THE MCHENRY COUNTY CONNECTION

A PEDESTRIAN BICYCLE AND TRAILS MASTER PLAN

PREPARED BY:

wsp

PREPARED FOR:
McHenry County
Council of Mayors

THE MCHENRY COUNTY CONNECTION

A PEDESTRIAN, BICYCLE, AND TRAILS MASTER PLAN

0.0	Executive Summary	6
1.0	Introduction + Existing Conditions	11
2.0	Vision + Goals	33
3.0	Facilities + People	37
4.0	Master Plan Framework	45
5.0	Facilities + Sustainability	63
6.0	Programming + Wayfinding	85
7.0	Management + Maintenance	95
8.0	Next Steps	103

PREPARED BY:

WSP

PREPARED FOR:
McHenry County
Council of Mayors

Acknowledgements

Client

> Jon Paul Diipla / Transportation Planning Manager
> Scott Hennings / Assistant Director of Transportation
> Ryan Peterson / Senior Transportation Planner
> Emily Daucher / Former Planning Liaison

Consultant

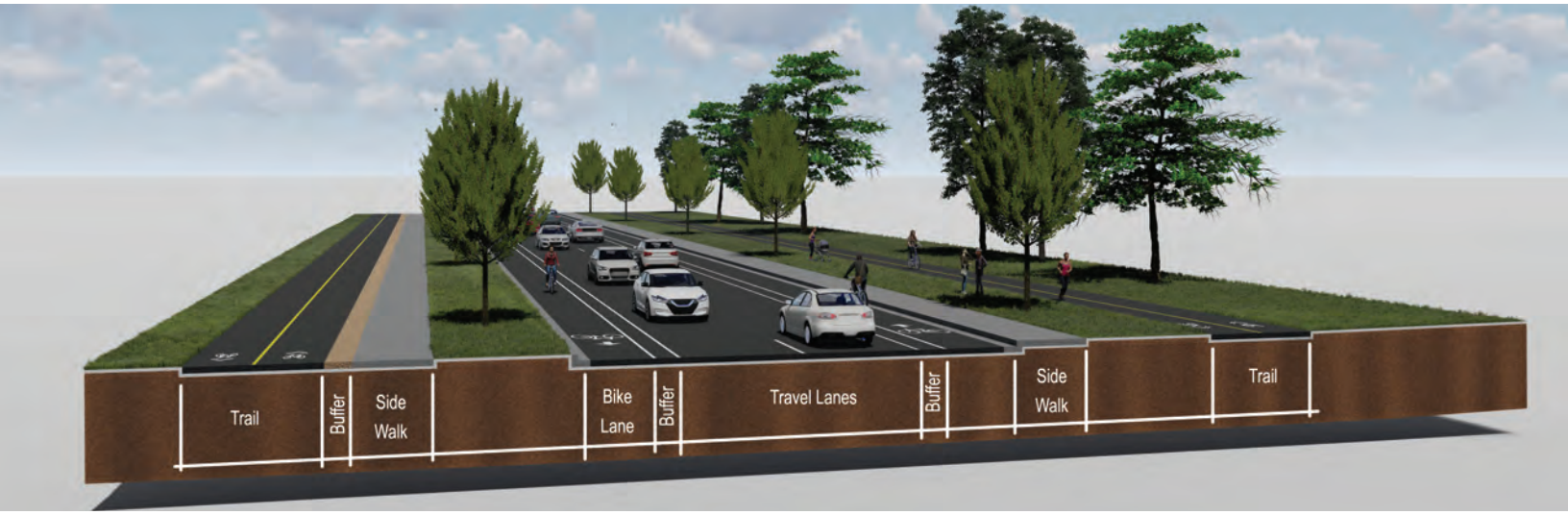
> Jennifer Pangborn / Project Manager
> Bryan Robinson / Deputy Project Manager
> Charlie Romanow / Urban Planner
> Adam Miliszewski / Urban Planner

Steering Committee

> Active Transportation Alliance
> City of Harvard
> City of McHenry
> CMAP
> Consultant
> Heartland Realtor Organization
> McHenry County Bicycle Advocates
> McHenry County College
> McHenry County Conservation District
> McHenry County Department of Public Health
> McHenry County Planning & Development
> McHenry County Division of Transportation
> Northwestern Medicine
> Ride Illinois
> Village of Bull Valley
> Village of Cary
> Village of Johnsburg
> Village of Lakewood
> Village of Spring Grove
> Visit McHenry County

This Page Left Intentionally Blank

0.0 EXECUTIVE SUMMARY



Proposed urban corridor with on-street separated bike facilities, sidewalks, and separated trail facilities.

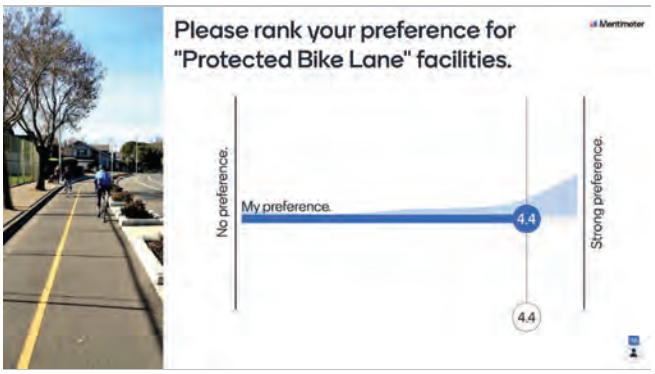
Overview

The McHenry County Connection Pedestrian, Bicycle and Trails Master Plan provides a framework for improving biking and walking infrastructure in McHenry County. This includes biking and walking for commuting to work and school, recreation, and all discretionary trips such as shopping or socializing.

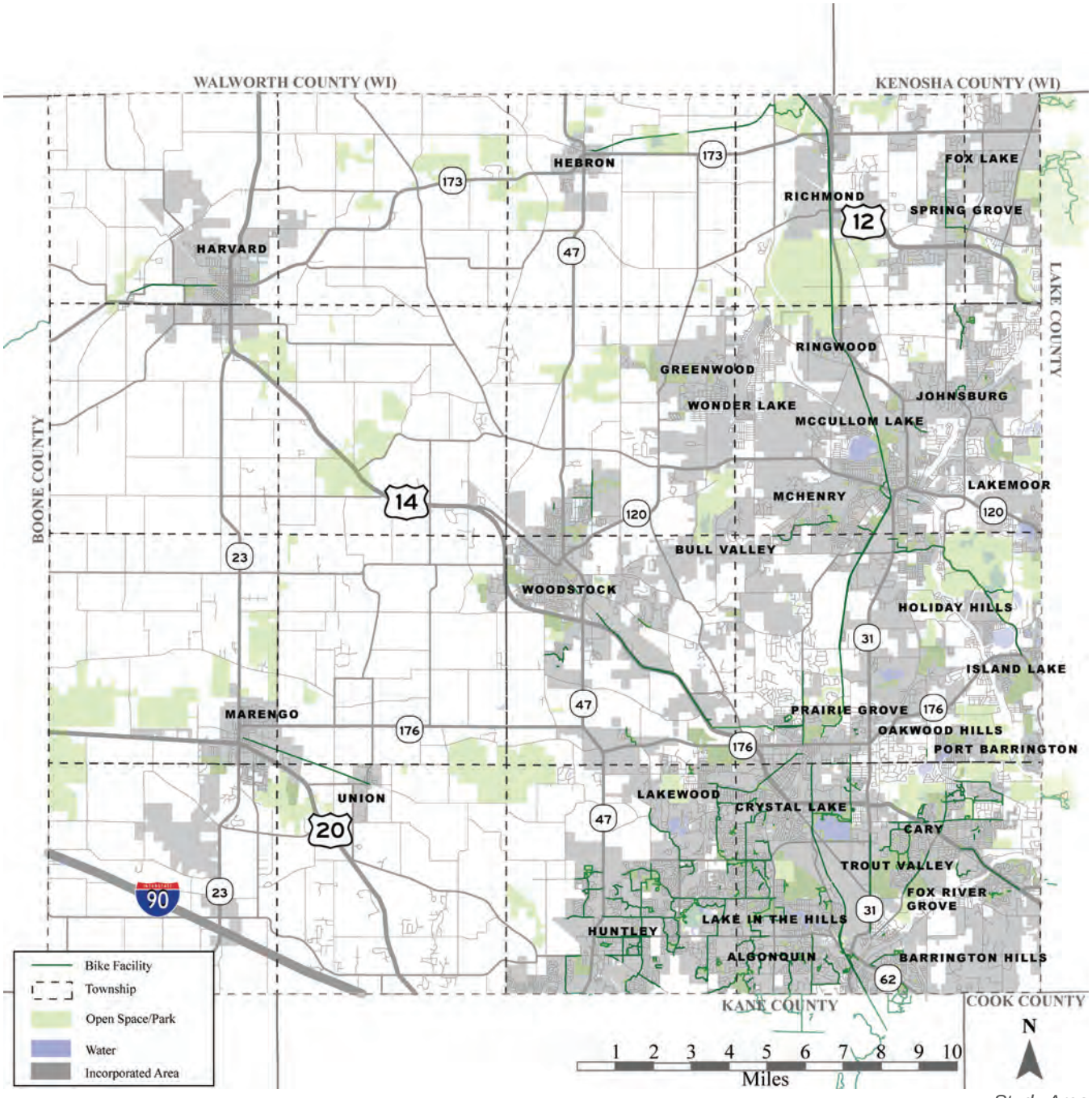
The plan provides a guiding document for the McHenry County Council of Mayors and its partner jurisdictions to develop biking and walking infrastructure over the next several decades. Through a thorough analysis of existing conditions and datasets and inclusion of stakeholders throughout the planning process, a comprehensive set of infrastructure, policy and maintenance recommendations were developed to set a path for McHenry County and its partners in pursuit of improving biking and walking conditions for all roadway users.

A visioning and goal-setting exercise was undertaken early in the process with the public and the project's advisory committee providing a basis for which further analysis and recommendation concepts were developed while assuring the Plan meets the County and stakeholder's needs.

Walkers in Glacial Park



Public Preference for Protected Bike Lanes

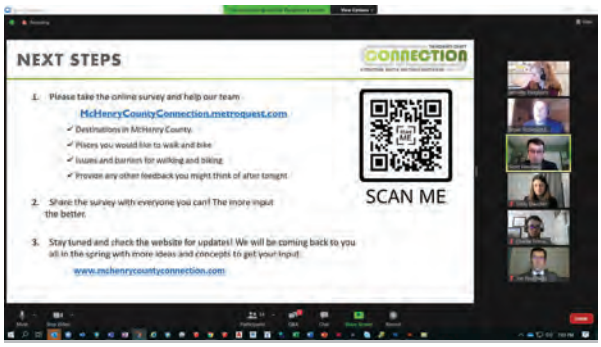


Study Area

Study Area

The Study Area includes the 307,789 people living in McHenry County, the 96,222 people employed in the County, the 17 townships, 28 incorporated areas, and expansive unincorporated areas of the County as well as all others who pass through the County's 611 square miles. The area includes a diverse array of communities including rural centers to the west, and sprawling suburban communities in the east with Woodstock, the county seat located in the geographic center.

0.0 EXECUTIVE SUMMARY



Screenshot from Public Meeting

Planning Process

Effective and consistent public engagement is necessary for the success of any planning project. Guidance, direction and feedback from stakeholders allows for an outreach process, set of recommendations, and final report with maximal support from the community. Public engagement also leads to a final plan that truly represents the interests and needs of those most impacted.

• An advisory committee composed of representatives from the McHenry County Council of Mayor's partner municipalities, and regional and non-profit stakeholders helped guide the planning process throughout, providing valuable feedback at each step and assisting with engaging a larger audience.
• Two virtual public meetings provided a forum to share updates on the project and elicit feedback while the project website provided a means for stakeholders to stay involved throughout the project's span.
• Two surveys linked on the project website obtained thousands of data points concerning stakeholders active transportation habits and needs as well as ideas and responses to preliminary recommendations.
• Several focus groups supplemented these efforts by providing focused input concerning specific locations and topics.

Recommendations Concepts

Vision & Goals

A visioning and goal-setting process was undertaken early in the planning process to assure the project's direction matched the interests and desires of residents and stakeholders. The vision statement below succinctly exemplified the County's interest in providing adequate facilities for all roadway users across all purposes of trip:

"The McHenry County Connection aspires to establish a safe regional active transportation network that will build community equity, provide access for all pedestrians and cyclists, and support commuting, recreation, and tourism."

The six goals, each with a one-word theme, support the aforementioned vision statement:

> ***People***: Building Community & Equity around the multi-modal transportation system

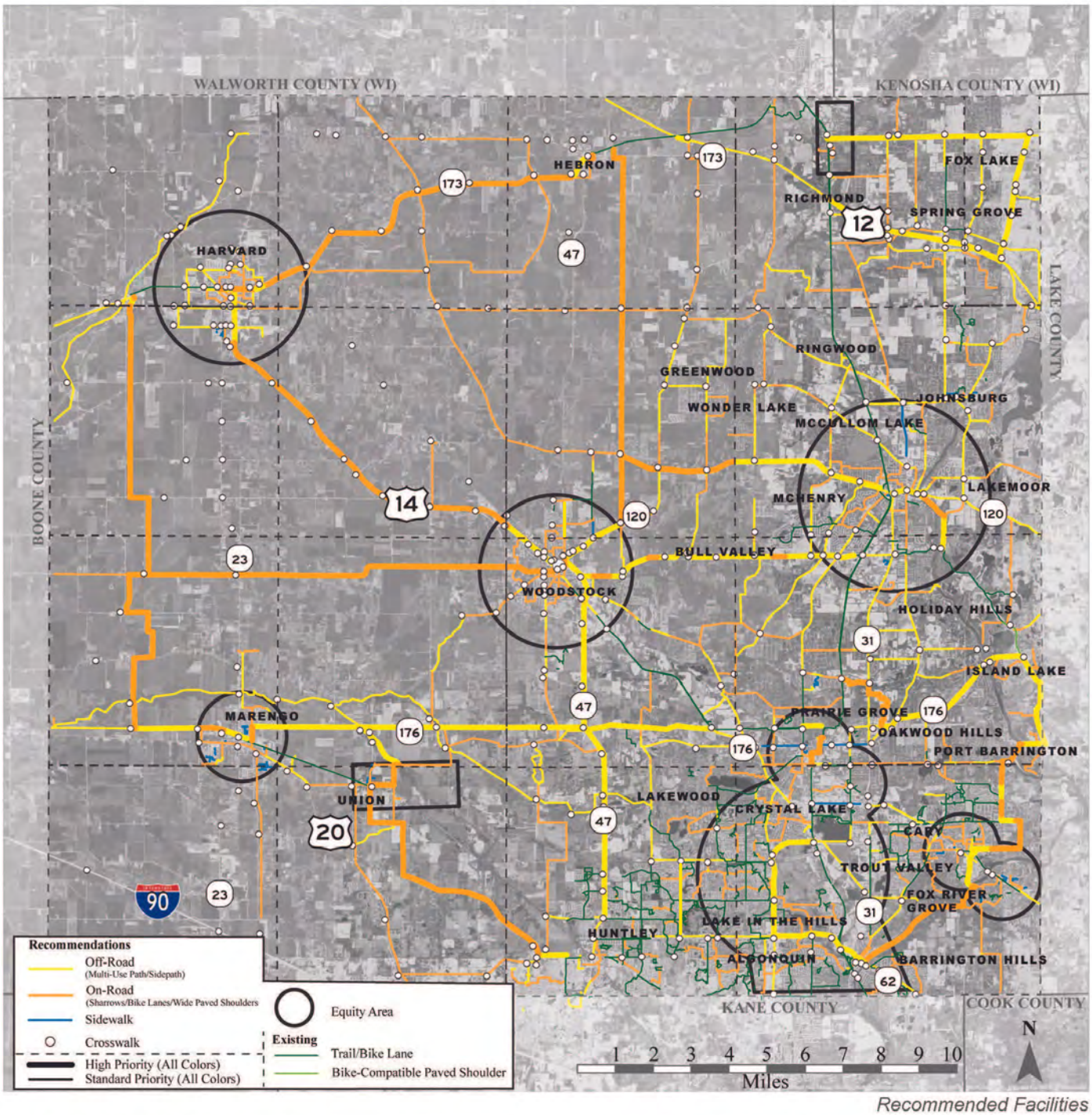
> ***Routes***: Increasing Connectivity & Safety throughout communities and neighborhoods

> ***Wayfinding***: Promoting the Economy & Tourism of the natural and built environment

> ***Programming***: Improving Health & Education of users and groups of all ages and abilities

> ***Facilities***: Embracing Sustainability & Design on future implementation projects

> ***Operations***: Simplifying Management & Maintenance of system assets



Recommended Facilities

Master Plan Framework

This master plan includes policy, programming, operations, maintenance and infrastructure recommendations aimed at building and sustaining a strong biking and walking network in McHenry County.

Identifying the location of infrastructure recommendations built off of the existing conditions and systems analysis processes, assuring the ultimate plan factored in past studies, trends, and recommendations. This process, and consideration of best practices, assures a plan that benefits the County's many communities.

0.0 EXECUTIVE SUMMARY

Proposed rural crossing with ramps, high visible crosswalk, and rumble strips

Recommendations

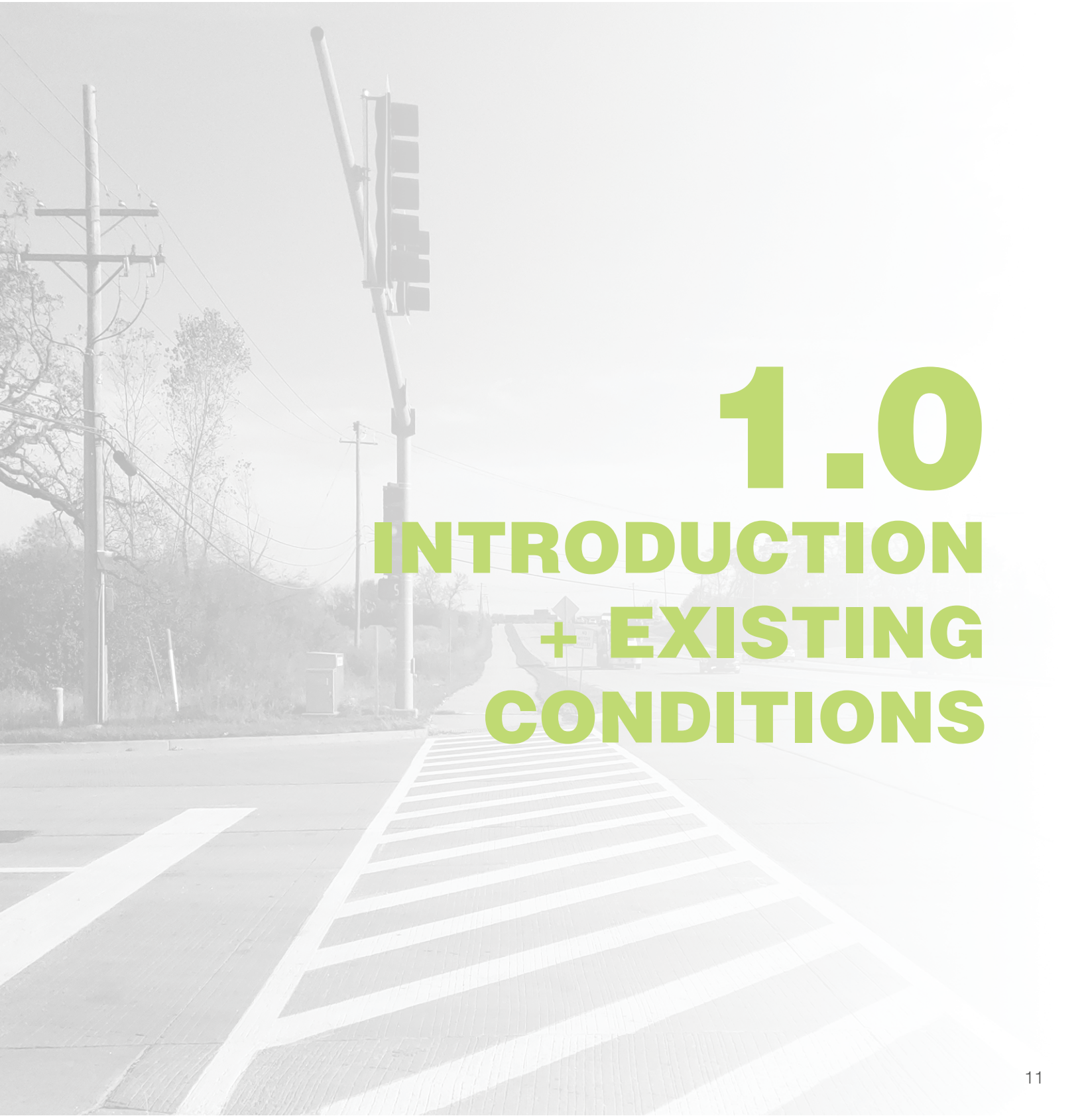
This Master Plan includes a comprehensive set of recommendations aimed at designing facilities, infrastructure, policy and maintenance procedures built to sustain McHenry County's biking and walking infrastructure well into the future.

A map of recommended facilities is provided, creating a thorough bike network connecting the County's many destinations, including recreational areas, schools, historic downtowns, and employment centers. A range of facilities are recommended, based on the nature and context of the roadway. Numerous sidewalk and crossing recommendations are also included to improve the ability for pedestrians to travel through the County and for cyclists to reach biking facilities.

