling skills. A course for children in fourth, fifth and sixth grades teaches basic traffic laws, in-depth bike handling, group riding, and safe route selection. It includes on-road riding to test students' comprehension and to allow for practice of the skills learned in the classroom as well as parking lot exercises. The Chicagoland Bicycle Federation (www.biketraffic.org) or the League of Illinois Bicyclists (www.bikelib.org) can provide a list of instructors.

Specific initiatives for children have included classroom programs within District 200 elementary schools presented by Jill Braselton, an injury prevention specialist at Central DuPage Hospital, and a Safety Town exhibit and instructional sessions at the annual Warrenville Bicycle Rodeos. It is anticipated that these activities will be continued and augmented going forward.

Adult cyclists are much more difficult to reach with a safety message. The League of American Bicyclists offers safety classes for this age group, but most adults believe they know how to ride a bike, despite riding in the wrong direction on the road or ignoring stop signs. Effective ways to educate adults include point-of-sale safety information, presentations at bike-club meetings, and organized bike rides that emphasize bike safety, such as helmets, stopping at stop signs, riding on the right, correct lane position, signaling, etc. Public education campaigns, discussed below, are also effective. Efforts can also be made to work with organized cycling clubs to remind them of safe group-biking behaviors and regulations, using law enforcement when needed, as described below.

New motorists can learn about bike safety during driver's education classes, provided the instructor has the necessary information. Other motorists can learn about bike safety through public-information campaigns. Senior centers often sponsor safe-driving classes.

Specific initiatives targeting public education of adult drivers and bicyclists have included a newspaper column by Tom Jones in local Warrenville newspapers distributed to all City households as well as activities at the City's bicycles rodeos.

Ideas for public-information campaigns include the following:

- Publicize safe-driving tips during the main bicycle season via newspaper articles, public-service announcements, the City's website, etc.
- Distribute bike-safety materials from the Illinois Department of Transportation
- Ask service groups, injury-prevention groups, or local hospitals to sponsor and staff bike-safety booths at public events or to sponsor a bike-safety fair
- Ask the DuPage County Public Health Department to hold a summer safety fair and to include bike-safety materials and demonstrations
- Ask libraries to display and distribute safety materials and encourage them to purchase educational videotapes and books about bike safety and maintenance

- Distribute bike-safety materials in locations such as at City Hall, the Police Station, the Recreation Center, motor-vehicle registration offices, and bike shops
- Install signs to identify bike routes and warn motorists of cyclists at crossings

7.2 Law Enforcement

Law enforcement officers play an important role in educating bicyclists and motorists about safety. Officers have the greatest effect when they set a good example, speak to young people in a school environment, or demonstrate safety practices to children. By involving law enforcement in delivering the bicycle-safety message to motorists and bicyclists, officers are more apt to see that their responsibility includes the enforcement of laws that promote bike safety.

The WBPAC has heard from a number of citizens complaining that bicyclists do not obey traffic laws. Examples cited were bicyclists impeding traffic by riding several abreast, or running through red lights and stop signs. These behaviors result in safety hazards as well as create a negative image of bicyclists. Officers can reinforce bicycle-safety messages by stopping bicyclists they observe ignoring the rules of the road. A verbal or written warning is very effective, in some instances a ticket is appropriate. Along with a warning or ticket, officers should be encouraged to give the cyclist information about Illinois' bike laws and about the proper way to share the road with motorists.

By stopping motorists who exhibit dangerous driving practices around bicyclists, an officer is helping to prevent a future tragedy. Such a stop is a "teachable moment," and the officer can give the motorist information about sharing the road with bicyclists.

Officers patrolling periodically on bicycles provide heightened public awareness of bicyclists and provide a real-life bicyclist perspective to the enforcement community. The Police Department is investigating the installation of bike racks on police cars to facilitate bike patrols.

The League of Illinois Bicyclists offers law enforcement agencies several resources to help them train officers on bicycling issues, educate motorists and bicyclists about safe bicycling, and enforce traffic laws. The league has developed a PowerPoint presentation, "Safe Roads for Bicycling," which law enforcement agencies can watch and download to inform officers about bicycling issues. The league has also developed a traffic-violation warning pamphlet, which officers can share with motorists and bicyclists to make roads safe for bicycling. It also offers law enforcement agencies Illinois bike-law cards with excerpts from the Illinois Vehicle Code, including the state's new 3-foot safe-passage law, posted at www.bikelib.org/enforcement/bikelawcard2007.pdf, as well as the traffic-violation warning pamphlet, which is posted at: <http://www.bikelib.org/enforcement/policebikepamphlet2007.pdf>.