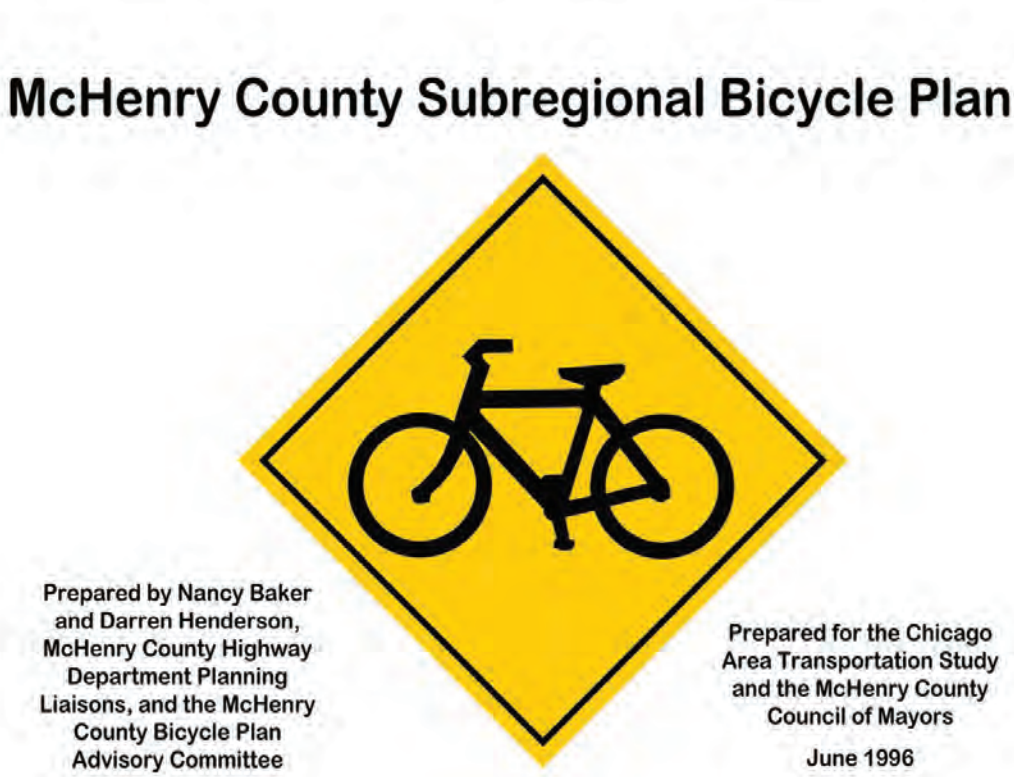
Other recommendations include provisions for wayfinding and bike parking; promoting pedestrian and bike friendly environments; and placemaking. Operations and maintenance strategies aim to create an overarching system of management that will streamline funding and maintenance efforts going forward as a comprehensive biking and walking network is only as effective as the condition of facilities.

- **653 miles of recommended facilities in addition to 225 miles of existing facilities (does not include trails in conservation areas and parks)**
- **288 miles of off-road facilities and 347 miles of on-road facilities**
- **326 crossings and 18 miles of sidewalk**
- **Crossings are located in 38 townships, villages and cities**
- **Sidewalk recommendations are located in 12 municipalities**
- **Bike facility recommendations are spread across 46 municipalities (all municipalities in County except Riley Township)**
- **Alden Township has the most recommended mileage with 32.3 miles**
- **Municipality with most off-road recommended mileage is Crystal Lake with 28.9 miles**
- **155 miles of regional priority recommended routes and 196 miles of equity area routes (includes overlap between the two)**

Recommendations Summary



1.0
INTRODUCTION + EXISTING CONDITIONS



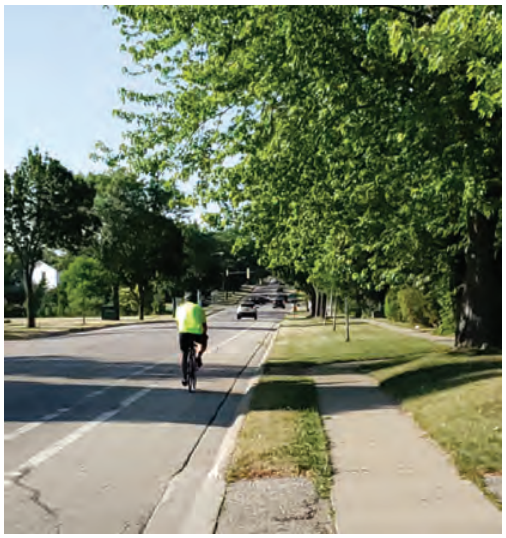
The previous McHenry Bicycle Plan was completed in June 1996

1.1 Overview

While McHenry County has a number of trails that run throughout the County, a limited sidewalk and on-street bikeway network exists. Improving this network would encourage bicycle and pedestrian travel. McHenry County's relatively high vehicle usage and low bicycle or pedestrian usage can be partially attributed to this lack of available bicycle and pedestrian infrastructure and facilities. The high availabillity and low cost of on and off-street parking in the County also impedes more biking and walking. Conservation District trails serve mainly recreational purposes, but have the potential to encourage commuter travel. Fixed route bus transit services are also very limited throughout the County and many areas lack sidewalks, bicycle facilities, and land use development patterns conducive to walking and cycling.

The McHenry County Council of Mayors had not updated its subregional bike plan since 1996 and wanted to incorporate changes in biking and enhance safety for all non-motorized uses. Another goal of the plan was to identify potential bicycle and pedestrian projects throughout the 28 municipalities in the County. The Council of Mayors was particularly interested in engaging the municipalities, bicycle advocacy organizations, and other groups such as people with disabilities, local businesses, households with limited automobile access, transit users, and schoolchildren throughout the process.

Bicycle Racks at Harvard Metra Station



Bicycle Lane in Crystal Lake

Benches and Curb Extension in Crystal Lake

Pedestrian Crossing in Downtown Woodstock

Purpose

This update of McHenry County's Bicycle and Pedestrian Master Plan (last updated in 1996) aims to incorporate changes in best practices and design guidelines for bicycle and pedestrian facilities developed over the last 22 years. This study focuses on:

- Engaging a wide variety of users
- Increasing safety for non-motorized users
- Making cycling a commuting option
- Identifying potential bike and pedestrian projects

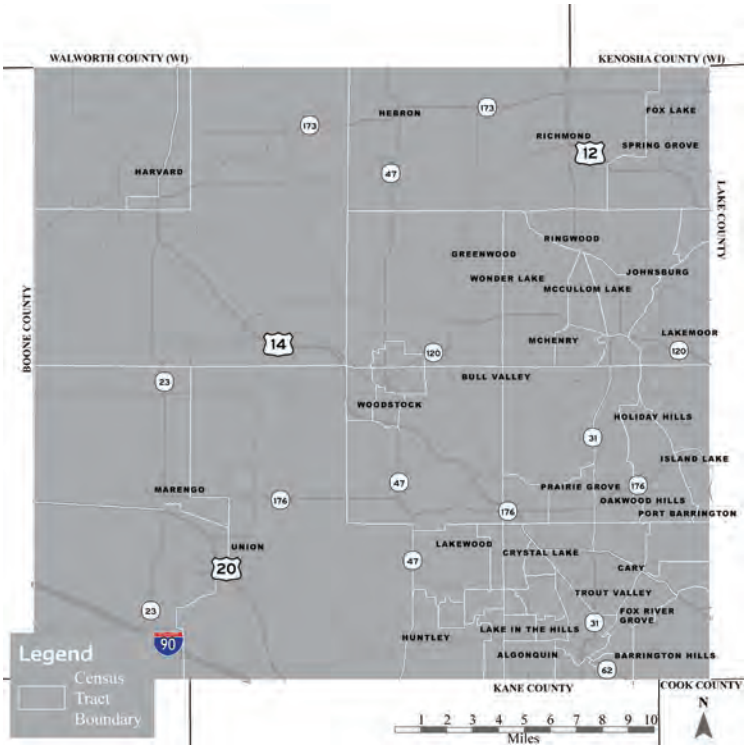
Funding Sources

This study was primarily funded by a $160,000 Illinois Department of Transportation State Planning and Research Grant, in addition to $40,000 funded from McHenry County.

1.2 Scope of Work

The study aims to provide an actionable and implementable plan for improving biking and walking in McHenry County. In addition to the vision and goals elaborated upon elsewhere in this document formed as part of an exhaustive public outreach process, the following project goals were established as part of the project's scoping process:

- Conduct an analysis of existing conditions using all relevant data
- Evaluate conceptual level of stress analysis for bikers on existing facilities
- Identify existing locations and destinations bikers and walkers want to go
- Plan and develop street topography where residents desire facilities
- Conduct efficient engagement; using virtual options in the short-term
- Develop a Bicycle and Pedestrian Plan Report with existing conditions, analysis, and final proposed locations for facilities
- Present the final plan and recommendations to the Council of Mayors
- Develop a conceptual wayfinding branding and signage options



McHenry County Census Tracts used for analysis

Evaluating existing conditions is essential to understanding McHenry County. This includes inventorying facilities such as trails and sidewalks, evaluating who is using the facilities and how and where they connect, and reviewing recommendations formulated in previous plans.

The final plan incorporates this technical quantitative data and input from the public to create design guidelines for different types of roadways and land use contexts. Particular attention was paid to prioritizing infrastructure and policy recommendations to place the County in a confident position to bring the Plan to fruition.

Harvard Metra stop

Multi-use, separated bicycle and pedestrian facility outside McHenry County College

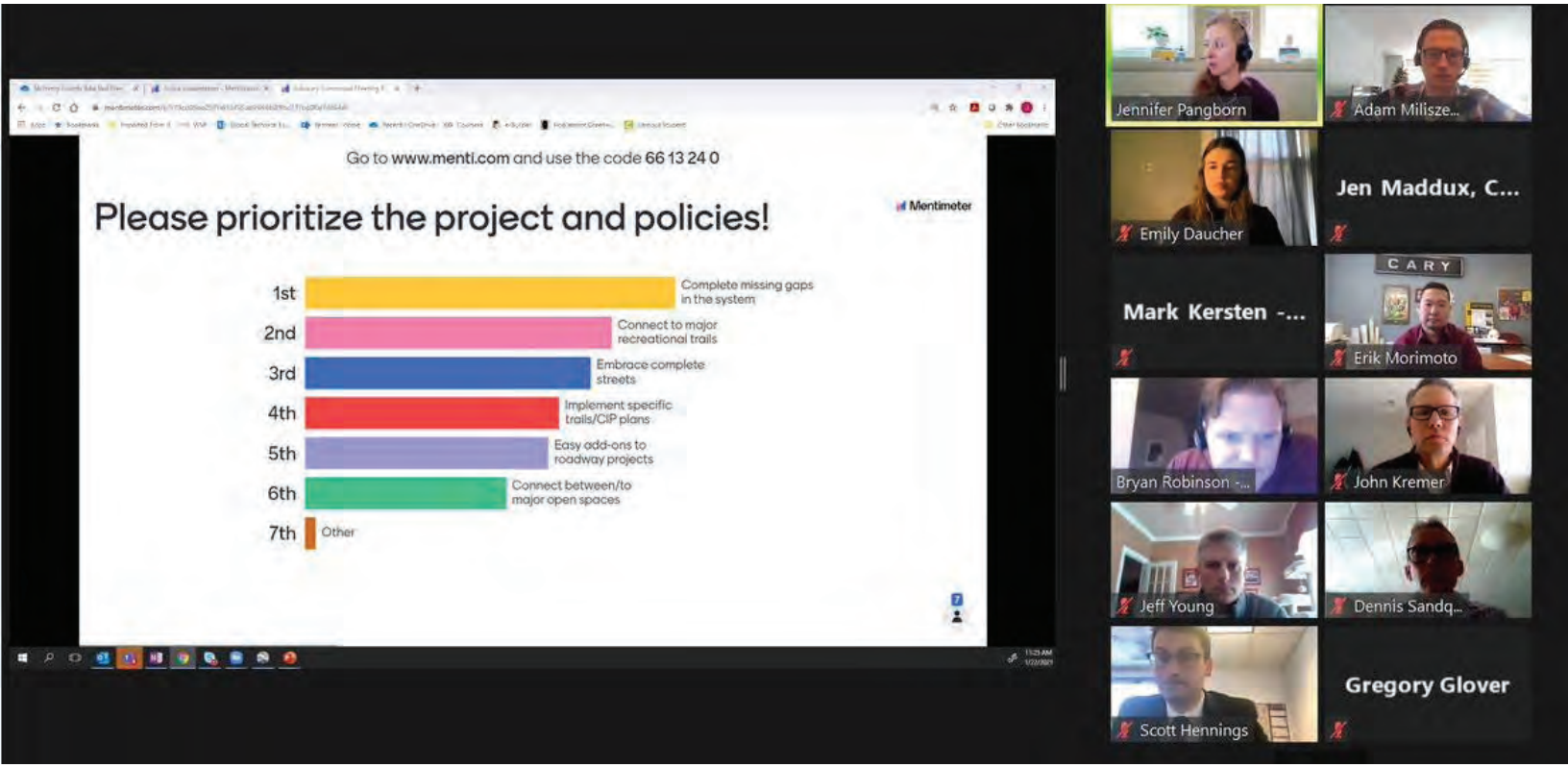
Trail crossing near Glacial Park

Crosswalk in Crystal Lake

Data Sources and Process

To better understand the present on-the-ground biking and walking conditions in McHenry County, an exhaustive existing conditions and basemapping process was undertaken. This included obtaining datasets concerning existing biking and walking infrastructure, the location of parks, conservation areas and other points of interest, traffic and crash data, and demographic data obtained from the United States Census, among other datasets.

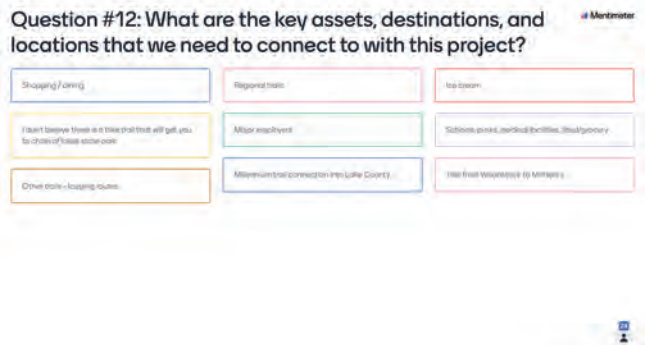
Together, these datasets helped the project team gain a better understanding of the study area. Overlaying data with one another, as well as with public engagement comments presented a clearer view of existing conditions.Throughout this report, the “study area” includes all 611 square miles, 17 townships, 28 incorporated areas and unincorporated areas comprising McHenry County.



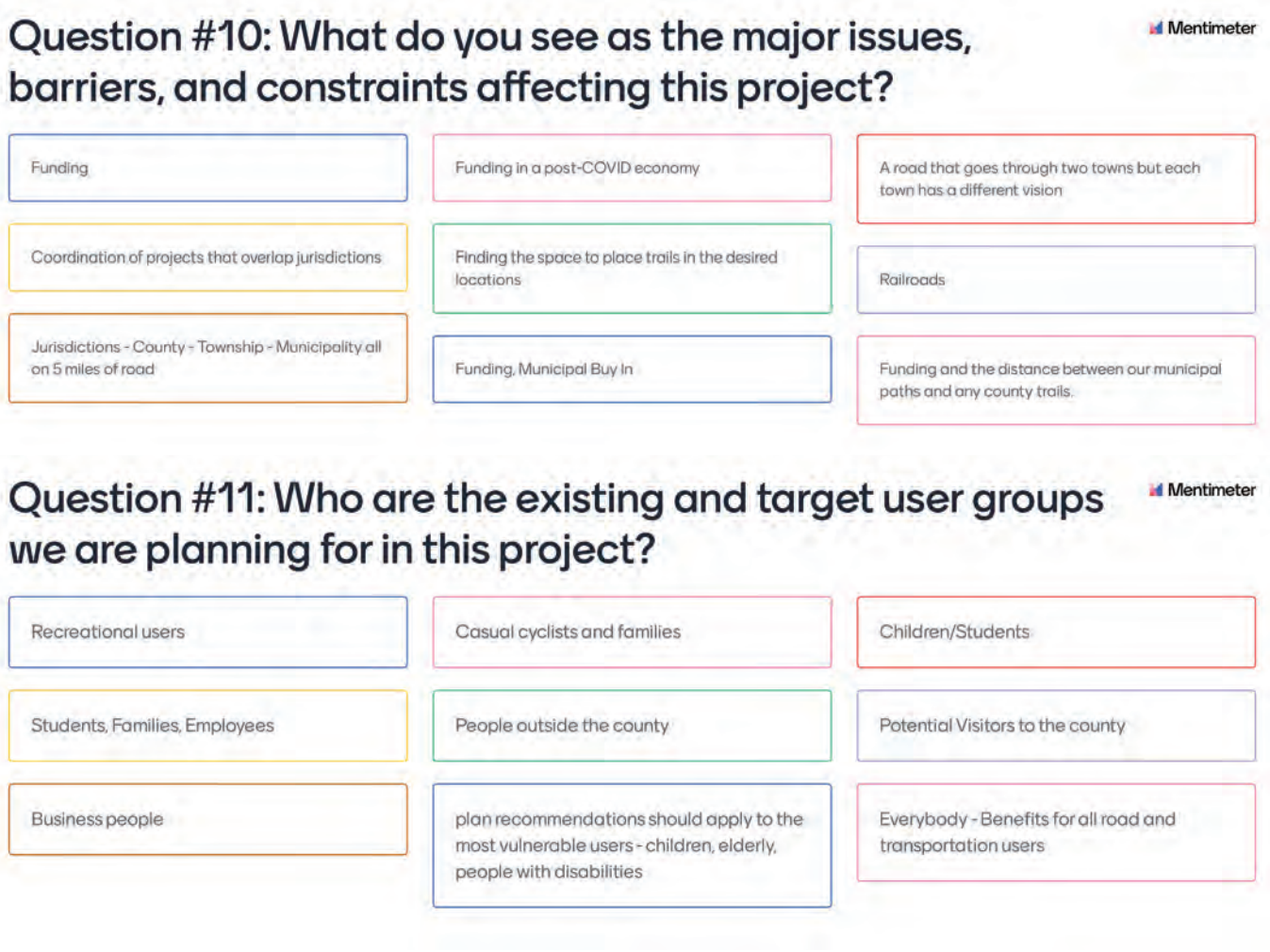
Adviosry Committee giving input during the process

1.3 Engagement + Public Input

Effective engagement is crucial to creating the best plan and future network for the diverse residents and stakeholders in McHenry County. The engagement process used various methods and tools to gather input between Spring 2020 and Fall 2021. Each of these tools and events were conducted to maximize public participation by eliciting information about numerous topics concerning walking and biking in McHenry County. Several means of virtual outreach were offered to assure all interested stakeholders could contribute their thoughts and experiences. The engagement process included meeting with targeted stakeholders in focus groups, large public forums, meetings with subject matter experts and activists, an online survey eliciting thousands of data points, and routing meetings with an Advisory Committee. As part of public and advisory committee meetings, feedback was also received within presentations using the Mentimeter online interactive tool.



Key assets identified by Advisory Committee



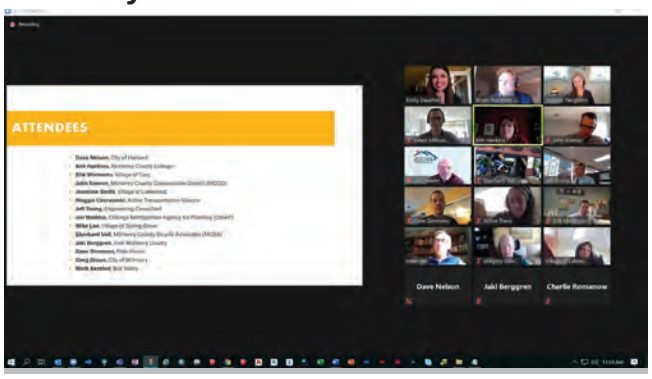
Mentimeter Questions for Advisory Committee

Advisory Committee

An advisory committee of local stakeholders representing a variety of agencies, interests and geographies was established early in the process to provide leadership and guidance on the planning process and assist with identifying and sharing information with stakeholders. Representatives from the following agencies, organizations and municipalities were included on the Advisory Committee:

- Active Transportation Alliance
- City of Harvard
- City of McHenry
- CMAP
- Consultant
- Heartland Realtor Organization
- McHenry County Bicycle Advocates
- McHenry County College
- McHenry County Conservation District
- McHenry County Department of Public Health
- McHenry County Planning & Development
- McHenry County Division of Transportation
- Northwestern Medicine
- Ride Illinois
- Village of Bull Valley
- Village of Cary
- Village of Johnsburg
- Village of Lakewood
- Village of Spring Grove
- Visit McHenry County

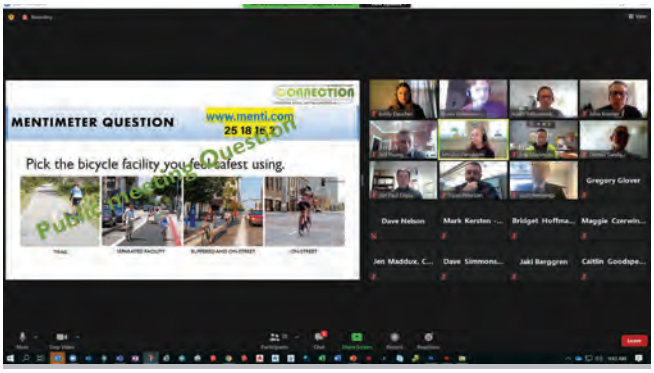
Advisory Committee



Advisory Committee Meeting #1 Screenshot

Meeting #1 November 16, 2020

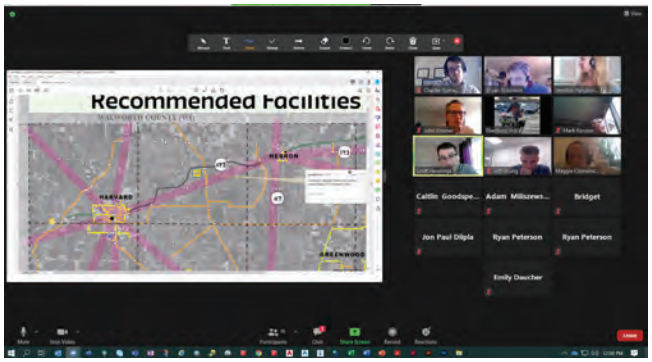
Discussion focused on introducing the project, providing information concerning existing conditions, and eliciting feedback on the engagement process and potential visions, goals, and branding. Input provided helped establish the project's vision and goals which guided the remainder of the planning process.



Advisory Committee Meeting #2 Screenshot

Meeting #2 January 22, 2021

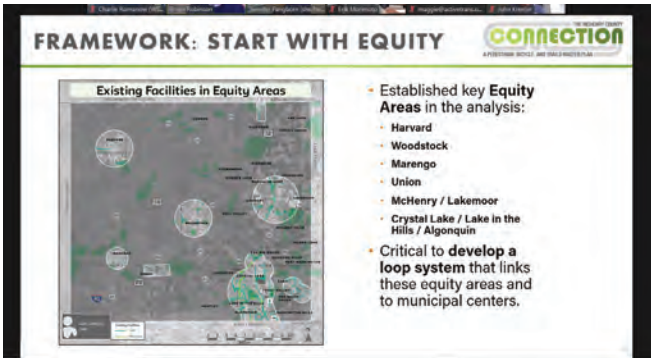
Discussion focused on sharing conclusions drawn from the previous Advisory Committee meeting, results of public outreach conducted thus far, and sharing a draft presentation of the upcoming public meeting. Input on issues and ideas was gathered.



Advisory Committee Meeting #3 Screenshot

Meeting #3 May 4, 2021

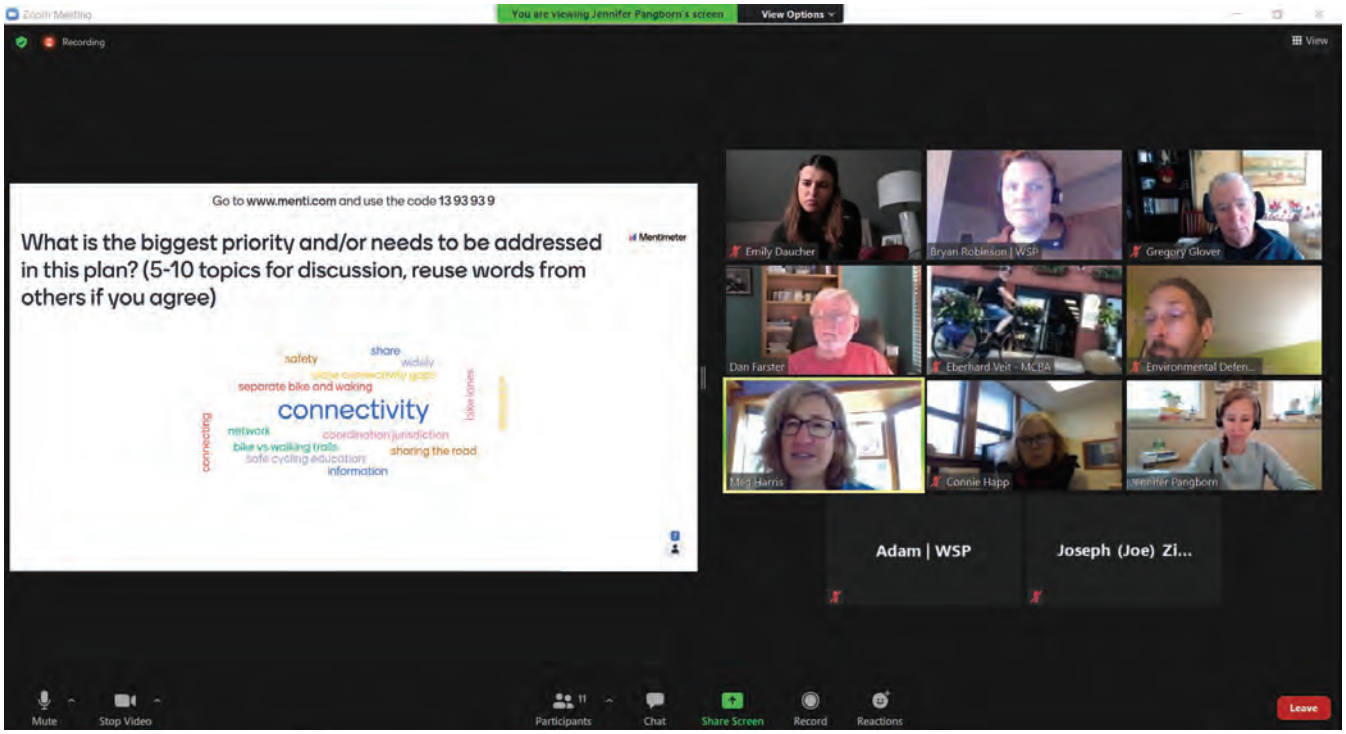
Discussion focused on the recommended facilities, connections between downtown centers and populations, the plan's vision, and potential routes. The Advisory Committee members provided feedback and minor modifications to incorporate into an updated presentation for the second public meeting.



Advisory Committee Meeting #4 Screenshot

Meeting #4 October 15, 2021

Discussion focused on final plan wrap and consensus and helping to identify any countywide priorities. The previous public engagement and refinement to the recommendations were shared. Priorities were ranked to identify in the final plan section for next steps.



Focus group meeting with the Bicycle Advocacy organizations and their priority rankings being connectivity

Focus Group Discussions

The project team met in small groups with representatives from different groups and cities around the County. Discussion topics varied from group to group but included formulating and prioritizing recommendations and considering partnering on future projects. Other groups were engaged, but formal group discussions didn't occur. Public surveys were shared with all to take and distribute to their networks.

- MCDOT (12/14/2020)
- McHenry County Bicycle Club/ McHenry County Environmental Defenders/ McHenry County Bicycle Advocates (12/18/2020)
- City of Harvard (5/3/2021)
- City of Marengo (5/3/2021)
- City of McHenry/ Village of Johnsburg/ Village of Ringwood (5/3/2021)
- Village of Spring Grove (5/7/2021)
- Village of Wonder Lake (5/7/2021)
- City of Crystal Lake/ Village of Lake in the Hills (6/1/2021)
- Village of Algonquin/ Village of Huntley (6/1/2021)
- IDOT (8/6/2021)
- Village of Bull Valley (8/6/2021)
- McHenry Conservation District

Public Meetings

Two virtual public meetings were conducted during the project to collect input from attendees and provide insight on the goals, issues, ideas, and recommendations. Public meeting input was combined with public survey input to collectively ensure recommendations were established on consensus.

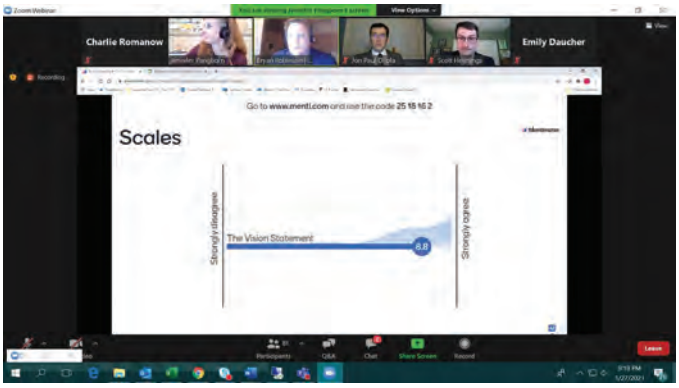
Meeting #1

The first virtual public meeting took place on January 27, 2021. The subject matter of the meeting generally paralleled that of the first Advisory Committee meeting, focusing on introducing the project, sharing the Advisory Committee's role and input, providing the draft goals and existing conditions, sharing public engagement tools, and eliciting feedback concerning attendee's biking and walking habits. More than 80 people were in attendance.

Meeting #2

The second virtual public meeting took place on May 12, 2021. The project team presented results of outreach conducted thus far, including stakeholder's preferences by facility type. Attendee's also contributed feedback concerning biking destinations.

Word Cloud Resulting from Public Input



Input showing strong agreement on the vision statement.

Input showing participants want separated faciliites.

Input showing strong support for Routes goal

Public Surveys

Three online surveys were created using the Metroquest tool.

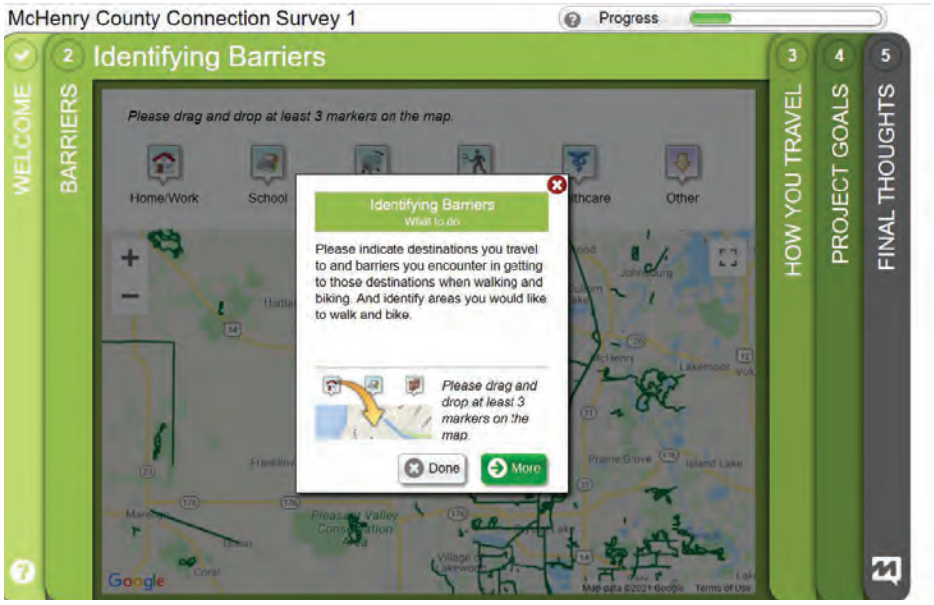
Survey 1

The first survey, available from January 26, 2021 to February 15, 2021 elicited feedback concerning stakeholders biking and walking habits and obstacles preventing them from biking and walking more. The survey received 721 visitors with 290 people participating in the survey. A plurality (45%) of respondents stated they mainly travel for dining and recreational purposes. Of these 45% of respondents, 40% travel mainly to parks, 31% for dining, and 26% for other “fun” activities. The survey also found that most people (83%) drive with a significant percentage also biking (42%) and walking (36%). When asked for their preferred mode of travel, 174 preferred biking, 116 walking and 91 driving. When asked which modes of transit they have access to, 227 stated having access to a car, and 213 to a bike, A plurality (43%) of people who walk stated they mainly do so for recreation or exercise purposes while 27% do so as a family and 23% walk with friends. 33% of cyclists do so for recreation purposes with an additional 24% biking casually and 18% biking as a family. Survey respondents were shown a variety of bike facility types, including standard, buffered and protected bike facilities. 154 respondents preferred having a landscaped trail away from the street, 89 preferred sidewalks with a combined bike path and amenities and 79 people preferred buffered bike lanes with separate sidewalks. The majority of people indicated the following factors prevent them from walking or biking more:

- separation of vehicles, cyclists and pedestrians (67%)
- lack of facilities/connectivity (61%)
- safety concerns (59%)
- vehicular speeds (56%).

When asked to rank the project’s goals (provided in more detail on 35), respondent’s ranked (in order):

1. Routes
2. People
3. Operations
4. People
5. Facilities
6. Programming



All public surveys were completed in Metroquest to gather input.

Survey 2

The second survey, available from June 7, 2021 through June 28, 2021 elicited feedback concerning stakeholders' thoughts on the project goals, bike facility preferences, and reactions to and concepts for recommendations. An interactive map was provided showing preliminary biking and walking facility recommendations, allowing respondents to comment on these recommendations as well as provide their own. The survey received 1,229 visitors with 519 people participating, providing 7,632 total data points. Most respondents have access to a car (94%) and bike (91%) and slightly less than half (47%) had access to Metra service. Of the six identified goals, most people (75%) stated that "Routes," as relating to connectivity and safety, was their top priority.

Three vision concepts were developed and presented as part of the survey. Details as to the concepts and survey participants responses to them are presented beginning on 39.

Respondent's were also asked their preferences for biking and walking facilities. The majority of respondents stated they preferred a multi-use path for walking and a landscaped trail separated from the roadway for biking. When asked whether they prioritized more connections or better facilities, 79% of respondents preferred more connections.

More than one thousand points were mapped by survey respondents, including 511 that also included written comments. Each comment was selected from one of the following categories:

- Key Destinations
- Existing Facilities
- Agree with Recommended Route
- Agree with Recommended Route and Facility
- Facilities Needed

Mapped comments tended to be placed in the eastern part of the County, particularly Crystal Lake (throughout), Spring Grove (downtown), and Richmond Township (near Glacial Park).

Key Destinations

Parks and Conservation Areas
The existing trail that connects to Glacial Park and a path along 173 would allow residents of Spring Grove connect to that trail network and add the Chain O'Lakes State Park to that said chain

Downtowns
Would love to see this 'downtown area' become more conducive to foot/bike traffic.

Schools
Downtown Richmond. Grade school and Middle School.

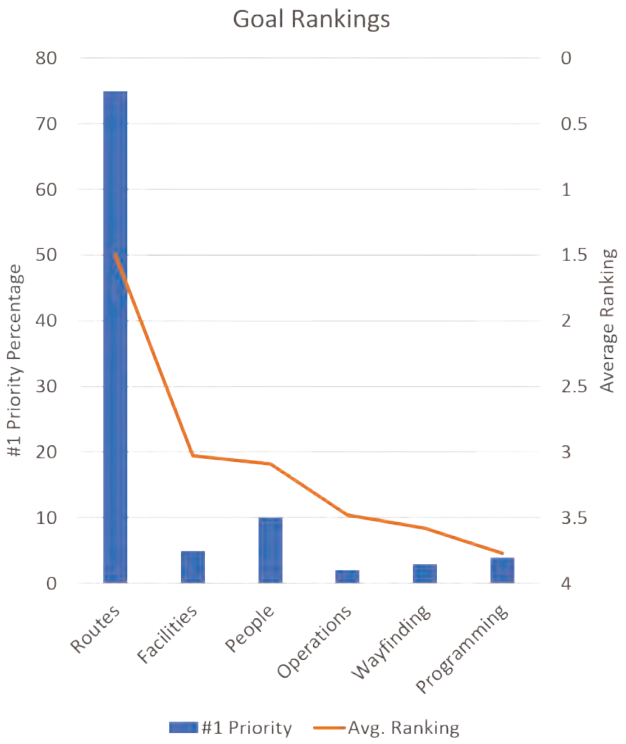
Facilities

Connect/Extend Existing Facilities
This is a terrible intersection for cars, let alone bikes or pedestrians.

Safe Crossings of High-Speed Roads
Connect to Prairie Path to Moraine Hill with a path or shoulder.

Paths Along Major Corridors
Bike lane on IL 120 to safely connect Woodstock and McHenry.

Survey Comment Samples



Routes were the highest rated goal from participants

Survey 3 Responses to Agreement with Project Goals

Mapped Key Destination points tended to identify one of three categories: Parks/Conservation Areas, Downtowns, and Schools. Comments concerning facilities also tended to fall into one of three categories: connecting/extending existing facilities, providing safe crossings across high-speed roads, and providing bike facilities along major corridors.

Survey 3

The third survey, available from October 18, 2021 to November 30, 2021 continued to elicit feedback and gain consensus on the project's goals as well obtain more open-ended suggestions for the McHenry County Connection Plan. The survey received 298 respondent's. Respondent's answered a mix of questions with not every participant responding to every prompt. The vast majority (81%) of respondent's had not participated in any of the previous surveys. Nearly all (96%) survey participant's had access to both a bike and automobile. Most (55%) of respondent's also had access to Metra. Similar to previous surveys, most respondent's tended to reside in incorporated areas in the southeast portion of the County. Cary was home to the most respondent's (36%), followed by Crystal Lake (12%), McHenry (11%), Algonquin (7%), and Woodstock (7%).

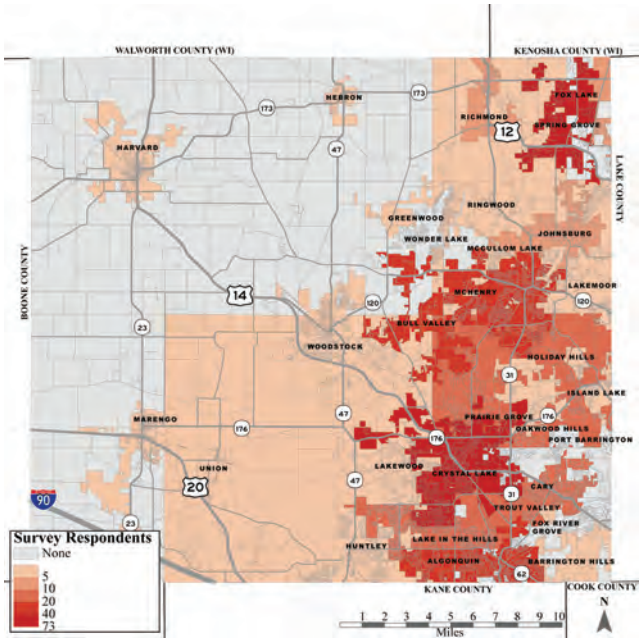
Word Cloud Corresponding to Location of Survey 3 Respondents

Participant's were asked to rate (from 1 to 5) their agreement with the six project goals. Similar to previous surveys, "Routes" was ranked highest at 4.7 while "Programming" was ranked the least important. Respondent's rated the mapped recommendations 3.8 out of 5. Participant's also ranked the Loop priority connections a 4.1 out of 5. Respondent's rated their interest in the County and its cities to spend more money on walking and biking facilities 4.4 out of 5. This indicates notable support for greater biking and walking infrastructure. Overall satisfaction with the Plan was rated 3.9 out of 5.

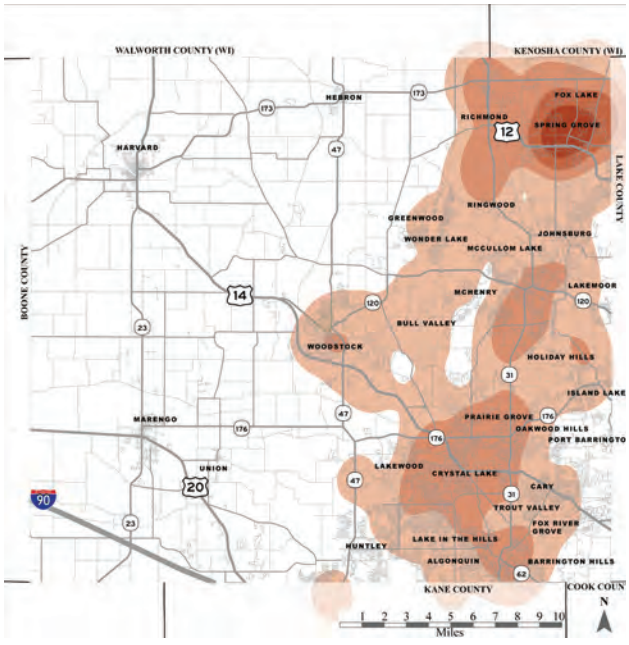
Demographics of Survey Participants

Data was gathered concerning where survey respondent's live. Respondents tended to be from the more densely populated eastern incorporated areas of the county including Spring Grove, Crystal Lake, Algonquin and McHenry.

While a goal of the engagement process was to maximize equity in obtaining feedback, it should be noted that there was limited racial and ethnic diversity in receiving feedback. Nearly half of survey respondent's did not provide an answer as to their race/ethnicity and of those who did respond, 95% identified as Caucasian. While a minority of the County's population identifies as anything other than Caucasian (1.1% Black/African American, 2.5% Asian, and 11.4% Hispanic), going forward, outreach efforts involving the Council of Mayors, County, municipalities and each of their partners should make efforts to elicit feedback from a demographically representative sample of the County's population.



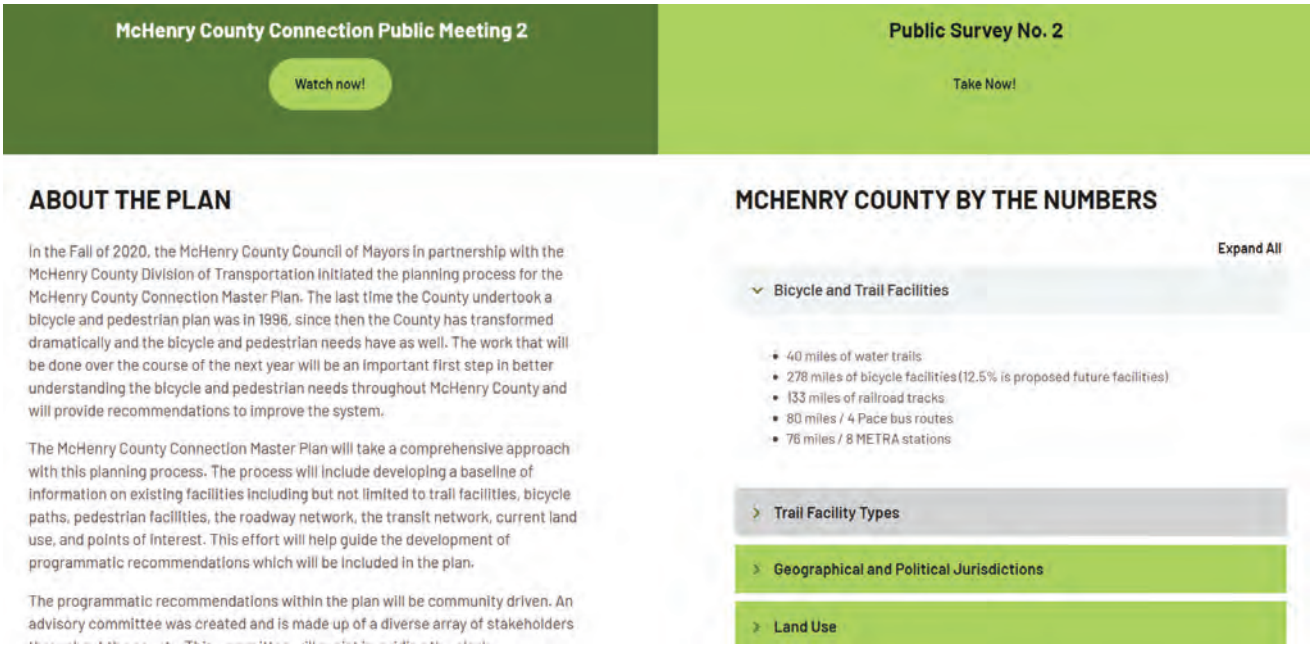
Survey Respondents Locations: Darker red shows where survey respondents participated from



Survey Comments: Darker red shows where survey comments came from

Project Website

A project website was designed as a public repository of information for the project. The website included a brief project background, timeline, project goals, and other facts about walking and biking in the county. Information concerning public meetings and surveys, including a link to view recorded public meetings, were also shared through the website to allow the public to stay engaged and informed throughout the planning process. Users could also sign up for email updates and reach out to a representative with the McHenry County Council of Mayors with any comments or questions.