Specific initiatives targeting enforcement have included the following:

- Hiring an officer who is a certified-bicycle instructor
- Initiating periodic bicycle patrols within the community

- Bicycle Rodeo activities
- Promotion of the City's bicycle-registration program at special events and through the City's newsletter

A meeting was held in the spring of 2008 between Ed Barsotti, Executive Director of LIB, along with other LIB members, and the Warrenville Police Department for the purpose of presenting the traffic violation warning pamphlet along with related materials. This presentation should be repeated at appropriated intervals to ensure that the Police Department is up-to-date on current bicycle regulations.

7.3 Encouragement

Encouragement can only occur after a strong foundation of education and law enforcement. A bicyclist who understands how to safely maneuver in traffic is more likely to feel comfortable riding on the road and to use a bicycle more frequently. If cyclists know that the community's roadway-maintenance practices take cycling into consideration, they will be more likely to use their bicycles for more trips. Bicyclists who believe that law enforcement will protect them and motorists will operate their bicycles in a safe manner.

One way that Warrenville can encourage new bicyclists is to offer safety classes. It can promote family rides by suggesting bike routes that appeal to all ages and skill levels via the distribution of a City bike map. By posting signs for bicycle routes and trails and incorporating this information in City maps and on its Web site, Warrenville would heighten awareness of bicycle resources within the community. The City's public library has already added cycling books, magazines, helpful Web sites, and other resources to its existing offerings.

The City can also take advantage of the opportunity to interact with the public during holiday celebrations such as Independence Day; at events like street dances, night rides, bicycle rodeos, and intercommunity activities; and via the City's public-access television channel, City and bike rodeo Web sites, and downloadable and printed maps.

As an employer, Warrenville can encourage employees to bike to work by providing information about bicycle commuting, installing bicycle parking, offering incentives. Showers have already been made available in City offices.

The City can also participate with groups to sponsor "Bike Week" in early summer to encourage people to ride their bikes at least once during that week to a nearby destination. The Chicagoland Bicycle Federation can help by providing information about how to plan a Bike Week.

8. References

The following documents provide additional background material and context for this Plan.

The [City of Chicago Bike Lane Handbook](#)

The AASHTO [Guide for the Development of Bicycle Facilities](#)

The AASHTO [Manual on Uniform Traffic Control Devices](#) (MUTCD)

The Geneva Bikeway Implementation Plan:

<http://www.geneva.il.us/CommunityDevelopment/bike/bike.htm>

League of Illinois Bicyclist enforcement brochures

<http://www.bikelib.org/enforcement/bikelawcard2007.pdf>

<http://www.bikelib.org/enforcement/policebikepamphlet2007.pdf>

Appendix I Bicycle Level of Service and Sidepath Suitability Score

Bicycle Level of Service Analysis

Selected roads in Warrenville that showed potential for bikeway facilities and marked on Warrenville's Trail Map were inventoried with a Bicycle Level of Service (BLOS) analysis. The analysis rates a road's perceived "comfort level" or a range of typical experiences for adult bicyclists who share a roadway with motorized traffic. Ratings of 'A' through 'F' are given, with A exhibiting the best conditions for bicyclists and F exhibiting the worst. Key factors in the BLOS rating are traffic speed, average daily traffic count, pavement condition, lane width and the presence of on-road bike lanes or paved shoulders. The ratings are intended to assist a bicyclist in selecting roads that match his or her experience and skill level. Analyses may also be used to assess how a roadway improvement will impact bicyclists and can help ensure a basic level of service is incorporated into roadway design and reconstruction.

BLOS analysis is an emerging national standard for quantifying the "bike-friendliness" of a roadway. While motorist "level-of-service" indices relate to traffic capacity, BLOS measures indicate bicyclist comfort level for specific roadway geometries and traffic conditions. Associated with the A through F grades are numbers related to each of the factors that are considered in the analysis. Roadways with a better (lower) score are more attractive and usually safer for cyclists. The BLOS analysis for Warrenville, with the corresponding number and letter scores, is included in this appendix.