Screenshot of the project website www.mchenrycountyconnection.com

THE MCHENRY COUNTY
CONNECTION
A PEDESTRIAN, BICYCLE, AND TRAILS MASTER PLAN

Project branding created to align with the importance on connectivity and routes based on public input

1.4 Existing Conditions and Field Visits

There are a number of existing bicycle facilities within the County, ranging from trails to separated paths, to on-street bike lanes, sharrows, and wide shoulders used by bikers. There are sidewalk facilities and multiple types of crosswalks for pedestrians. Facilities were reviewed on maps and in the field to evaluate conditions, types, observe use, and make notes on what worked and where improvement and gaps were observed.

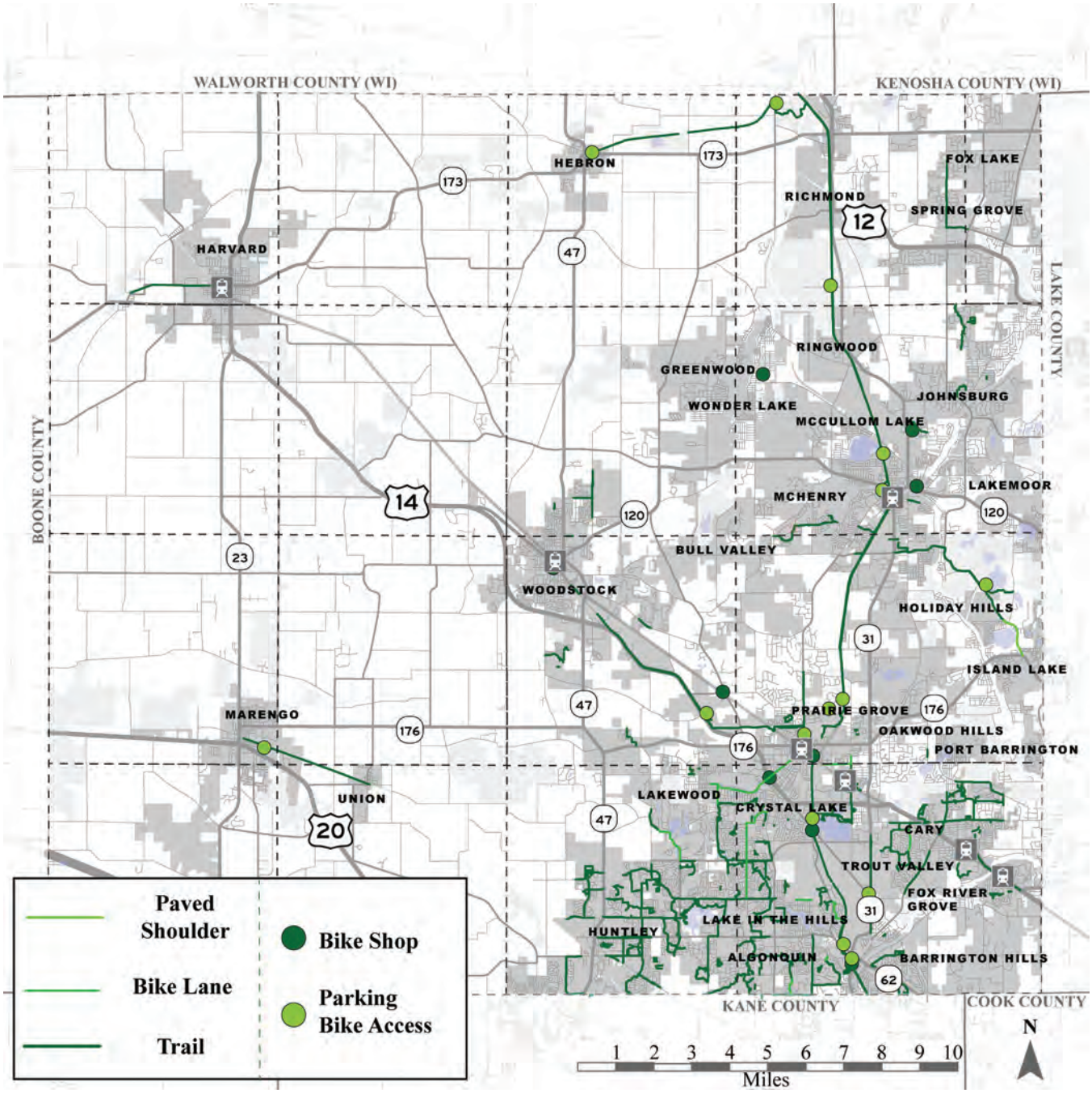
On-street bike lane with painted buffer

Pedestrian push button at signalized intersection

Hebron Trail

Bicycle amenities and signage

Side paved shoulder in Huntley used for biking



Existing Bike Facilities and Amenities

Existing Facilities + Bike Amenity Destinations

The existing marked bicycle facilities and bike shops and bike parking were mapped around McHenry. This map helped understand where connections to places occured and identify the gaps in connectivity as identified from the public engagement. Public survey respondents identified the importance of facility type to them, with safety of the design for all users feeling comfortable on the connections, so the different types of facilities were important to understand.

Trail in Lake in the Hills

Separated multi-use pathway in McHenry

New pathway near Crystal Lake Metra Station

Pedestrian crossing sign

Separated trail facility roadway crossing near Union

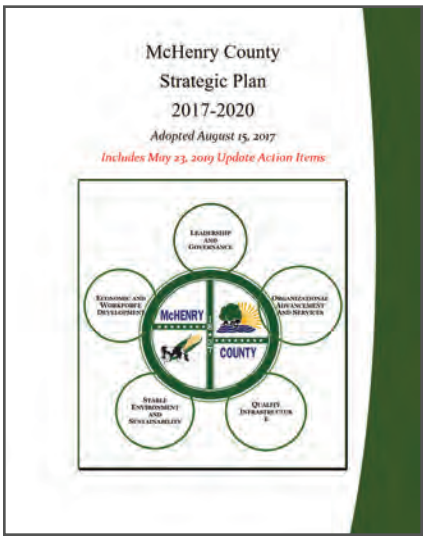
Planning Background

Numerous previous plans and ongoing projects were reviewed as part of this analysis, in hopes to build off of successful efforts. All plans reviewed are listed below with the most wide-ranging subsequently summarized. The plans and projects included:

- 2030 and Beyond (2016)
- 2017-2020 McHenry County Strategic Plan (2017)
- McHenry County Subregional Bicycle Plan (1996)
- 2016-20 Comprehensive Economic Development Strategy (2016)
- 2030 Comprehensive Plan
- The McHenry County Historic Preservation Plan: Goals and Strategies
- Neighboring County Bike and Pedestrian Plans
- Randall Road Reconstruction
- Illinois Route 47 Reconstruction
- Illinois Bike Transportation Plan (2014)
- CMAP: The Northeastern Illinois Greenways and Trails Plan (2018)
- Multiple Municipal Comprehensive Plans and Bike Plans
- Metra Ridership Studies

McHenry County Subregional Bicycle Plan (1996)

McHenry County's Subregional Bicycle Plan was released in June 1996 and prepared for the Chicago Area Transportation Study and the McHenry County Council of Mayors. The plan's goal was to present recommendations encouraging utilization of bicycles for commuting and other utilitarian trips (rather than recreational travel). Five goals and objectives were developed early in the process to support this mission. The project team inventoried existing bike facilities, destinations and traffic systems data (volumes, speeds, etc.). The study led to a map of suggested facilities throughout the County based on priority. A dozen implementable policies for municipalities were also developed including identifying projects for funding, revising comprehensive plans, and incorporating bicycle enhancements during roadway improvements.

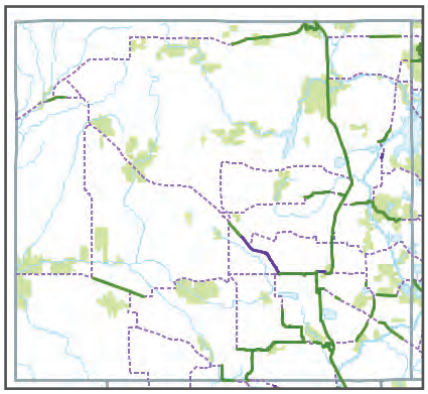


2017-2020 McHenry County Strategic Plan (2017)

McHenry County's Strategic Plan was adopted in 2017 and updated in 2019 with action items. Within five categories, the plan includes several goals with sub-objectives. Of particular relevance for this biking and walking plan is the goal to "promote mobility for all County residents by providing choices in the transportation network including walking, biking and public transit" with the objective to "ensure that all County roadways are planned and constructed with the needs of pedestrians and bicyclists in mind." Another relevant goal is to "address short and long term capital and facility needs" with the objective to "evaluate facility and capital needs and future uses, maintenance and utilization." Other goals include exploring joint-service agreements, protecting the environment, improving the implementation process, and using data-driven decision-making methods.

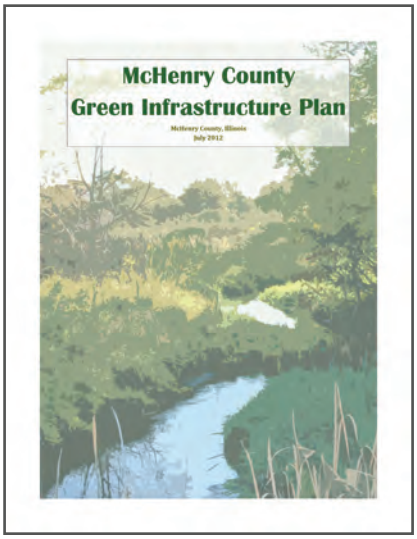
2030 Comprehensive Plan

McHenry County's 2030 Comprehensive Plan was adopted in 2010 by the County Board. The plan establishes a vision for McHenry County and sets actionable goals and objectives serving as a roadmap to realizing the plan's vision. The plan includes many topics including land use, transportation, infrastructure, water resource mananagement, open space, natural resource and agricultural conservation, and economic development. The plan serves as a general guide to regional policy and decision making into 2030. Vision elements related to this bicycle and pedestrian plan include coordinating the provision of trails and promoting community walkability, creating a network of greenways and trails connecting to parks, historic sites, and communities, and reducing vehicular travel and minimizing roadway infrastructure's cost and air pollution levels.



CMAP: The Northeastern Illinois Greenways and Trails Plan (2018)

The Northeastern Illinois Greenways and Trails Plan was adopted in 2018 as part of ON TO 2050, CMAP's long-range plan which envisions a network of continuous greenway and trail corridors, linked across jurisdictions, providing scenic beauty, natural habitat, and recreational and transportation opportunities. The plan includes conceptual alignments for the planned trail network. The regional trails plan assists implementers and funding agencies in advancing their projects, as proposals that relate to the plan can be more attractive to funding agencies. The regional trail network is an organizing system around which regional greenways map be developed. Between 2009 and 2019, 75 miles of trails were constructed in McHenry County, adding to the 193 existing miles.



McHenry County Green Infrastructure Plan (2012)

Completed by McHenry County's Department of Planning, the McHenry County Green Infrastructure Plan is modeled on the Green Infrastructure Vision developed by Chicago Wilderness. The goal of the plan is to create a detailed inventory of natural resources using the latest technology and information and work with local governments to identify additional green infrastructure opportunities, and develop policies and implementation recommendations. Evaluated datasets include watersheds, streams, lakes, floodplains, wetlands, open space, woodlands, grasslands, and trails. The plan resulted in a Green Infrastructure Network Map and Trails Map, in addition to numerous recommendations including for municipalities to encourage and plan for improved walkability throughout their communities.

Conservation District's Regional Trail Crossing Improvement

Hebron Trail Rail Crossing Study

The Hebron Trail rolls across the northern Illinois prairie through the former corridor of the Kenosha and Rockford Railroad, known as the Kenosha Division Line at the time of its demise in 1939. Launched in 1861, the railroad boosted economies along its rural route by serving dairy farmers and carrying passengers. Though agriculture still plays a role in the local economy, the railroad closed shop after farmers began hauling their goods to market by truck and passengers turned to the automobile.

Founded 25 years before the railroad arrived, the town of Hebron served as a midpoint stop on the 72-mile-long rail line. Today, it serves as a trailhead for the 6.7-mile Hebron Trail that runs east to the North Branch Conservation Area and a junction with the Prairie Trail. The crushed-stone path is also part of the 500-mile Grand Illinois Trail that loops around northern Illinois.

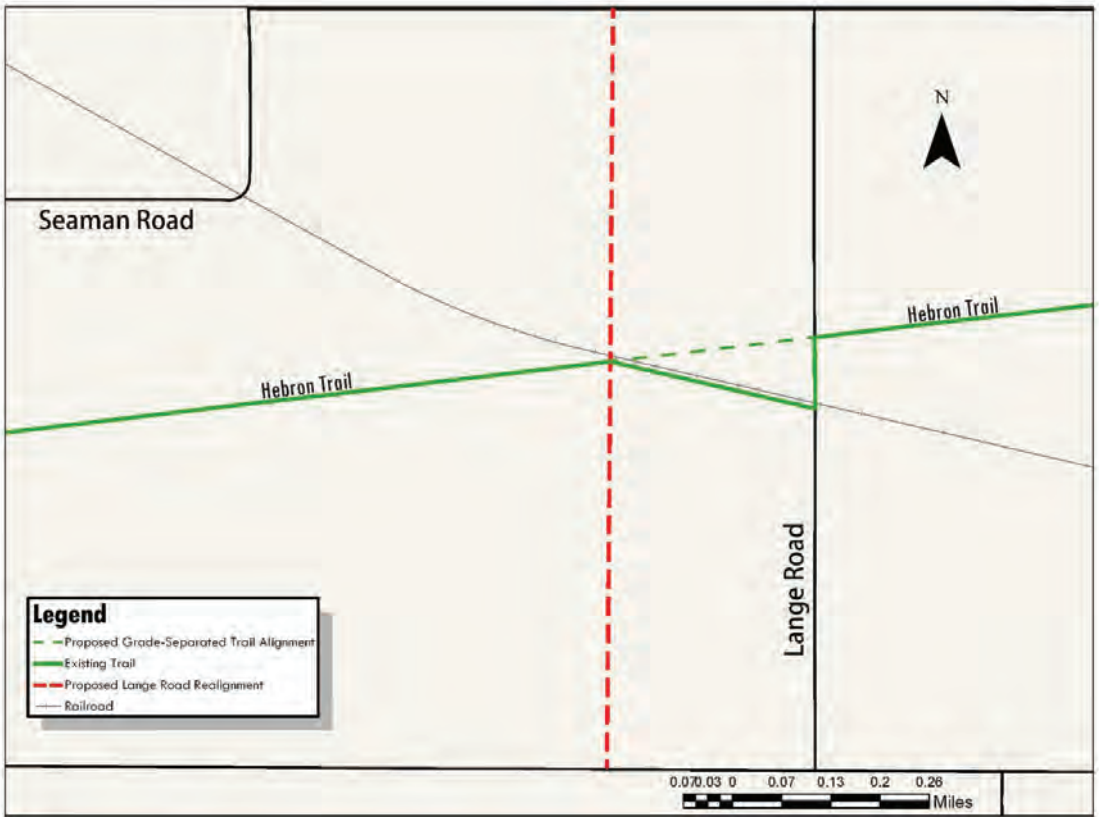
The Hebron Trail serves a vital regional trail linkage in the growing bicycle trail network in McHenry County. The seven-mile trail, constructed on former K.D. Railroad lines, connects the Village of Hebron to the Prairie Trail in Richmond. The Hebron Trail concludes in the North Branch Conservation Area, a 521-acre preserved open space teeming with wildlife and includes an overnight camp site designed for cyclists. After exiting the Hebron Trail in the North Branch Conversation Area and entering the Prairie Trail, cyclists and pedestrians can travel to almost every adjacent county and even into Wisconsin, underlining the importance of trail connections.

Based on Strava Metro data, the Hebron Trail sees at least 1,600 cyclists and 500 pedestrians utilize the trail per year. Based on this data, it can be surmised that the Hebron Trail is one of the most popular and well-used trails in McHenry County.

Currently, due to a crossing of the defunct K.D. Railroad, trail users must traverse Lange Road for approximately 500 feet. While Lange Road is a low-volume roadway, it often sees large farming equipment and trucks from a nearby quarry travel along the road, creating potentially unsafe cycling and/or walking environment(s).

Several solutions have been proposed to alleviate the unsafe riding conditions currently experienced by users of the Hebron Trail. The first solution would be to construct an above-grade crossing for the Hebron Trail, like the trail crossing implemented over Pyott Road in Crystal Lake. The second solution would be to realign Lange Road to the west so that the roadway and Hebron Trail all intersect at the railway, allowing for safe crossing of non-automobile users. Finally, if grade separations or road re-alignments are deemed infeasible, Lange Road could be upgraded with bicycle and pedestrian accommodations to provide suitable accommodations for cyclists and pedestrians utilizing the roadway to travel along Hebron Trail. The solutions involving re-alignments are outlined in the above map.

MCDOT team members will seek out funding opportunities for both design solutions through competitive federal, state, and regional funding sources.



The proposed grade separation on the Hebron Trail is located on Lange Road north of IL 173 near the northeast corner of Good Lake Park.

2.0 VISION + GOALS

2.1 Visioning Process

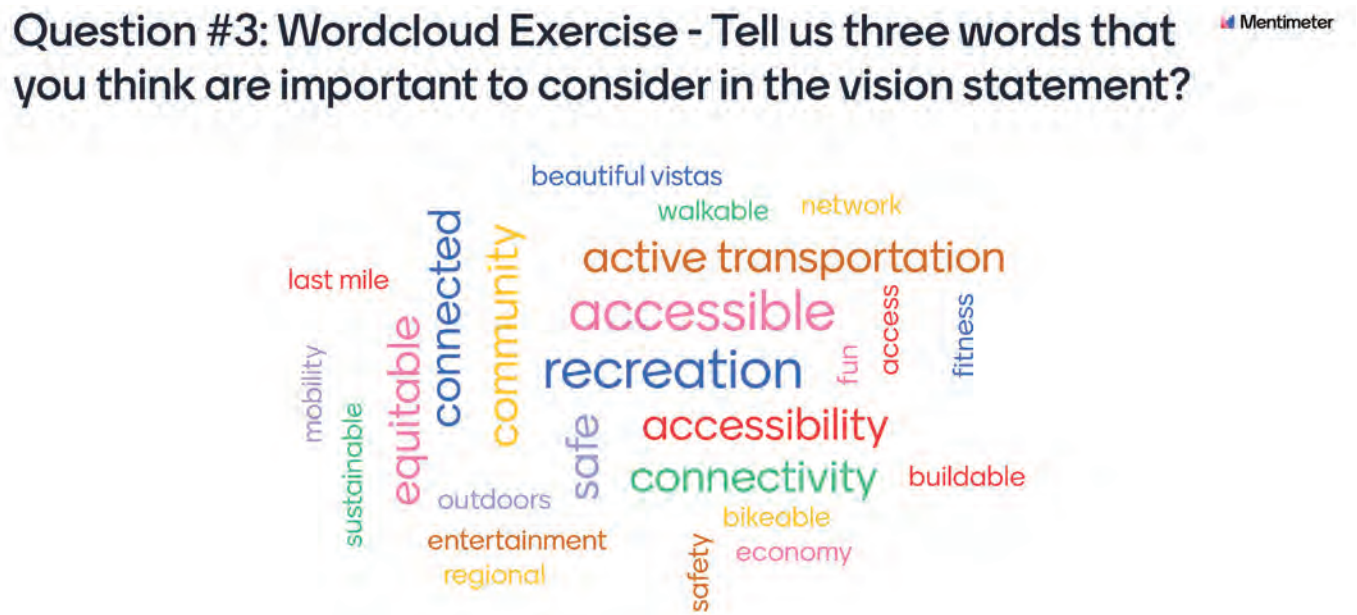
Overview

Setting a vision and goals is essential for assuring a project's direction matches the interests and desires of residents and stakeholders. A vision (or vision statement) consists of a single succinct statement intended to summarize the mission of the project while the goals provide more specific means of achieving the vision. The analysis of existing conditions and subsequent recommendations aim to satisfy and promote the project's vision.

Vision Statement

Input from the public and advisory committee early in the process resulted in the vision statement on the right side of the page. In one sentence, this vision statement incorporates the need to provide adequate facilities for all roadway users across all modes.

"The McHenry County Connection aspires to establish a safe regional active transportation network that will build community equity, provide access for all pedestrians and cyclists, and support commuting, recreation, and tourism."



This question was asked multiple times of different groups to help build the vision statement and goals

Goals

The six goals, each with a one-word theme, support the vision statement and provide lenses through which the conception of recommendations were considered. Prioritization of the goals from the first public meeting is illustrated on the bottom of the page.

Project Goals

People: Building Community & Equity around the multi-modal transportation system

Programming: Improving Health & Education of users and groups of all ages and abilities

Routes: Increasing Connectivity & Safety throughout communities and neighborhoods

Facilities: Embracing Sustainability & Design on future implementation projects

Wayfinding: Promoting the Economy & Tourism of the natural and built environment

Operations: Simplifying Management & Maintenance of system assets

The importance of where routes are and connecting people and places was a theme through all engagement

Design Rendering of Harvard, an Identified Equity Area

2.2 The Importance of Equity to the Vision and Goals

A central tenet of the visioning and goal-making process was equity. Equity considers the equal treatment of all stakeholders and assures meaningful involvement of all people regardless of race, color, national origin, income, or age. Consideration of equity occurs throughout the planning process, from establishing the advisory committee and eliciting public feedback, to developing and designing recommendations. Equity is included in the process in many different ways such as assuring public engagement materials are available in languages spoken by stakeholders, incorporating a diversity of participant's in the Advisory Committee, and designing and siting recommended facilities that are accessible to all and improve mobility in historically underserved communities.

3.0 MASTER PLAN FRAMEWORK

3.0 MASTER PLAN FRAMEWORK

Sample Protected BIke Lane

3.1 Building the Framework

A properly functioning Countywide bicycle and pedestrian network includes more than facilities where people walk and bike. Additional policy, programming, operations and maintenance considerations are equally important to assure the essential biking and walking infrastructure such as bicycle lanes and sidewalks, are able to function properly.

The recommendations detailed in the following sections include the location of recommended bicycle and pedestrian facilities, typologies for bike facilities throughout the County, and programmatic recommendations related to wayfinding, design, management, and maintenance to assure biking and walking facilities are properly maintained. The process of formulating these recommendations stems from a combination of public engagement with stakeholders, best practices from planning nationwide, and ongoing discussions with county staff.

3.2 The Process

The process of formulating locations for recommended bike facilities began with the systems analysis and existing conditions process, assuring the project team understood the location and nature of existing infrastructure, transportation patterns, and destinations, as well as considering recommendations made to the bicycle network in previous studies and planning efforts.

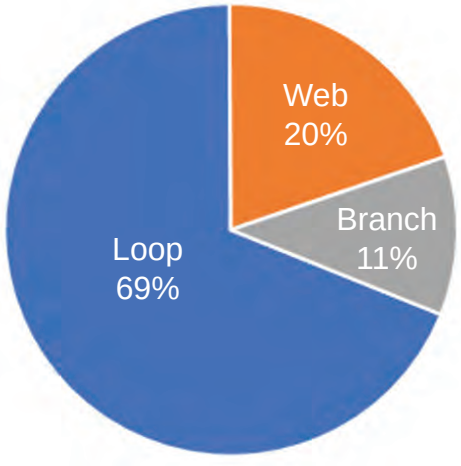
The existing bike network was used as a starting point for providing additional connections, determining the proper facility type (off-road trail/sidepath vs. on-road bike lane/widened shoulder) based on existing cross-sections and roadway widths, demand, need, and the ability for the local jurisdiction to maintain facilities. Destinations, points of interest and trip generators were established based on existing conditions basemapping and public input. As detailed in the public engagement section, downtowns and parks were identified as major destinations. These locations received greater consideration in the development of McHenry County's bike network. Potential "Big Picture" connections were overlaid with the map to visualize destinations and potential routes before recommending specific routes, alignments and facilities.

Considering maintenance, on-road facilities were mainly recommended on rural roadways outside of incorporated areas as well as more densely settled downtown areas. Townships are better able to maintain on-road facilities with existing maintenance procedures than the increased attention required of off-road facilities. Additionally, on-road facilities are more apt for downtowns where limited space prevents off-road facilities.

3.3 Defining the McHenry County Connection...

In addition to the vision and goals established early in the planning process, three visioning concepts were developed in regards to locating, designing and prioritizing recommended facilities. Fueled by results of the engagement process thus far, including establishing where people would like to bike and walk to, each of the three concepts provide a different perspective of looking at the potential partnerships and priorities for the project. When formulating recommendations, the tenets of all three concepts were considered though greater emphasis was placed based on the public's feedback to them. The three concepts were shared with stakeholders during the second public meeting as well as via the second online survey. The three concepts are detailed on the following page.

Which vision would you most prefer?



The three vision concepts were presented as part of the second public survey. Stakeholders and respondents overwhelmingly supported the Loop concept, with 69% of respondents stating it as their preferred vision. This builds on the county's park and natural areas and downtown economic hubs.

The Loop

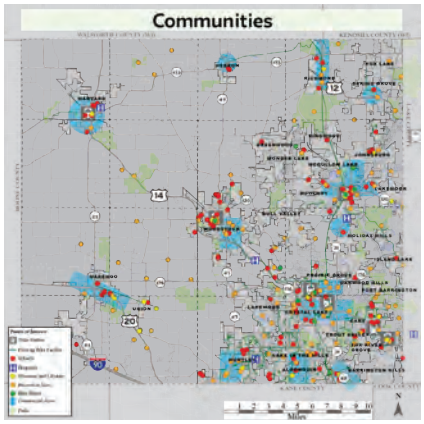
The Loop concept begins with the plethora of parks and natural areas spread throughout the County. Design begins with these shared assets, expanding partnerships across the gaps between natural resources, creating major loops and rings linking together to create connections. Momentum would be created using the shared public assets as priorities and speeding up actions on the McHenry County Connection.

The Web

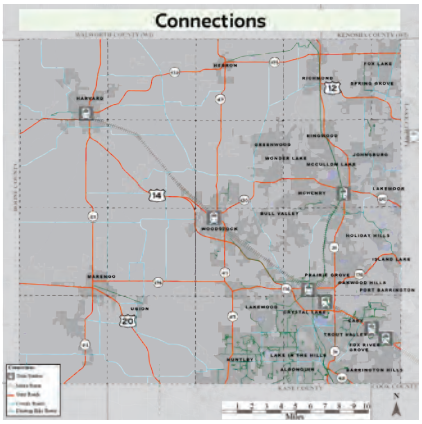
The Web concept begins with the urban and suburban centers and downtowns, developing a web of connections across the County from these centroids. This concept would allow for direct partnerships with incorporated areas, linking each of the centers. Momentum would be created by individual actions and priorities that combine to create the McHenry County Connection.

The Branch

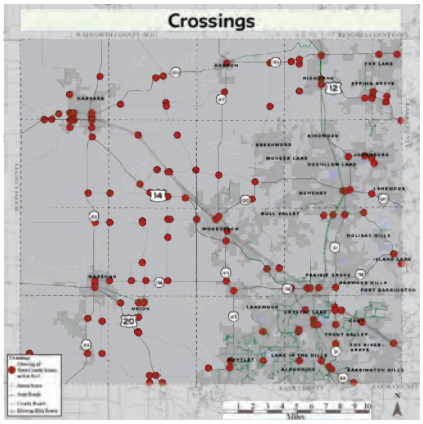
The Branch concept begins with the transit corridors (Metra and Pace routes), building a series of “feeder” connections via cyclists and pedestrians throughout the County. The existing transit corridors operate as a sort of “spine” for the larger network, building partnerships and linking centers along the way. Momentum would be created by compounding actions and priorities to complete the McHenry County Connection.



Communities



Connections



Crossings

Communities

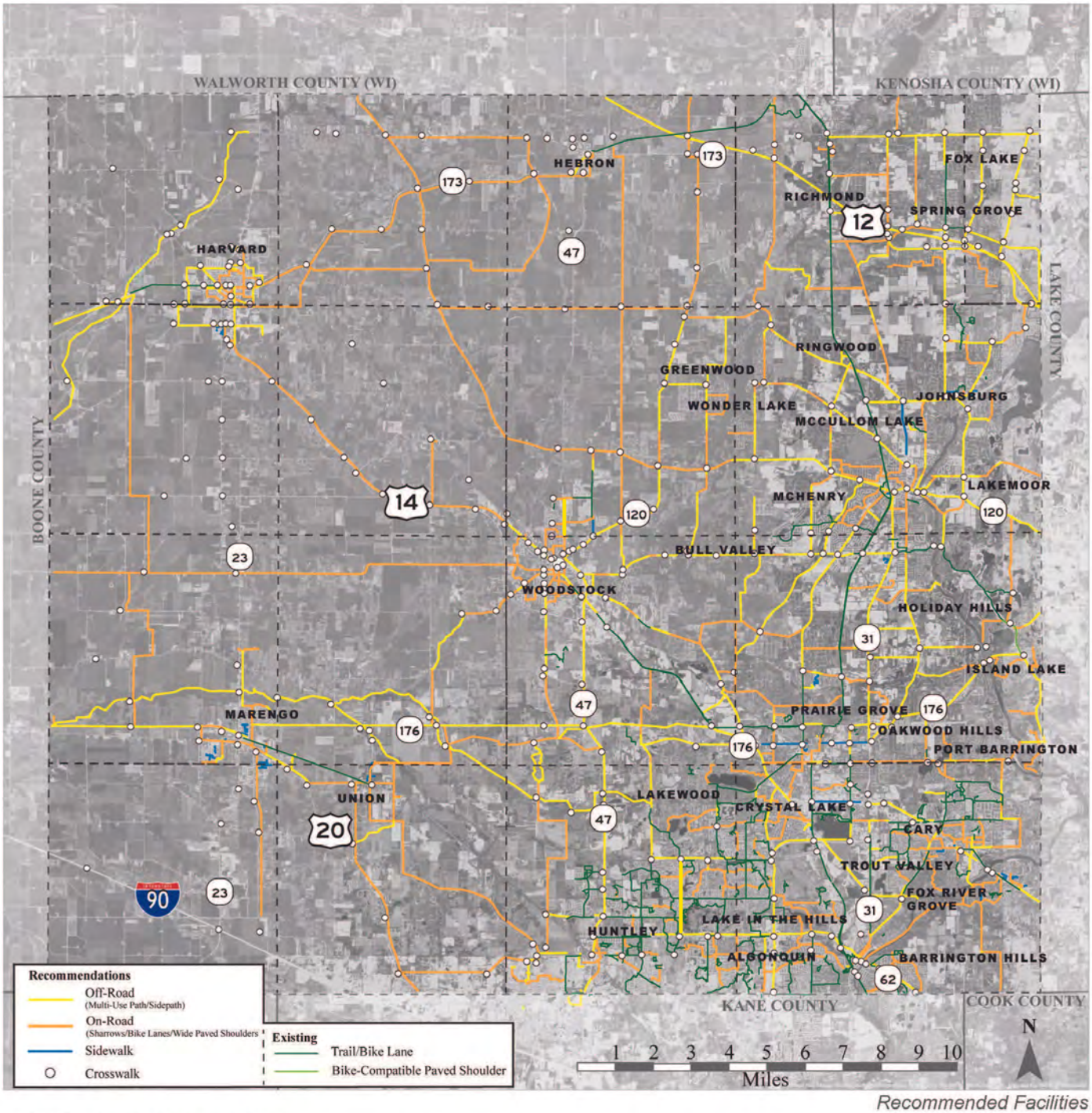
McHenry County is characterized by its many communities. These communities include not only formal jurisdictions with political boundaries such as cities and townships, but areas within and between these boundaries that form “places” ranging from a small park to an entire neighborhood. Part of the process of this master plan is recognizing the importance of the County’s many places and communities. It is these communities that form the backbone of the County and who will ultimately be using, living, working and traveling along and in proximity to the recommendations laid out in this plan. The existing conditions analysis detailed earlier is one piece of recognizing the importance of communities. This effort was complemented by the public engagement.

Connections

A fundamental tenet of this plan is to provide connections between McHenry County’s many places and communities. Like many areas around the country, the easiest way for many to travel between places in McHenry County is by automobile. While this works for some, those who are unable or choose not to travel by car, including children and many elderly residents, are obstructed from easily traveling throughout the County. Pedestrian and bicycle mobility is made more difficult by the presence of wide, high-speed and high-volume roads. By reviewing the County’s plethora of communities and places, this plan aims to improve the ability for residents to safely and comfortably travel throughout the County by providing connections along and across existing corridors.

Crossings

In addition to connecting communities across larger areas, providing crossings is essential to assuring the connections are efficient. High-speed and high-volume roads lacking, or with ineffective crossings, divide communities. Depending on context and need, proper crossings will have high-visibility on-road markings that are regularly maintained, with the potential for signage alerting motorists to the crossing and flashing lights (such as rectangular rapid flashing beacons). These treatments can provide an added level of visibility for crossing pedestrians and cyclists. Crossings can help connect historically separated and disadvantaged communities, bridging infrastructure divides and furthering community linkages.



Recommended Facilities

3.4 Facilities Plan

The above map of recommended facilities aims to provide a comprehensive network for walking and biking in McHenry County, complemented by the existing expansive network of recreational trails. The following pages provide more detail as to the recommendations, including their proximity to destinations and their design.

Complete Streets:
Connections + Crossings across Communities

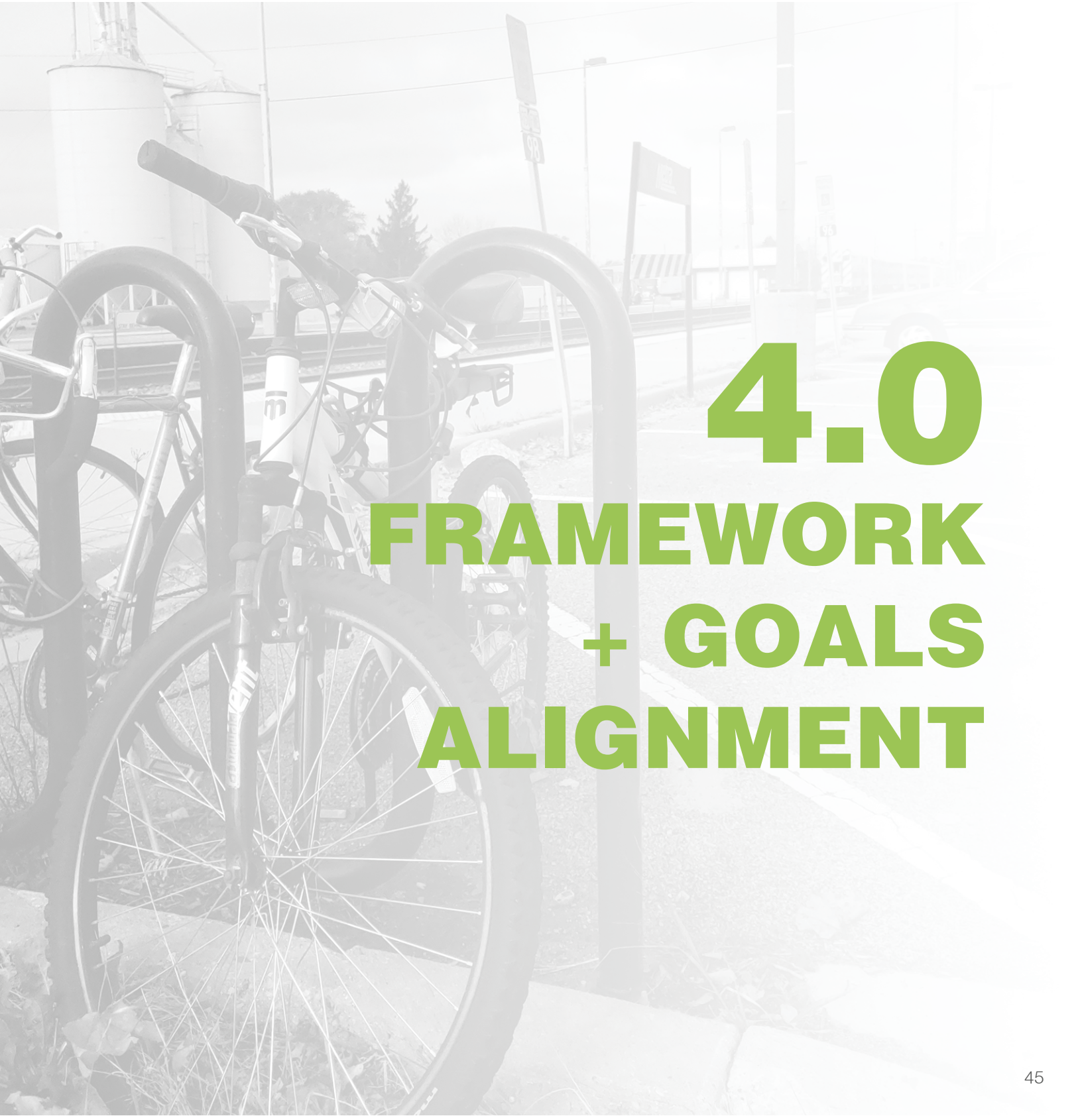
Everyone deserves to get around McHenry County, and everyone deserves to be safe when they do so. For some, driving a car is not an option. There are also many people who do not currently walk or bike (or do so minimally) who would do so more if the available facilities were safer, more comfortable and better connected. Many roadways in McHenry County were deemed uncomfortable or less than ideal for most cyclists due to roadway widths, volumes, speeds and a lack of dedicated biking infrastructure.

Countless studies have concluded that more people will bike and walk when they have safe and comfortable places to do so, leading to safer streets, improved awareness and better experiences. In the United States, less than 10% of people feel comfortable riding a bike in mixed traffic. However, 53% would be interested in riding more often if there were better places to ride.

Improved pedestrian facilities such as sidewalks, crosswalks, benches and lighting can also encourage people to make that short walk to the grocery store or park, instead of driving. Improved active transportation facilities can have a substantial overall benefit to a community, creating a greater sense of place, improving health, and promoting the economy and tourism. In following the concept of “Complete Streets” recommendations were considered in providing adequate facilities for all roadway users, regardless of age, mode, or physical ability. In promoting “completeness”, consideration was given to filling in gaps, connecting destinations, providing for a mix of commuting, recreation and social trips, minimizing dead-ends, connecting to neighboring counties, and providing a diversity of facility types based on the local context.

Where a reduction in lane width is required, a traffic analysis is necessary to assure the continued proper movement of motor vehicles. Recommended on-road facilities can include a variety of treatments, including separated, buffered, and standard bike lanes, as well as shared-lane markings (also known as sharrows). The preferred facility type should be determined based on the roadway context. Higher-speed, higher-volume, wider roadways require greater vertical and horizontal separation while low-volume, low-speed residential roads may only require shared-lane markings and “Share the Road” signage to provide a comfortable bike facility. In some instances, it may be preferable to start by implementing a lower-intensity bike facility (such as shared-lane markings) to ensure both motorists and cyclists are comfortable with one another and the facility before upgrading to a more intensive bike facility design.

This Page Left Intentionally Blank



4.0 FRAMEWORK + GOALS ALIGNMENT

4.1 Building the Plan on the Project Goals: Community, Connections, + Crossings

The advisory committee and public shared the importance of filling in the gaps, created safe connections and crossings, connecting to places, creating a long term vision, and thinking of all users. This chapter connects the input received to the framework plan recommendations using the project goals. Several comments received as part of the public outreach process are included on the right.

A variety of datasets relating to infrastructure and demographics were obtained to better understand the diverse set of communities in the county and how the transportation network is utilized. Each of these datasets and the maps illustrated on the following pages share a piece of the story and interact with each other to paint a picture of existing conditions in McHenry County. This analysis process allowed each of the datasets to be layered upon one another, shedding light on the overlap between variables, leading to development of recommendations and facilities to address stakeholder's needs.

The following datasets and maps are categorized based on the six goals established early in the public engagement process. Each of the goals was given equal consideration during the study process though some will have more directly-related datasets than others:

> Community and Equity
> Connectivity and Safety
> Health and Education
> Economy and Tourism
> Sustainability and Design
> Maintenance and Management

"I'd love to see sidewalks/ trails locally that would connect neighborhoods to schools and businesses." - Public Meeting #1 Respondent

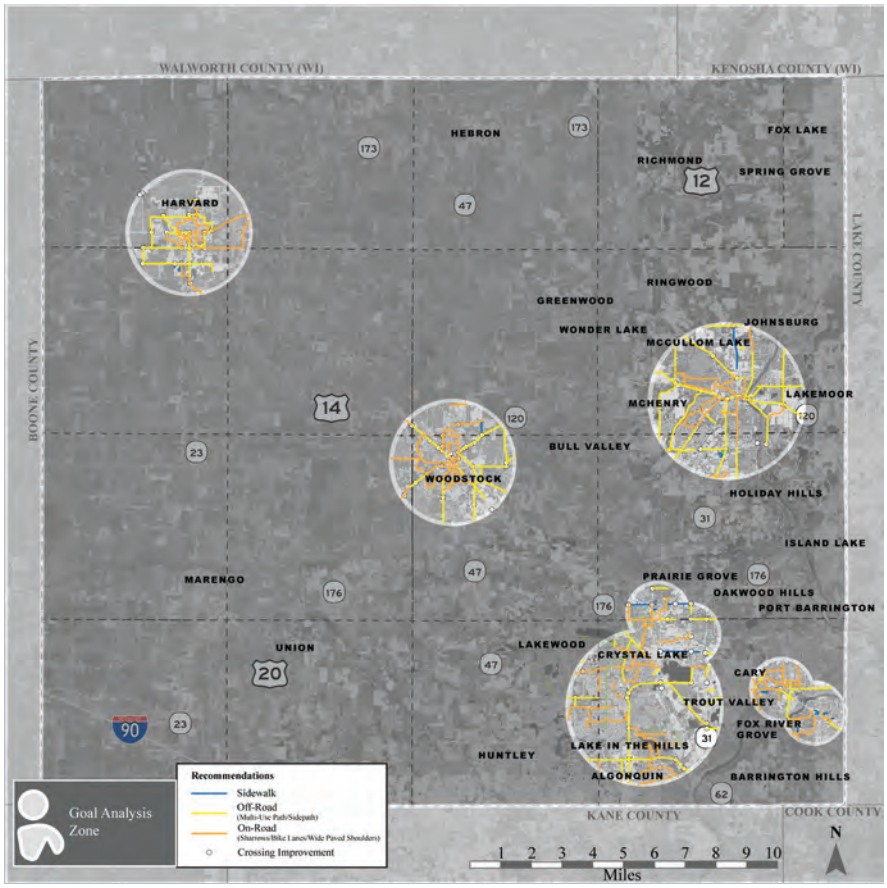
"Connect neighborhood to town so kids and families have a safe place to ride." - Public Meeting #1 Respondent

"Really excited to see how this comes together. Thank you for all your hard work in making this a reality!" - Public Survey #2 Respondent

"We need more multi use paths to make it safer to cycle, walk, and jog. Water stops and bathrooms are helpful." - Public Survey #2 Respondent

"All main roads should have at least a buffered shoulder if not a separate lane." - Public Meeting #1 Respondent

"Complete Streets!!." - Public Survey #2 Respondent

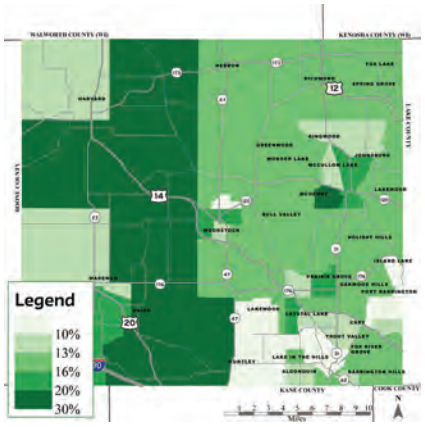


Community & Equity Goal Analysis

Community and Equity

The goal for community and equity focuses on building the multi-modal transportation system. The County's existing multi-modal network includes an expansive roadway network maintained by local, County and State entities, as well as several Metra commuter rail stations, multiple Pace bus routes, and sidewalk and biking networks for pedestrians and cyclists.