BLOS evaluation may be useful in several ways:

- A bicycle map can be produced for the public to assist them in route selection.
- The most appropriate routes for inclusion in the community bicycle network can be identified.
- "Weak links" in the network can be determined, and sites needing improvement can be prioritized.
- Alternate treatments for improving bike-friendliness of a roadway can be evaluated.
- Policies can encourage or require road project designs to improve BLOS rating, or to achieve specific levels.

Landis et al.¹ developed the BLOS (1997) model by measuring cyclist reaction to actual field courses. The measure has been used on over 200,000 miles nationwide by agencies including the Illinois Department of Transportation and DuPage County (bike maps) and the Chicago Area Transportation Study.

The BLOS model 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

¹ Landis, Bruce W. "Real-Time Human Perceptions: Toward a Bicycle Level of Service" Transportation Research Record 1578, Transportation Research Board, Washington DC 1997

parking. The BLOS is used to analyze mid-block cross-sections, but not intersections. Striped-off space used by cyclists - including paved shoulders, bike lanes, and sparsely-occupied parking - is one factor that has a major affect on the score.

In general, more experienced and traffic-tolerant cyclists prefer roads rated C or better. More casual cyclists may be comfortable on B or better roads. The least traffic-tolerant may bike only on A roads, or just trails and sidewalks. A good bicycle accommodation design policy might call for a minimum level of C for all roads and B for roads with high latent demand (near important destinations, major through routes, etc.)

Bicycle Level of Service Chart and Results

BLOS analysis of existing conditions was performed on Warrenville roads identified as major existing cycling routes and on other roads that might be considered for the bikeway network due to destination or connection needs.

A particular road's characteristics can change frequently over its course. Some smoothing of the data was done to reduce the number of distinct segments. Road cross-sections were rated away from intersections, where characteristics frequently change. The only intersection effect considered was the narrowing of some specific shoulders due to long turn lanes.

The following BLOS chart shows the results of the analysis. The first three lines of the chart show the upper traffic volume limits to achieve a particular level of service for a typical residential street in Warrenville. The remaining lines refer to roads for which recommendations are made in Section 4. While some of the recommendations do not increase the BLOS letter designation, they do reduce the BLOS rating number and provide for improved separation of motorists and cyclists and a resultant increase in comfort level of cyclists.

Some general observations can be made from the results. Many of the recommended roads are already adequate for route designation, perhaps through a standardized signage system. Other roads will be more challenging and will require more extensive improvements. For some roads, a sidepath trail may be appropriate.

A more detailed look at specific routes is included in Section 4 of this Plan.

Bicycle Level of Service Chart																
			Existing Conditions													
Road Name	From	To	Lanes	Traffic Data		Speed limit	Width of Outside Lane		% Occupied On-street Parking		Pavement condition	Existing Bicycle LOS		New Bicycle LOS		Recommended Improvement
				Volume	Trucks		SP _p	W _t	W _i	OSPA		PC _t	Score	Grade	Score	
			#	ADT	%	mph	ft	ft	N/EB	S/WB	1..5		A..F		A..F	
Road Name	From	To	Ln	ADT	HV	Spd.	Wt	Wi	OSPA N/E	OSPA S/W	PCt	BLOS	BLOS grade	BLOS	BLOS grade	
Residential St.			2	260	0	25	13.0	0	0	0	4.0	1.49	A	1.49	A	
Residential St.			2	1,900	0	25	13.0	0	0	0	4.0	2.50	B	2.50	B	
Residential St.			2	13,700	0	25	13.0	0	0	0	4.0	3.50	C	3.50	C	
Rt. 59	Mack Rd.	Ferry Rd.	4	40,500	6	45	18.0	6	0	0	3.0	3.80	D	3.80	D	
Batavia Rd.	Warrenville Rd.	Butterfield Rd.	2	8,200	0	35	15.0	0	0	0	4.5	3.11	C	2.43	B	Add 4-foot bike lane.
Mack Rd.	Rt. 59	Continental Dr.	2	850	0	25	18.0	6	5	5	4.0	0.20	A	0.20	A	
Continental Dr.	Mack Rd.	Batavia Rd.	2	650	0	25	18.0	6	5	5	4.0	0.06	A	0.06	A	
Continental Dr.	Batavia Rd.	Rt. 59	2	500	0	25	18.0	0	5	5	4.0	1.13	A	0.00	A	Add 7-foot striping.
Lakeview Dr.	Continental Dr.	Barkley Ave.	2	400	0	25	10.0	0	5	5	4.0	2.10	B	2.10	B	Designate bike route.
Barkley Ave.	Lakeview Dr.	Butterfield Rd.	2	200	0	25	14.0	0	5	5	4.0	1.29	A	0.81	A	Add 3-foot striping.
Talbot Ave	Summerlakes Pk.	Butterfield Rd.	2	550	5	25	15.0	0	5	5	4.0	2.34	B	1.83	B	Add 3-foot striping.
Butterfield Frontage	Talbot Ave	Rt. 59	2	300	5	25	15.0	0	5	5	4.0	2.03	B	1.52	B	Add 3-foot striping.
Meadow Ave.	Rt. 59	Timber Dr.	2	700	0	25	15.0	0	5	5	4.0	1.78	B	1.27	A	Add 3-foot striping.
Timber Dr.	Meadow Ave.	Batavia Rd.	2	400	0	21	13.0	0	5	5	4.0	1.41	A	1.41	A	Designate bike route.
Galusha Rd.	Winfield Rd.	Herrick Rd.	2	1,500	0	25	12.5	0	0	0	4.0	2.44	B	2.44	B	Designate bike route.
Ferry Rd.	Raymond	DuPage River	4	19,000	5	45	15.0	0	0	0	4.0	4.54	E	4.54	E	Widen sidewalk.
Mack Rd.	Rt. 59	Winfield	2	4,000	1	40	15.0	0	0	0	4.0	3.08	C	3.08	C	

Wt is pavement width from center line to edge (including parking and shoulders); Wi is pavement width of striped parking or paved shoulders.

Sidepath Suitability Score - Off-Road Measure

While the BLOS is a measure of on-road bicycling conditions, the Sidepath Suitability Score rates a sidewalk or sidepath as a place to bike.

Sidepaths are biking/walking paths located immediately adjacent to a roadway, much like a wide sidewalk. Sidepaths have many operational problems and they are generally not recommended. Operational problems with sidepaths include:

- Unless they are constructed on both sides of the road, sidepaths require one direction of bicycle traffic to ride against motor vehicle traffic, contrary to normal rules of the road.
- When the path ends, bicyclists traveling against traffic will tend to continue to travel on the wrong side of the street.
- Likewise, bicyclists approaching a shared use path often travel on the wrong side of the street to get to the path.
- Wrong-way travel by bicyclists is a major cause of bicycle/automobile crashes and should be discouraged at every opportunity.
- At intersections, motorists entering or crossing the roadway often will not notice bicyclists approaching from their right, as they are not expecting contra-flow vehicles.
- Motorists turning to exit the roadway may likewise fail to notice the bicyclist. Even bicyclists coming from the left often go unnoticed, especially when sight distances are limited.

Gauging the relative risk can assist decision-making and intersection design on new and existing sidepaths. The Sidepath Suitability Score methodology can help with these assessments, and the evaluation can be used to:

- Rate existing conditions
- Rate the effect of safety improvements on existing sidewalks or sidepaths
- Consider the feasibility of a new sidepath - is this an appropriate place for an off-road bike trail? What can be done to minimize intersection conflicts?

At present, no nationally accepted sidepath suitability index exists. The League of Illinois Bicyclists developed the SP Score algorithm for the North Aurora Non-Motorized Transportation Plan (2001), using design issues described in the AASHTO Guide for the Development of Bicycle Facilities. The factors considered in the Sidepath Suitability Score include intersection traffic; continuity; curb cuts; width and pedestrian use; crosswalks; and path/road separation at intersections.

Sidepath Suitability Score analysis was done for existing and possible future sidewalks and trails along proposed bikeway routes. The information needed to calculate current conditions on existing sidewalks was collected through field surveys. Additional feasibility analysis considered the effect of reasonable improvements, such as better crosswalk marking, filling sidewalk gaps and widening (where feasible and desirable).

Feasibility analysis of locations without existing sidewalks assumed the best possible intersection design and other sidepath parameters. The hypothetical Sidepath Suitability Score of improved existing sidewalks and retrofitted new sidewalks (or sidepaths) were used in detail in the facility selection for specific routes.