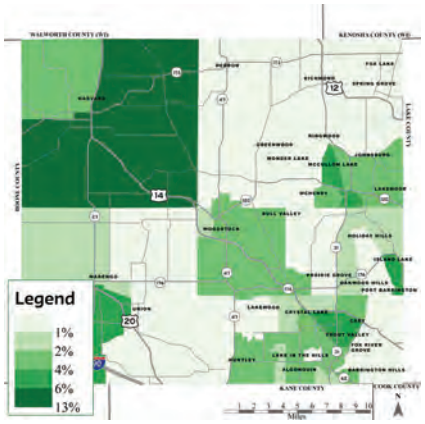
Key points gleamed from the Community and Equity analysis include the presence of elderly, poor, racial minority and limited-English proficient residents in the western part of the County, particularly near Harvard. These vulnerable populations are also in the more densely populated communities of McHenry, Woodstock and Crystal Lake. While walking and biking facilities can serve the entire County, they are particularly warranted in these more densely settled places which provide the bones for a more walkable environment.



Elderly Population

Elderly

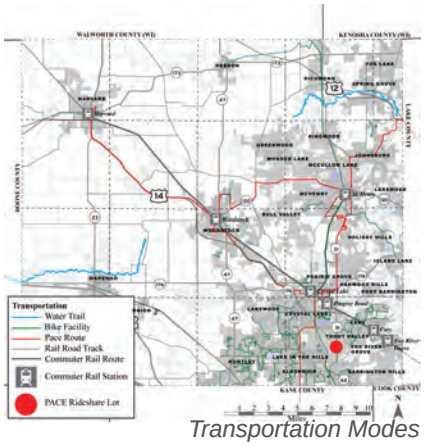
The portion of the population who are elderly is higher in the western townships and city of McHenry and lowest in the southeastern part of the County including Crystal Lake and Lake in the Hills



Limited English Proficiency

LEP

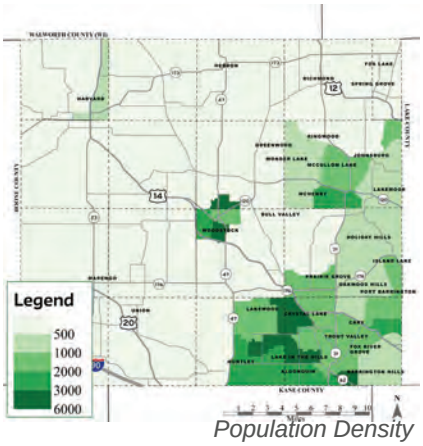
A relatively low percentage of the County's population has limited-English proficiency though the rate is highest in Harvard and the surrounding area



Transportation Modes

Modes of Transportation

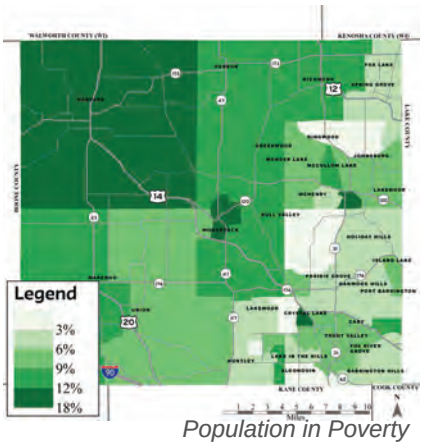
Communities in the southeast possess a network of inter-municipal trails while several multi-use trail corridors exist elsewhere and internal trail networks exist within parks and conservation areas. Metra serves the communities around U.S. 14 while limited Pace fixed route bus service is provided to points east/south.



Population Density

Population Density

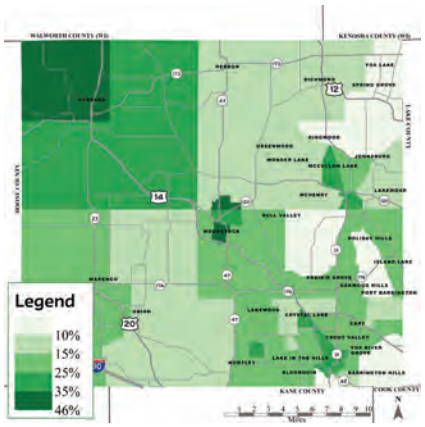
The County has a mainly suburban population density in the southeast as well as McHenry and Woodstock, with the townships and western portion having a lower, more rural population density.



Population in Poverty

Poverty

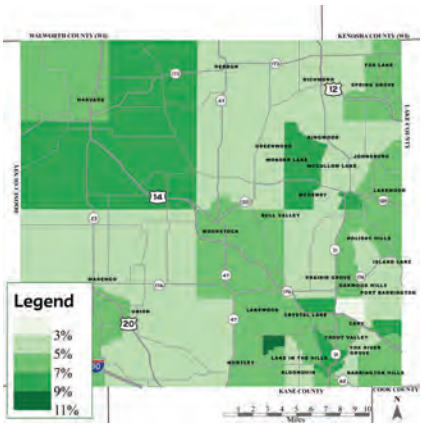
The poverty rate is higher in the more densely populated communities of Woodstock, McHenry, Harvard and a portion of Crystal Lake.



Racial Minorities

Racial/Ethnic Minorities

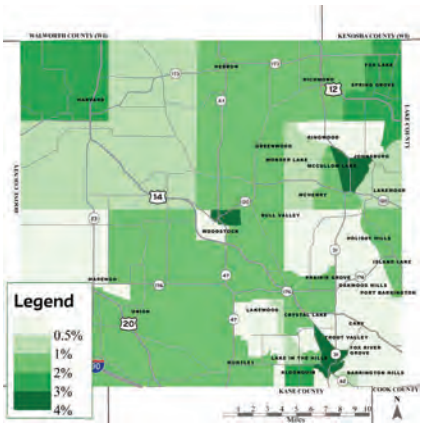
Woodstock and Harvard have the highest rate of racial and ethnic minorities.



Population Under Five

Youth

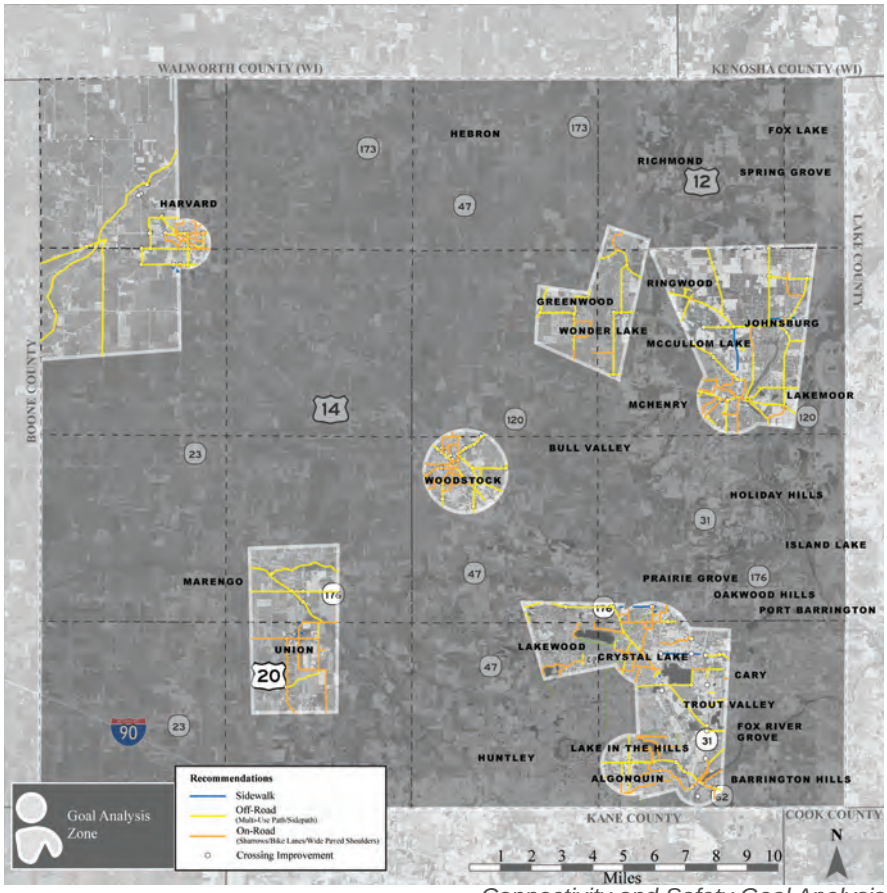
The percentage of the population under five years old is fairly evenly distributed throughout the County.



Households Without a Vehicle

Vehicle Accessibility

There are no communities in the County where a substantial portion of the population lacks access to a motor vehicle.

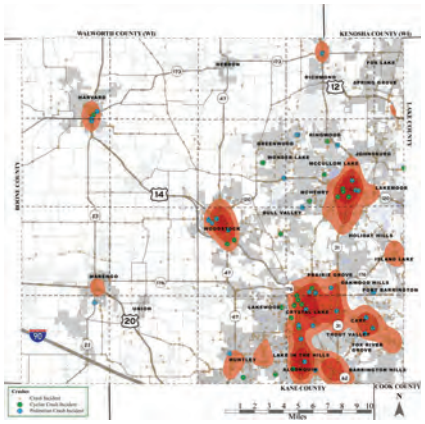


Connectivity and Safety Goal Analysis

Connectivity and Safety

The goal for connectivity and safety centers around connecting communities and neighborhoods through dedicated biking and walking facilities. The County includes a disconnected network of bike lanes, trails and sidewalks.

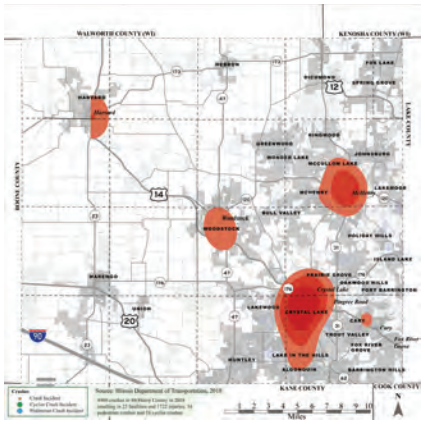
Key points gleamed from the Connectivity and Safety analysis include the higher presence of bike facilities in the southeast portion of the County, particularly in communities with less historically vulnerable communities. Sidewalks are mainly located in the downtowns of incorporated areas, leaving most of the County inaccessible by walking. Many high-volume State and County corridors limit the ability to bike and walk along and across these busy roadways. Crashes, including bicycle and pedestrian crashes, tend to be located in the more densely populated areas of Woodstock, Harvard, McHenry and Crystal Lake.



Crash Hotspots

Crashes

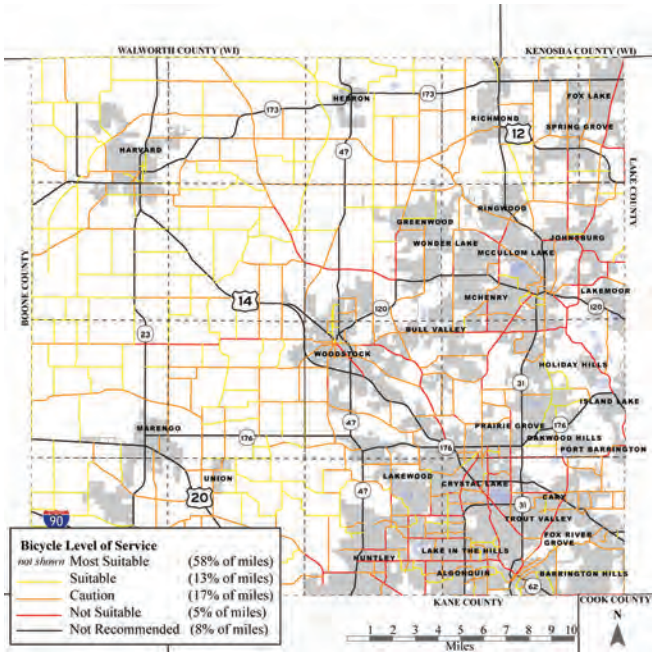
Crashes tend to be located in more densely settled areas and along major corridors including U.S. 14, IL 31, and Randall Road. The most significant crash hotspots are located in Woodstock, McHenry, Crystal Lake, Algonquin and Lake in the Hills.



Bicycle and Pedestrian Crash Hotspots

Bike/Ped Crashes

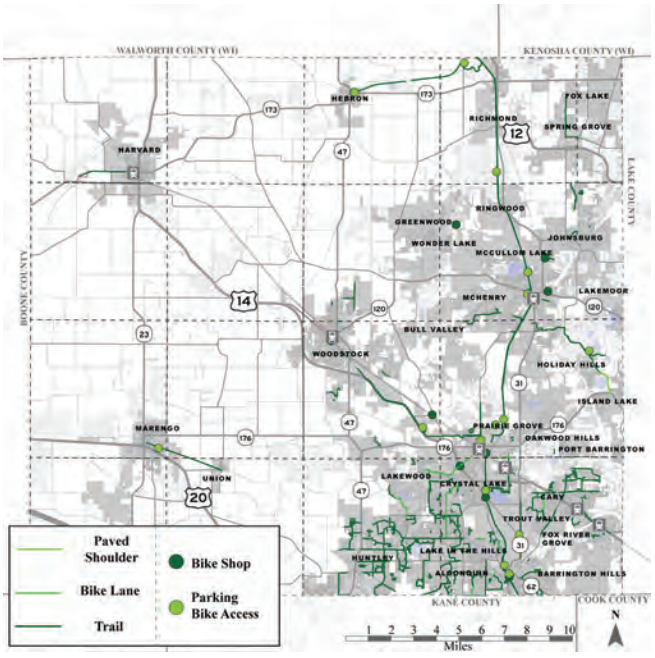
The County's 34 pedestrian and 24 cyclist crashes in 2018 are concentrated in four locations; Harvard, Woodstock, McHenry and Crystal Lake.



Bicycle Level of Service

BLOS

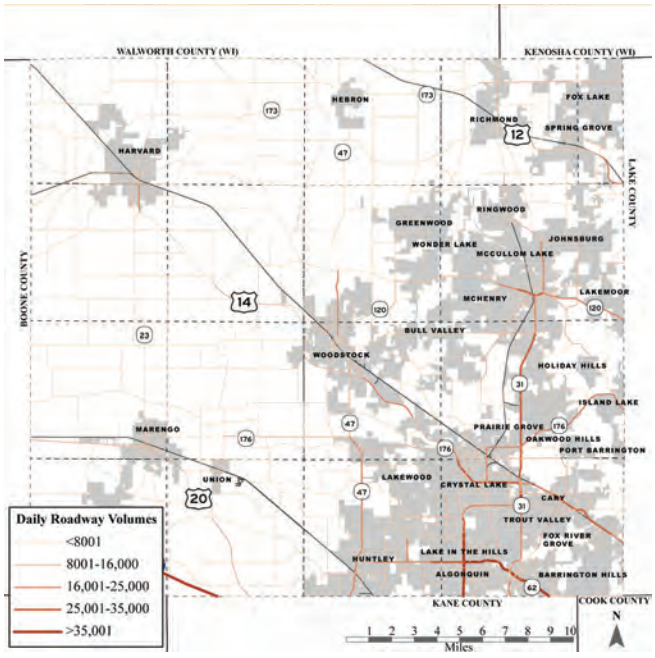
Bicycle Level of Service measures the ability and ease of a cyclist to bike along a specific roadway.



Existing Bike Facilities

Existing Bike Facilities

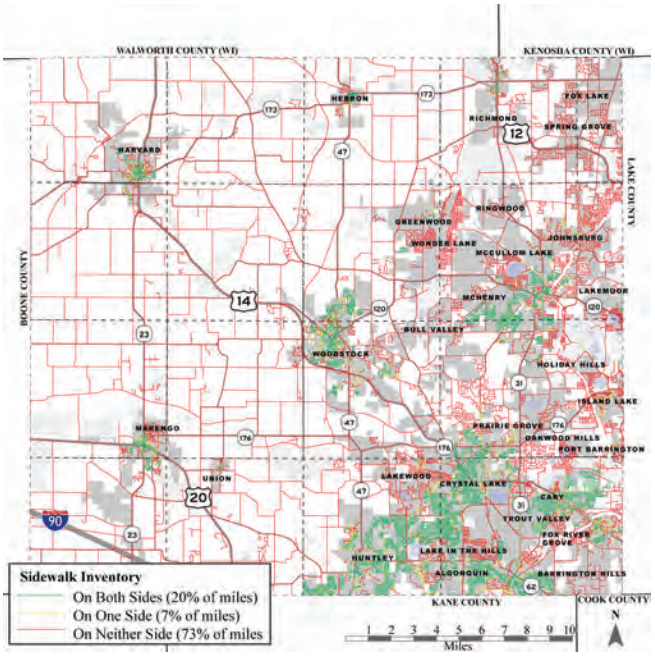
The southeast portion of the county is better served by both on-road bicycle lanes and off-road trails, highlighted by the Prairie Trail.



Traffic Volumes

Traffic Volumes

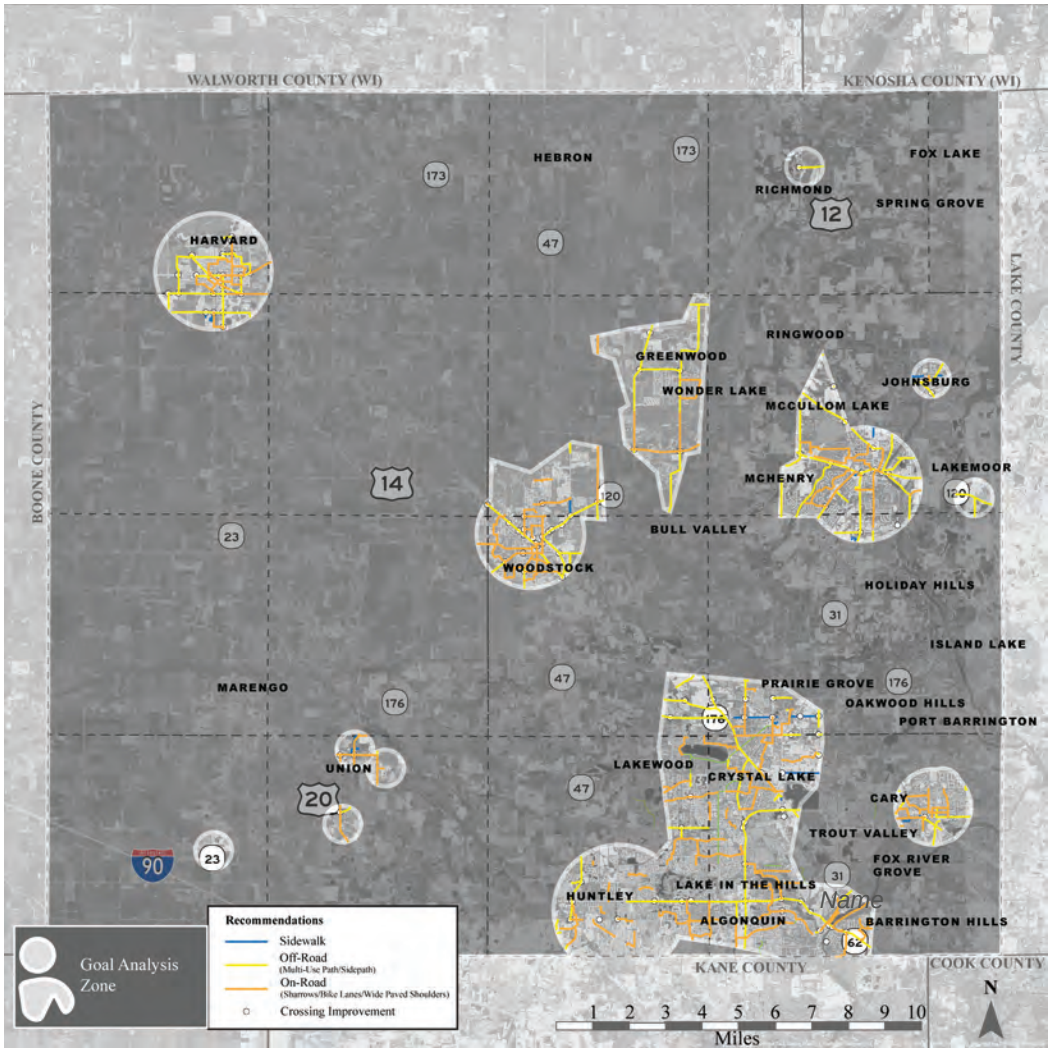
Traffic volumes are highest in the more densely populated incorporated areas of the southeast. The highest volumes are found on state and county roadways.



Sidewalks

Sidewalks

The sidewalk network is fairly complete in parts of Woodstock, McHenry, Cary, Crystal Lake and Algonquin but absent elsewhere.

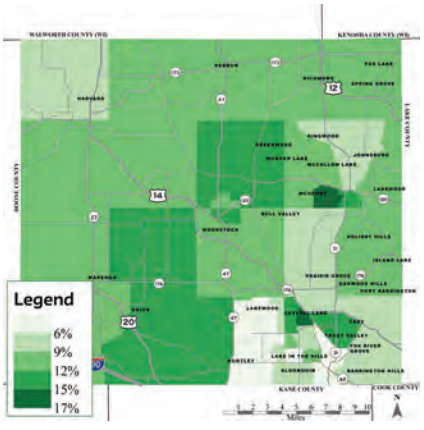


Health and Education Goal Analysis

Health and Education

The goal for health and education centers around educating and improving the mental and physical well-being for people of all ages and abilities.

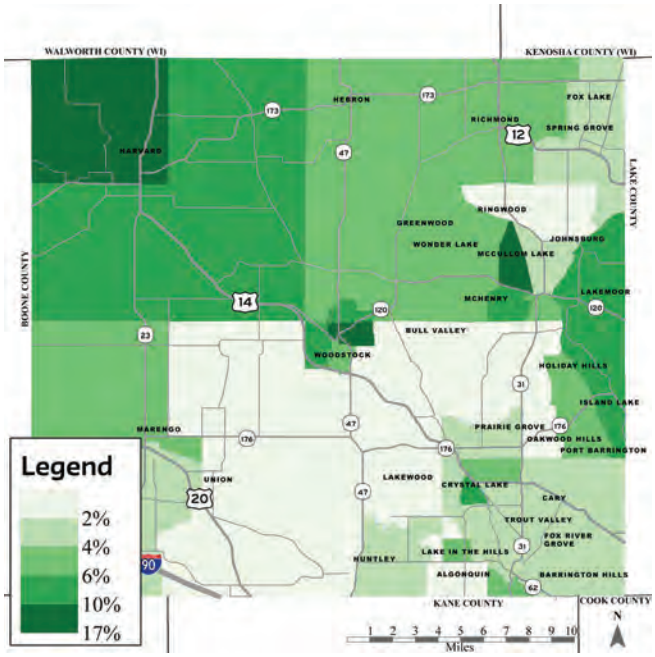
Key points gleamed from the Health and Education analysis include the significant portion of residents in McHenry and Crystal Lake who have a disability, in Harvard and McHenry who lack health insurance and in Woodstock, Harvard and McHenry who lack a high school diploma. Schools, museums, libraries and daycares are located throughout the County's incorporated areas. The County is home to four hospitals, and numerous recreation and long-term care facilities though the northeast part of the County is distant from any hospitals.



People with a Disability

Disabilities

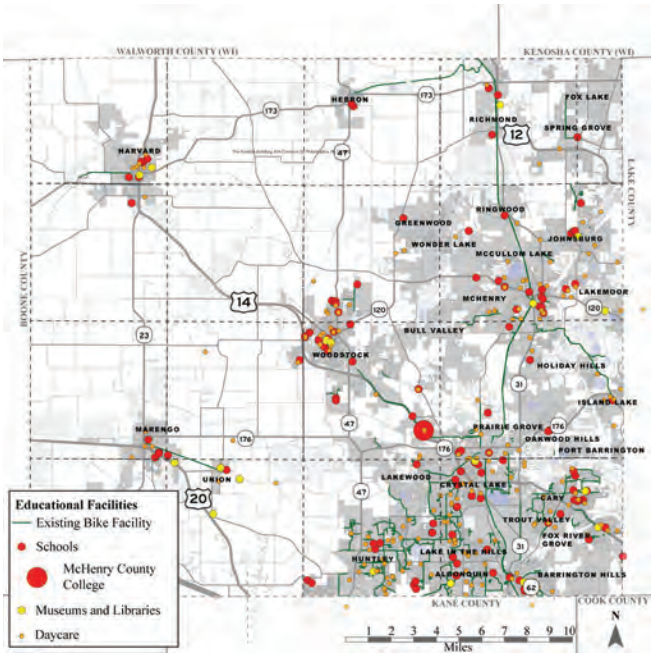
Both McHenry and Crystal Lake have a higher proportion of residents with a physical disability.



Population without High School Diploma

Lacking High School Diploma

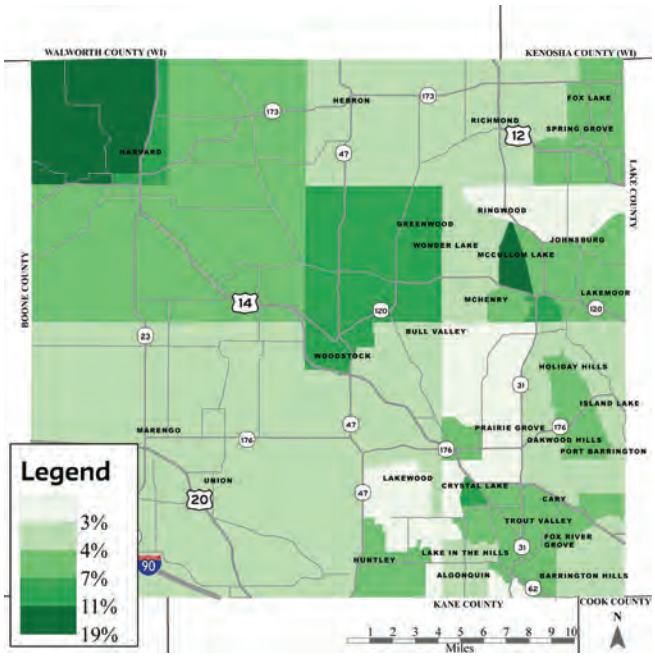
Communities with a greater portion of adults lacking a high school diploma are located in Woodstock, McHenry and Harvard.



Educational Facilities

Educational Facilities

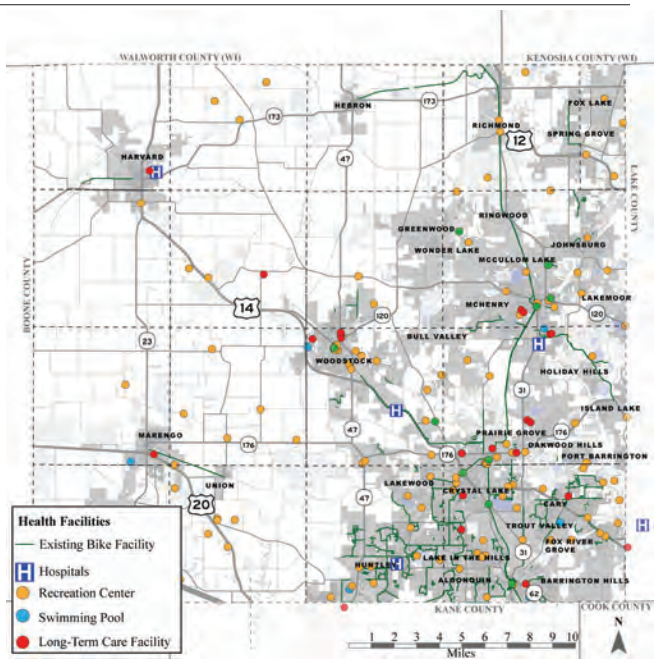
Schools tend to only be in incorporated areas, creating challenges for people living outside these communities. The remote location of McHenry County College poses challenges for walking/biking.



Population Lacking Health Insurance

Lacking Health Insurance

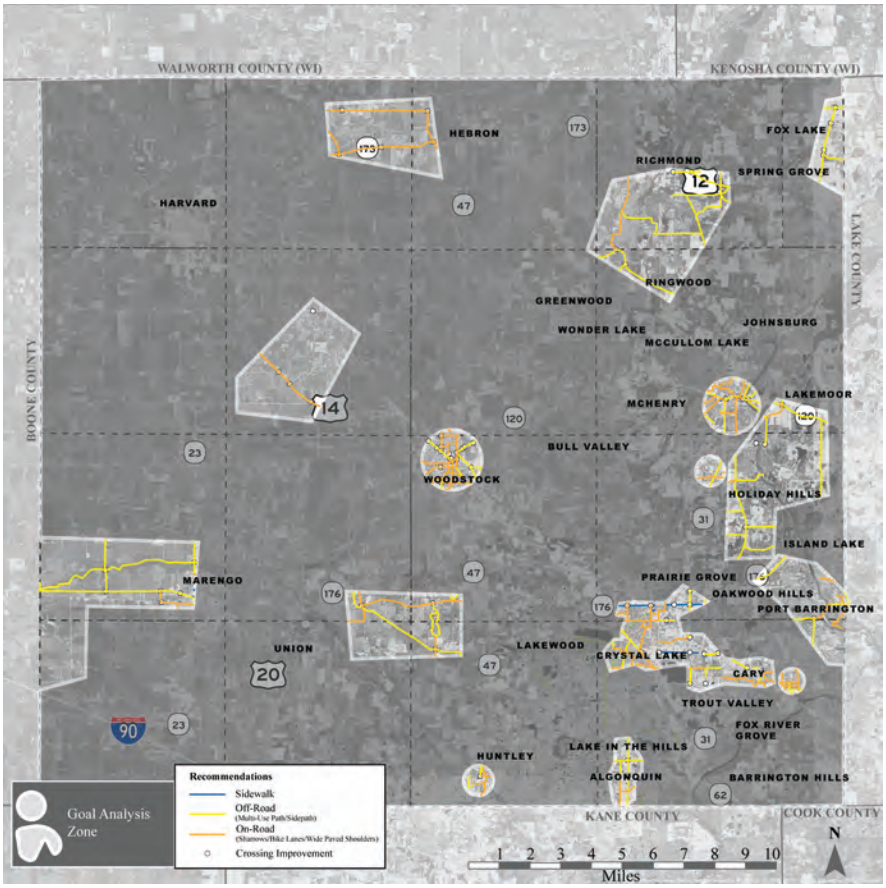
Communities with a greater portion of residents lacking health insurance are located in Harvard, McHenry, Crystal Lake, and Chemung Township.



Health Facilities

Health Facilities

Recreation centers are located throughout the County. Hospitals are located in McHenry, Woodstock, Harvard and Huntley.

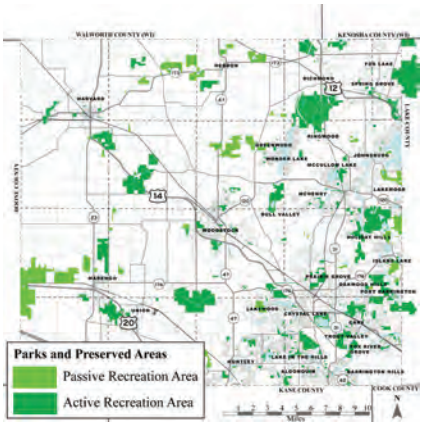


Economy and Tourism Goal Analysis

Economy and Tourism

The goal for the economy and tourism centers around promoting the natural and built environment. McHenry County includes an expansive array of parks and recreation areas, many of which include trails. Points of interest, including train stations, schools, hospitals, museums, and libraries are also located throughout the County.

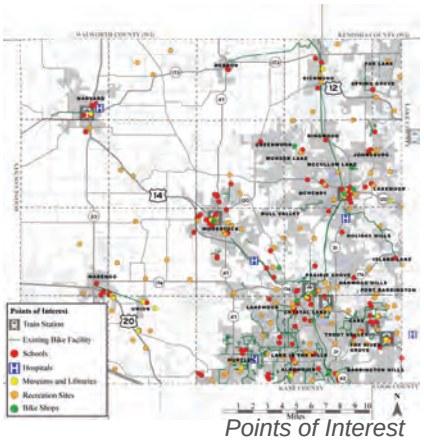
Key points gleamed from the Economy and Tourism analyis include the many significant County and State recreation facilities including Glacial Park, Pleasant Valley, Chain O'Lakes State Park and Moraine Hills State Park, each of which encompass more than 1,000 acres. Public engagement efforts identified these natural areas as high-demand biking and walking destinations. Particularly significant points of interest include train stations, hospitals and McHenry County College, each of which creates demand for walking, particularly by those who may be unable to travel by personal automobile.



Parks and Recreation Areas

Parks

Municipal, county and conservation area parks are located throughout the County. The largest recreation areas are operated by the McHenry County Conservation District or the Illinois Department of Natural Resources.



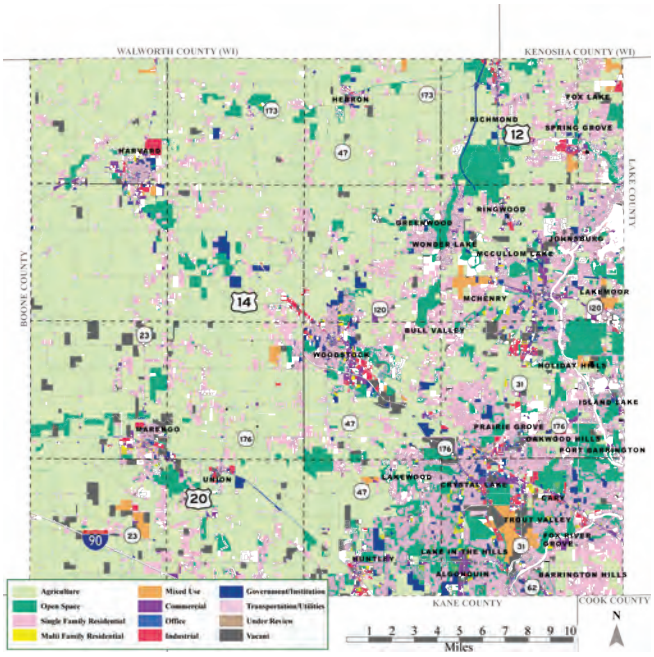
Points of Interest

Points of Interest

Points of interest are located throughout the County with greater concentrations in Harvard, Woodstock, McHenry and Crystal Lake.

Sustainability and Design

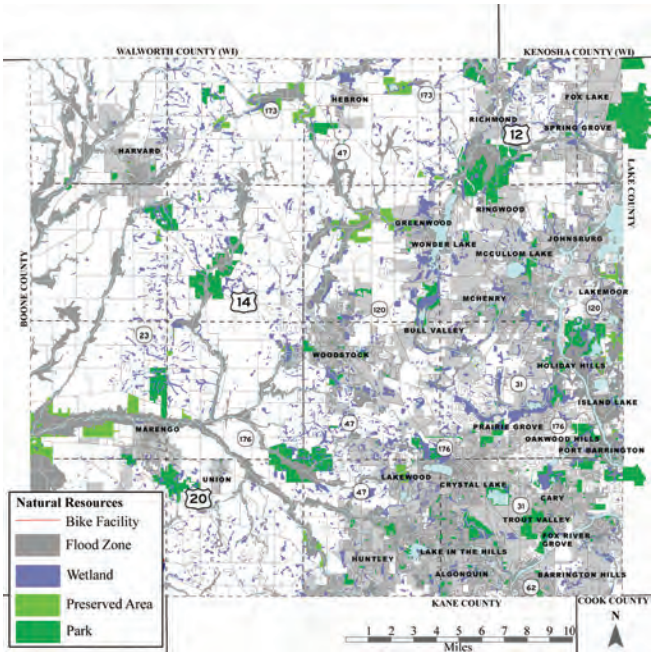
The goal for sustainability and design centers around promoting the success and well-being of future generations. This goal will be elaborated upon in greater detail in this Plan's recommendations section where design guidance is provided for biking and walking facilities, as well as wayfinding. Related to sustainability and design, a review of land use in the County showed a majority of land, particularly outside of incorporated areas, being used for agricultural purposes. Additionally, wetlands, flood zones and preserved areas are located throughout the County. These flood zones and wetlands create challenges for land development such as residential subdivisions but can be used for recreational trails.



Land Use

Land Use

Most (61%) of land in the County is used for agricultural purposes. This includes the vast majority of land in the County's western half as well as significant portions of land in the center of the County. Large open space areas are present throughout the County, including municipal and county parks, and conservation areas. Most residential uses in the county are composed of single-family residential uses. The southeastern portion of the County is the most devel oped, composed primarily of single-family residential land uses. Commercial, office and industrial land uses are clustered throughout the County, many near highly trafficked corridors.



Natural Resources

Natural Resources

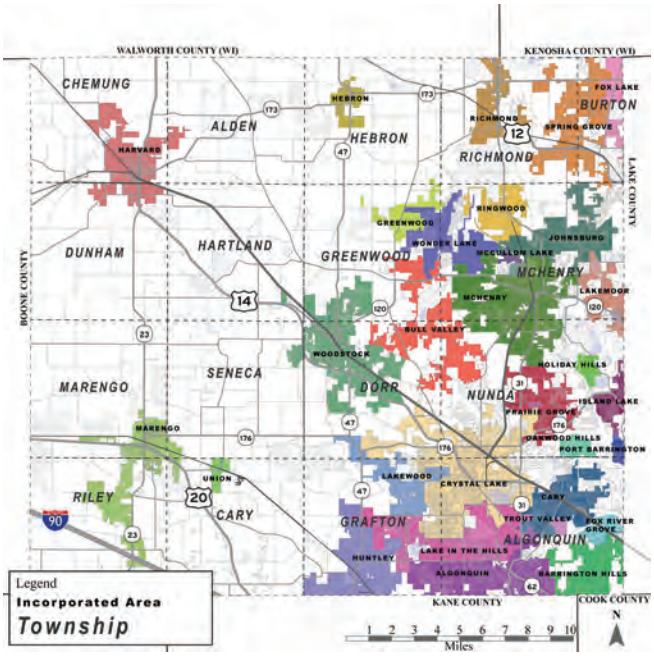
The County contains a vast network of natural resources including preserved areas, parks, waterbodies, wetlands and flood zones. These resources can be an attraction for visitors and deterrent to development. Flood zones are mainly located in the western half of the County while wetlands are located in the east.

Maintenance and Management

The goal for maintenance and management centers around concentrating on the effective and continued use and consideration of existing and proposed facilities.This goal will be elaborated upon in greater detail in this Plan's maintenance recommendations section where strategies are provided to assure biking and walking facilities are properly and clearly maintained and managed.

Understanding the patchwork of governments, including incorporated areas, townships, the County, and State is key to the maintenance and management of facilities in McHenry County as the controlling agency of a roadway or recreation area is usually responsible for facilities along their entity.

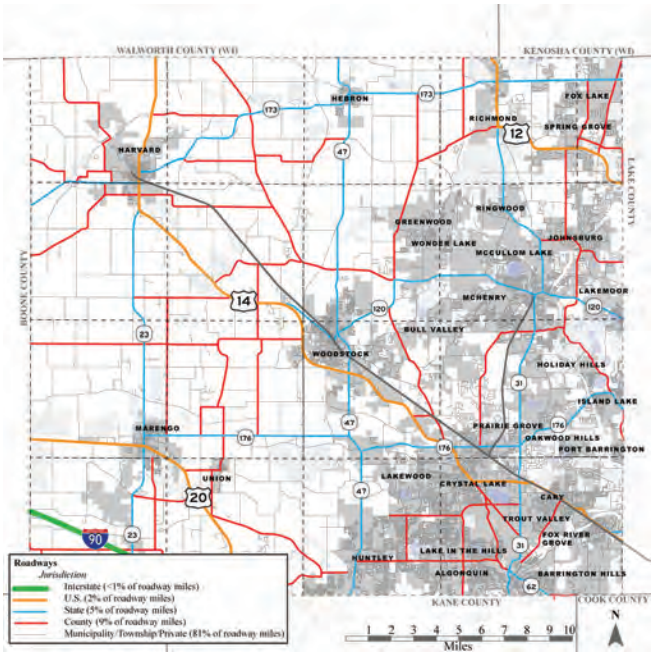
While most roads east of IL 47 are municipal roads, west of IL 47 most roads are under township jurisdiction. The County includes 17 townships which are responsible for all roadways outside of incorporated areas and not under State or County control. Implementing some of the bike connections recommended in the following sections will also require cooperation with the State and Conservation District.



Municipalities

Municipalities

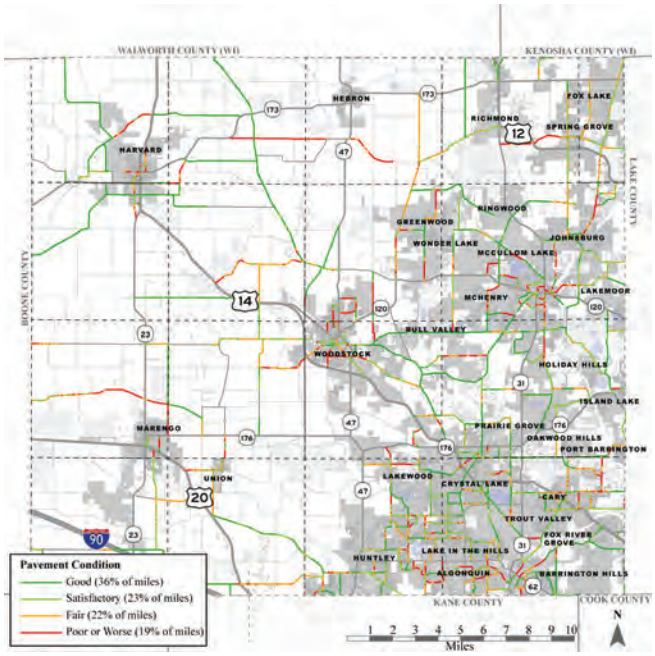
The County is home to 17 township and 28 incorporated areas. Townships tend to be of similar geographic size. Incorporated areas are mainly located in the eastern part of the County with some incorporated areas extending into adjacent counties.



Roadway Jurisdiction

Roadway Jurisdiction

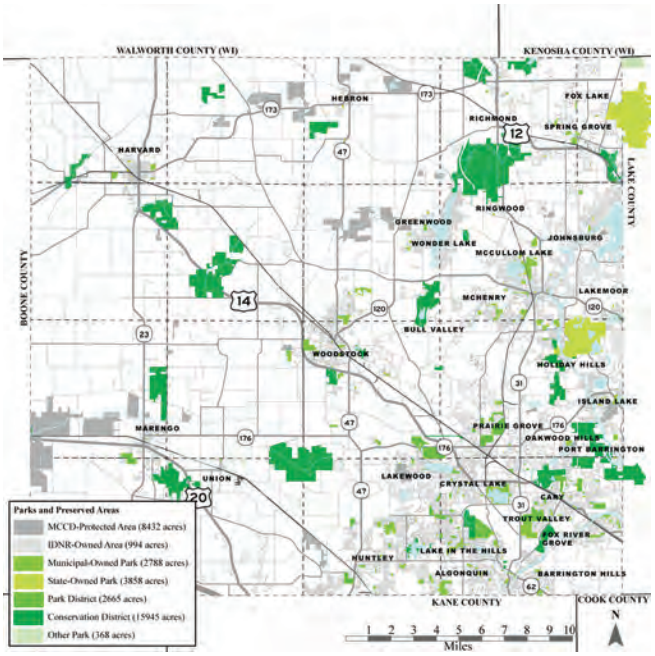
Interstate 90 crosses the southwestern part of the County, offering access at IL Route 23. Several U.S. and State routes provide connectivity between incorporated areas, townships and adjacent counties while county roadways tend to provide more municipal access between nearby communities within the County. The majority of roadway miles in the County are managed by the local jurisdiction (either incorporated area or township), providing mainly local access.