The following chart displays scores for existing and proposed sidepaths. Each side of the road is treated independently. In a few cases, a sidewalk segment may have short gaps that are not specifically shown, but sidewalk gaps and ends dramatically worsen the score.

Generally, results show that while bicycling on sidewalks along some roads is suitable, some sidewalks have lower suitability. In most cases, relatively simple improvements can reduce these risks somewhat, to the benefit of those who will bike on sidewalks no matter what the road condition. One of the most significant improvements is to ensure that all driveway and street crossing are clearly striped and signed. However, a detailed comparison between the “best possible” Sidepath Suitability Score and BLOS ratings must be done to recommend the appropriate on-road or off-road bikeway improvements for the proposed routes. Together with public and staff input, the right choices can be made and prioritized.

While improvements to some sidepath sections are recommended in this report, it must be stressed that bicycling on the sidewalk has actually been shown to be less safe than bicycling on the road. Sidepaths were recommended in cases where riding on the road was clearly not a preferred option, due to a combination of the road width, traffic volumes and the expected type of cyclist. Children or adults who ride on the sidewalk need to be aware of the hazards that cross streets and driveways present to sidewalk cyclists.

Sidepath Suitability Score Chart																		
			Existing Conditions															
Segment	From (WN)	To (ES)		SW width	Speed (mph)	Volume (ADT)	Segment Length (miles)	Resid drives	Minor Xings	Major Xings	Ped usage	SW gaps or ends?	SW Missing curbcuts?	Marked Xwalks	Xing set backs	Existing SP Score	New SP Score	Recommended Improvements
Batavia	Femilab	Rt. 59	NW	8	25	3700	0.7	9	4	1	low	no	no	some	not close enough	6	5	
			SE	0	25	3700	0.7	0	0	0	low	no	no	none	not close enough	---	---	
Batavia	Rt. 59	Williams	NW	8	35	6200	0.5	3	7	0	low	no	no	some	not close enough	8	7	
			SE	0	35	6200	0.5	0	0	0	low	no	no	none	not close enough	---	---	
Batavia	Williams	Butterfield	NW	0	35	10200	0.5	0	0	0	low	no	no	none	not close enough	---	---	
			SE	8	35	10200	0.5	10	2	0	low	no	no	all	not close enough	8	8	
Warrenville	Batavia	Winfield	NW	3	35	11300	0.3	0	1	0	low	no	no	none	not close enough	8	6	
			SE	0	35	11300	0.3	0	1	0	low	yes	no	none	not close enough	---	---	
Warrenville	Winfield	Virginia	NW	0	40	13000	0.3	0	0	0	low	no	no	none	not close enough	---	---	
			SE	8	40	13000	0.3	2	1	0	low	yes	no	none	not close enough	12	5	extend to Mill St.
Warrenville	Virginia	Mill	NW	0	45	13000	0.3	0	0	0	low	no	no	none	not close enough	---	---	
			SE	0	45	13000	0.3	0	0	0	low	yes	no	none	not close enough	---	7	add path
Winfield	Galusha	Warrenville	NW	4	40	25600	0.2	3	0	0	low	no	no	none	not close enough	9	6	Widen to 8 ft.
			SE	0	40	24000	0.2	0	0	0	low	no	no	none	not close enough	---	---	
Ferry	Raymond	DuPage River	NW	3	45	19400	0.6	8	1	0	low	no	no	all	not close enough	8	7	Widen to 8 ft.
			SE	0	45	18000	0.6	0	0	0	low	no	no	none	not close enough	---	---	
Galusha	Winfield	West	NW	0	25	1500	0.6	13	2	0	low	no	no	all	not close enough	---	4	
			SE	0	25	1500	0.6	12	8	0	low	no	no	all	not close enough	---	5	

Appendix II: Bikeway System Background

Methodology for Selecting the Bike Route and the Facility Type

The American Association of State Highway and Transportation Officials states, “All (roads and) highways should be designed and constructed under the assumption that they will be used by cyclists.” A basic tenet of this report is that bikes belong as part of a shared use transportation system. Cycling is an efficient and effective means of travel that improves individual health (via increased activity levels) and community health by reducing air and noise pollution.

Selecting Bike Routes

A successful network of bike routes has the following characteristics:

- Convenient, accessible and safe
- Comprehensive access to most destinations for most cyclists
- Connectivity
- Citywide and regional coverage

Selecting Bike Facilities

Bike facilities listed in order of increasing design complexity include the following:

- Shared-use roadways
- Bike lanes and wide curb lanes
- Sidepaths

Shared-Use Roadways

The majority of Warrenville’s bikeway system is on shared-use roadways. Streets with less than a 5,000 average daily traffic count qualify for shared use. On shared-use roadways, attention should be given to the following design features:

- Bicycle safe drainage and bridge expansion joints
- Smooth pavement
- Adequate sight distances
- Signal timing and detector systems that respond to bicycles

Bike Lanes and Wide Curb Lanes

Cyclists can be accommodated on arterial roadways even when vehicle traffic volumes are high. Wide curb lanes without bike lane markings, paved shoulders and bike lanes are cost effective ways of increasing bicycle safety on roadways with high traffic volumes.

A bicycle lane and a wide curb lane can both accommodate cyclists who are confident in traffic and benefit pedestrians. The benefits of an on-road bicycle accommodation include the following:

- Reduction of bicyclist-pedestrian conflicts
- Encouragement for cyclists to ride in the direction of traffic
- Riding with the flow of traffic reduces crash rates at intersections, where the vast majority of car-bike crashes occur.

- Buffer between motor-vehicle space and pedestrian area
- Additional negotiating room for motorists entering roadway
- Property proximity to motorized traffic to prevent collection of debris that may puncture bicycle tires

Fourteen feet of usable lane width is recommended for shared use in a wide curb lane. Usable width is defined as the width from the edge stripe to the lane stripe or from the longitudinal joint of the gutter pan to the lane stripe. The gutter pan width is part of the “usable width. Re-striping the remaining lanes and the left-hand turn lane, making them narrower, can often create wide curb lanes.

When adequate lane width is available, average daily traffic volumes are the determining factor as to whether a shared-use roadway is recommended versus a bike lane. Roadways that have up to a 5,000 average daily traffic count can function well as a shared-use facility. On roads with a 5,000 to 10,000 average daily traffic, a bike lane should be considered; when over the daily count is over 10,000, a bike lane should be installed. Note that in some cases in this bike plan, the addition of striping has been recommended although the traffic count falls below the 5,000 cited above. It was felt that adding the striping would provide an additional comfort level for cyclists at a relatively low cost. The narrowing of travel lanes resulting from the striping has the additional benefit of tending to reduce actual traffic speeds (traffic calming).

Sidepaths

Sidepaths are biking and walking paths located immediately adjacent to a roadway, much like a wide sidewalk. Sidepaths have many operational problems and are generally not recommended. The operational problems have been previously described in the section on the Sidepath Suitability Score in Appendix I.

For the above reasons, bikeways other than sidepaths are usually better suited to accommodate bicycle traffic along roadway corridors, depending upon traffic conditions. Shared-use paths should not be a substitute for achievable street improvements even when the path is located adjacent to the roadway because many bicyclists will find it less convenient to ride on these paths compared with the streets, particularly for utility trips. In this plan, sidepaths have been recommended only when on-street improvements have been deemed not feasible.

The American Association of State Highway and Transportation Officials recommends that sidepaths be closer to the parallel road at intersections so motorists can more easily see and consider bicyclists during their approaches. The vehicular stop line should be in back of the sidepath crossing; cyclists must not weave through stopped traffic when crossing. This factor is included in the Sidepath Suitability Score spreadsheet as ‘Xing setbacks’.

Detailed information regarding bicycle facility design can be found in American Association of State Highway and Transportation Officials Guide for the Development of

Bicycle Facilities, 1999. Detailed design guidelines for bike-lane development can be found in the Bike Lane Design Guide, which is available at <http://www.bicyclinginfo.org>.

Bikeway System Definitions

The following are terms used in the Warrenville bikeway discussion.

American Association of State Highway and Transportation Officials (AASHTO) Guidelines for Developing Bicycle Facilities, 1999: This guide provides information to planners and designers on developing all types of bicycle facilities, and provides guidelines on size, spacing, color and location of bicycle signage and other facilities.

Arterial: Signalized streets that serve primarily through traffic and provide access to abutting properties as a secondary function.

Average Daily Traffic Count: The number of vehicles that pass a particular point on a roadway during a period of 24 consecutive hours averaged over a period of 365 days. Unless specified otherwise, the count includes volume in both directions.

Bicycle Facilities: A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically designated for bicycle use.

Bicycle Path or Bike Path: See Multiuse Path

Bike Lane without Parking: A portion of a roadway that has been designated by striping, signing and pavement markings for preferential or exclusive use by bicyclists. One 5-foot bike lane should be located on each side of the street and bicyclists must travel in the direction of traffic. The American Association of State Highway and Transportation Officials does permit a 4-foot bike lane. The photo to the right shows a bike lane without parking. (Source: <http://safety.fhwa.dot.gov>)



Bikeway: A generic term for any road, street, path or way that in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Collector: A surface street that provides land access and traffic circulation within residential, commercial and industrial areas.

Crosswalk: That part of a roadway at an intersection that is included within the extensions of the lateral lines of the sidewalks on opposite sides of the roadway, measured from the curb line, or in the absence of curbs from the edges of the roadway, or in the absence of a sidewalk on one side of the roadway, the part of the roadway included within the extension of the lateral lines of the sidewalk at right angles to the centerline. Also included in this definition is any portion of a roadway at an intersection or elsewhere that is distinctly indicated for pedestrian crossing by lines or other markings on the surface.

Designated Bicycle Route: A system of bikeways designated by the jurisdictional authority with appropriate directional and informational route markers with or without specific bicycle route numbers. Bicycle routes, which might be a combination of various types of bikeways, should establish a continuous routing. A Bike Route can be thought of more as a planning term than a specific facility.

Grate: A framework of latticed or parallel bars that prevents large objects from falling through a drainage inlet but permits water and some sediment to fall through the slots. Bicycle tires can get caught in poorly placed grate openings.

Gutter: A trough or dip used for drainage purposes that runs along the edge of the street and curb.

Intersection: The crossing of two (2) or more highways or bikeways.

Local Road: Road that serves individual residences or businesses, and/or distributes traffic within a given urban or rural area.

Multiuse Path (or Trail): A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either located within the highway right-of-way or within an independent alignment. Pedestrians, bicyclists, equestrians, skaters, wheelchair users, joggers, and other non-motorized users might also use multiuse paths.



MUTCD: The “Manual on Uniform Traffic Control Devices” approved by the Federal Highway Administration as a national standard for placement and selection of all traffic control devices on or adjacent to all highways open to public travel.

Pavement Markings: Painted or applied lines or legends placed on a roadway surface for regulating, guiding or warning traffic.

Roadway: The portion of the road, including shoulders, intended for vehicular use.

Shared-Use Roadway: A roadway that is shared by bicyclists and automobiles without any special striping or roadway improvements. The roadway is wide enough and traffic speed and volume low is enough that bikes and cars can coexist. This is the most common type of facility. Bicycle routes should have signs indicating that cyclists may be on the road



Sharrow: A painted, on-road marking to indicate a shared motorist/bicycle lane. The sharrow indicates where the bicyclist should be positioned in the lane.



Sharrow marking

Shoulder: The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub- base, base and surface courses.

Sidelpath: A bike path built within the right-of-way of a street. The two-way path often only runs along one side the road, which can create a number of traffic conflicts.



Sidewalk: The portion of a street or highway right-of-way designed for preferential or exclusive use by pedestrians. Some young and/or inexperienced cyclists use sidewalks, but this is not recommended.

Signed Shared Roadway (Signed Bike Route): A shared roadway that has been designated by signing as a preferred route for bicycle use



Terrace: The portion of the public right of way located between the street and the sidewalk. Terraces are usually planted with grass or have some type of landscape design feature, such as trees or pedestrian amenities.

Wayfinding: Signs placed along a designated bike route to assist bicyclists (and motorists) in finding popular destinations.



White Edge Line: A 7- or 8-foot paved area along the road edge, as shown on the right, with a 4-inch white stripe to delineate where parked cars and bicyclists should be located in relation to the drive lane. This treatment has been implemented on Mack Road and Continental Drive between Mack and Batavia Roads.



Wide Curb Lane: An outside or curb lane greater than 12 feet to better accommodate bicycles and automobiles. 14 feet of usable lane is the preferred width. The photo below shows bicyclists using wide curb lane. (Source: www.bicyclinginfo.org)