Pavement Conditions

Pavement Conditions

The majority of pavement-rated roadways in the County are in “Good” or “Satisfactory” condition. Roadways in fair or poor condition are spread throughout the County.

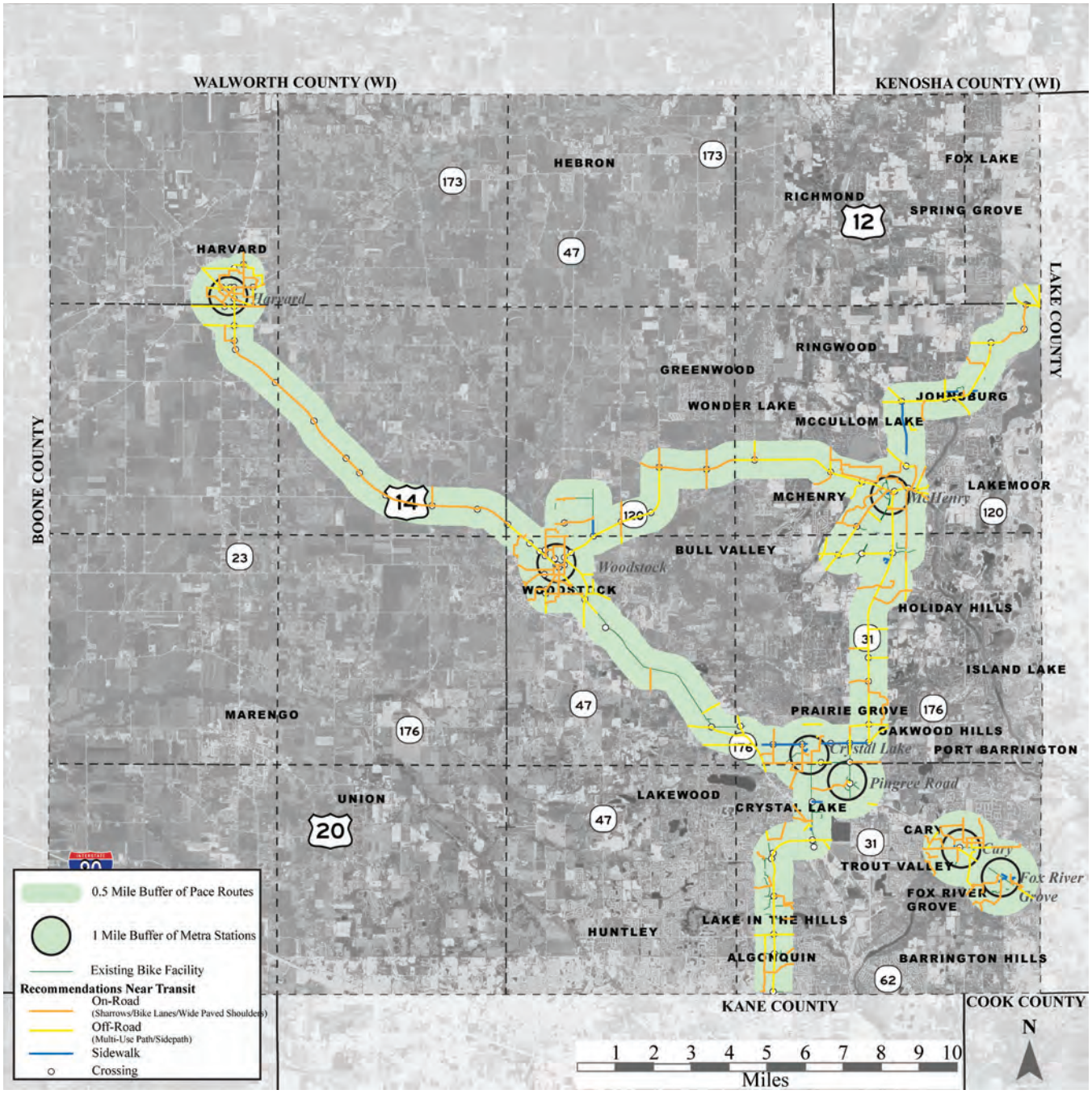


Parks Jurisdictions

Parks Jurisdictions

Parks fall under the authority of several jurisdictions. The McHenry County Conservation District is responsible for the largest portion of parks and preserved areas in the County.

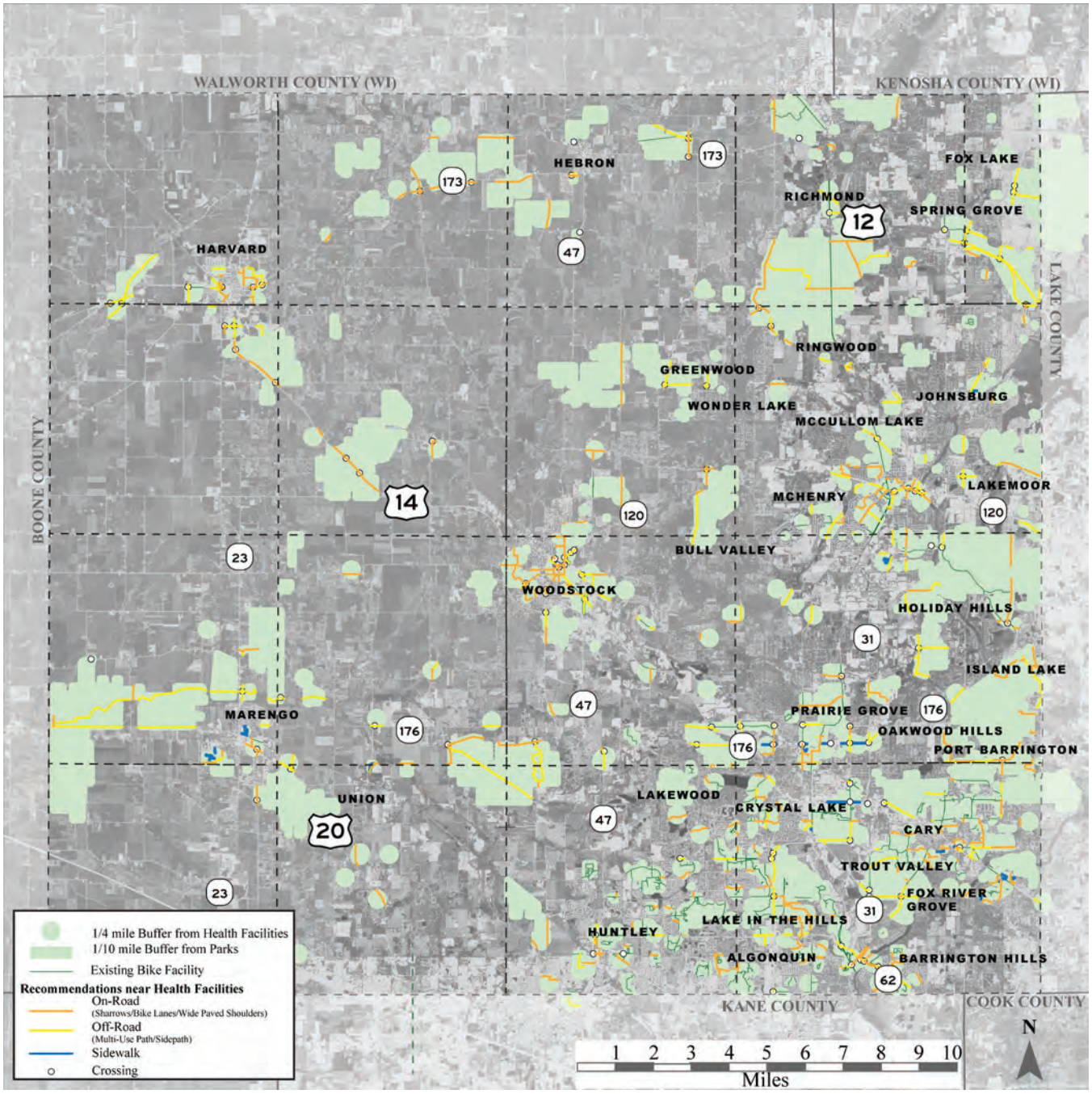
Walkers in Glacial Park



Recommendations Near Transit

4.2 Recommendations Near Transit

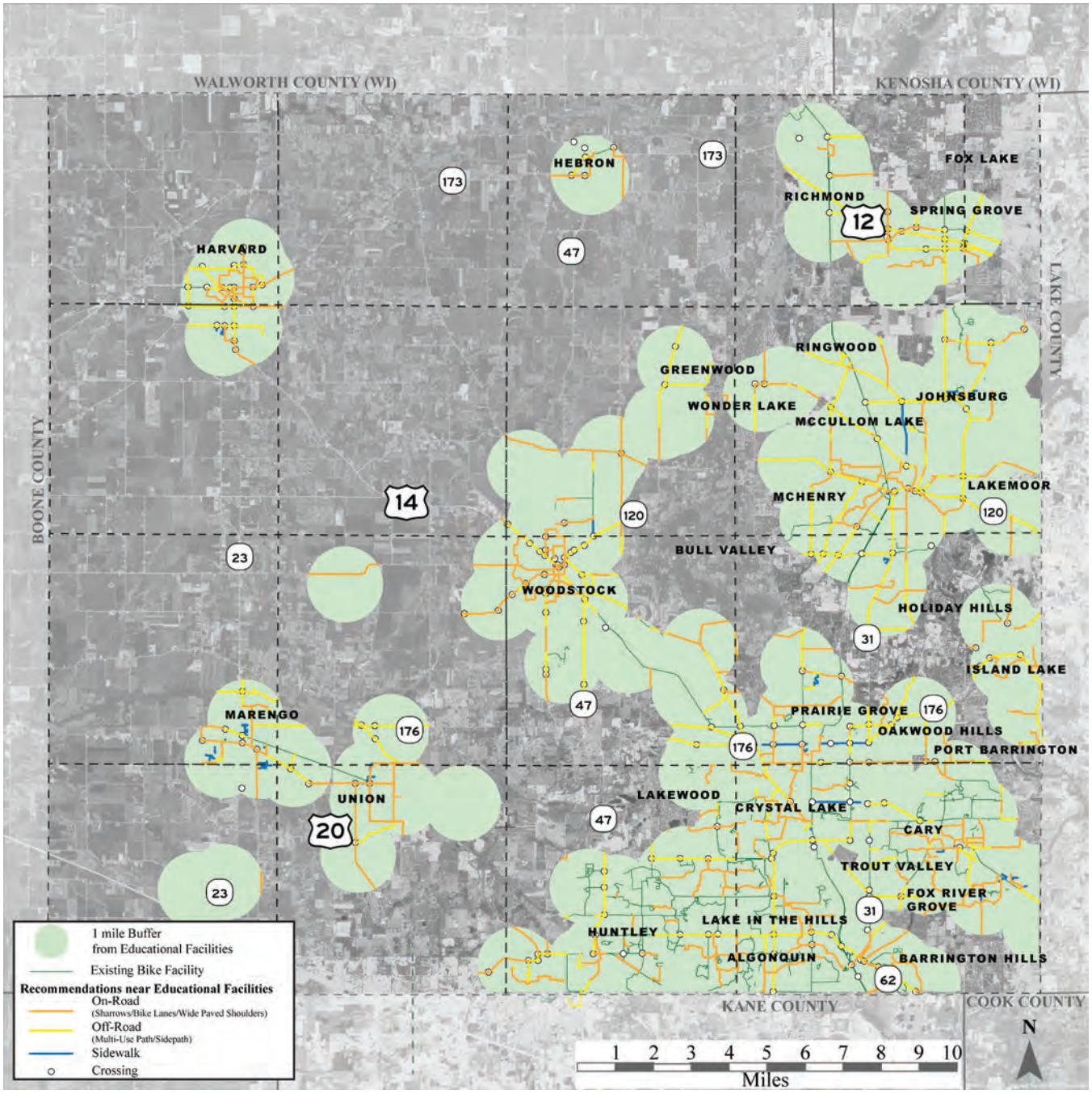
The above map shows recommended facilities within 0.5 mile of Pace fixed routes and within one mile of a Metra station. These facilities, including the on-road facility along U.S. 14, mixed on-road/off-road facility between Woodstock and McHenry, and further build out of the local biking networks in Harvard, Woodstock and McHenry will improve the ability to bike and walk to train stations and bus stops. Taking advantage of this momentum, the Council of Mayors, County and its municipalities should investigate improving infrastructure on trains and buses and at train stations and bus stops, including bike racks, bike shelters and benches.



Recommendations Near Health Facilities

4.3 Recommendations Near Health Facilties

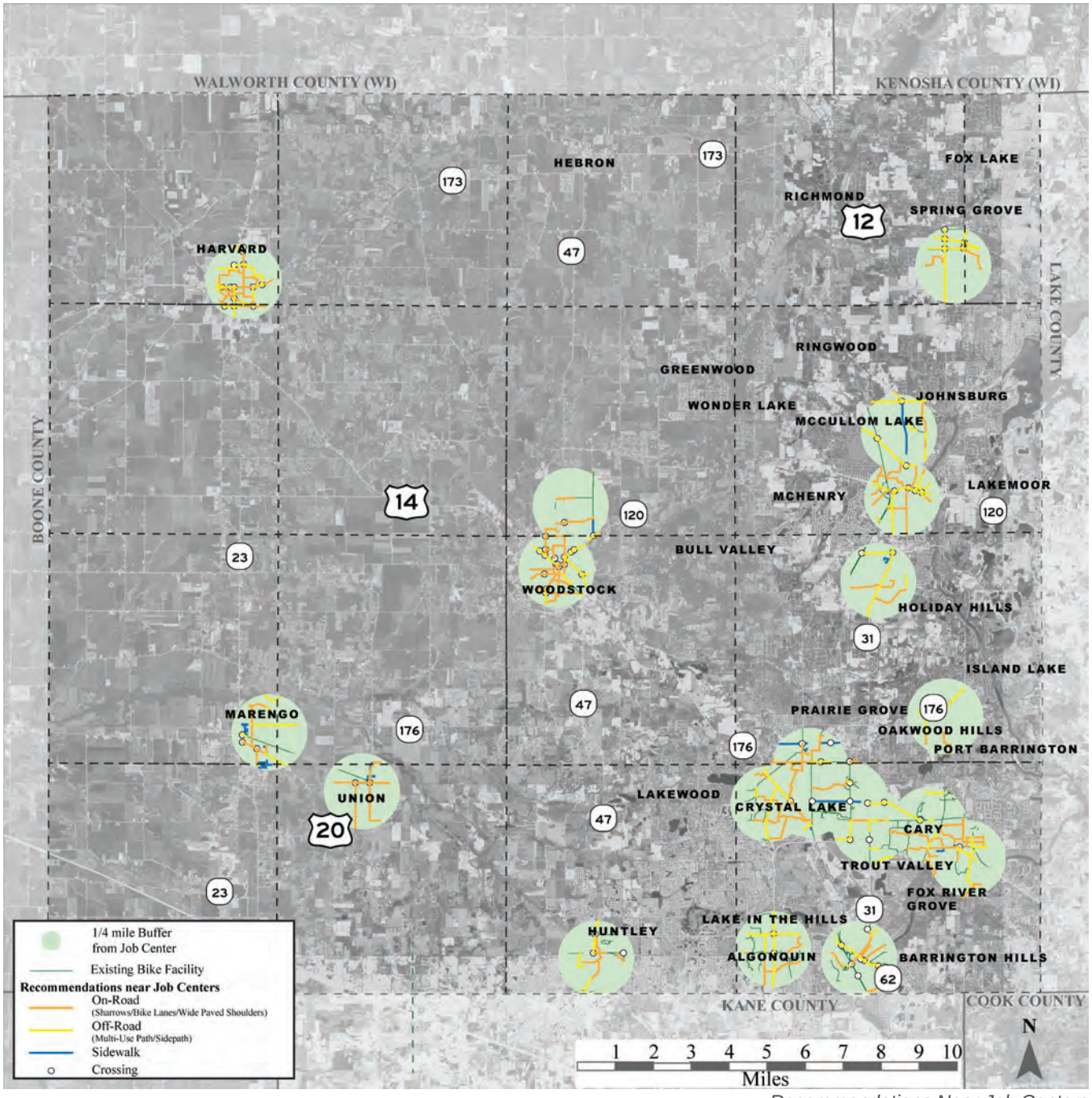
The above map shows recommended facilities near health facilities, namely within 0.25 mile of a hospital or long-term care center, or within 0.1 of a mile of a park. Parks are considered a health facility in that they provide a place for walking and other physical activities associated with a lower likelihood of a myriad of medical conditions, including heart conditions and obesity. These facilities will improve the ability for healthcare works to reach their jobs by walking and biking, as well as those visiting family and friends. Improving mobility to parks will better allow residents to walk or bike directly to parks, rather than being required to drive there, reducing CO^2 emissions and vehicles miles traveled.



Recommendations Near Educational Facilities

4.4 Recommendations Near Educational Facilities

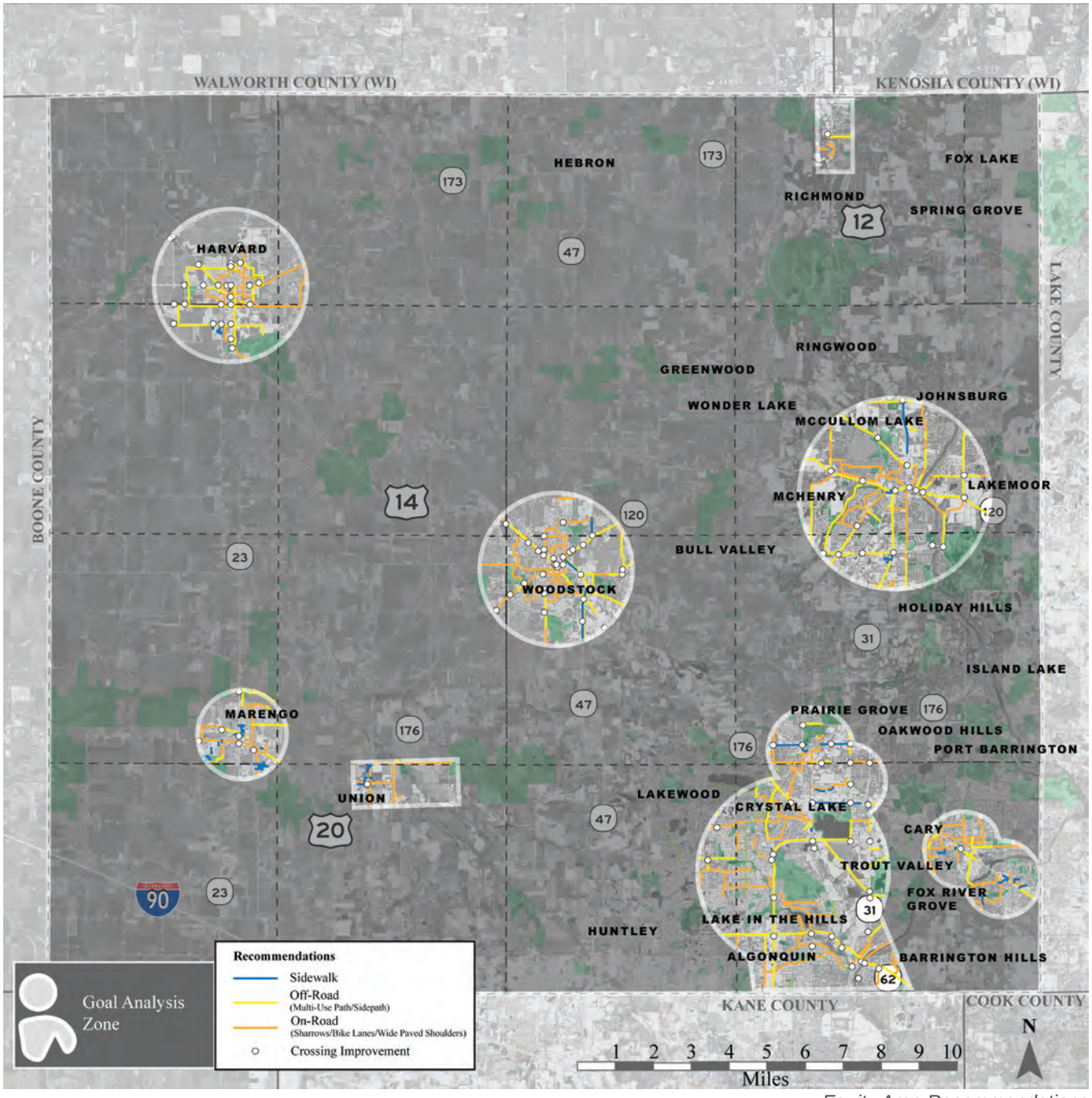
The above map shows recommended facilities within one mile of a school, daycare center, library or museum. Several schools and museums were identified in the public engagement process as major destinations. Many parents wish their children could safely bike or walk to school but are unable to due to lacking infrastructure. The recommendations process included a formal review of educational facilities, assuring where feasible, these locations received recommended facilities. Improving crossings are also recommended near educational facilities to assure people are able to safely reach their destination, despite high-speed, high-volume or uncontrolled roadways.



Recommendations Near Job Centers

4.5 Recommendations Near Job Centers

The above map shows recommended facilities within one mile of a job center. Jobs centers were identified through data from the United States Census' Longitudinal Employer-Household Dynamics, which provides the location and number of jobs. Identified jobs centers can include suburban office and industrial parks as well as conventional commercial downtowns. These facilities will help employees reach their destination by walking and biking, as well as promote economic activity through improved access to downtowns. Numerous facilities are recommended in the job centers of Harvard, Woodstock, Crystal Lake, and McHenry, among other municipalities.



Equity Area Recommendations

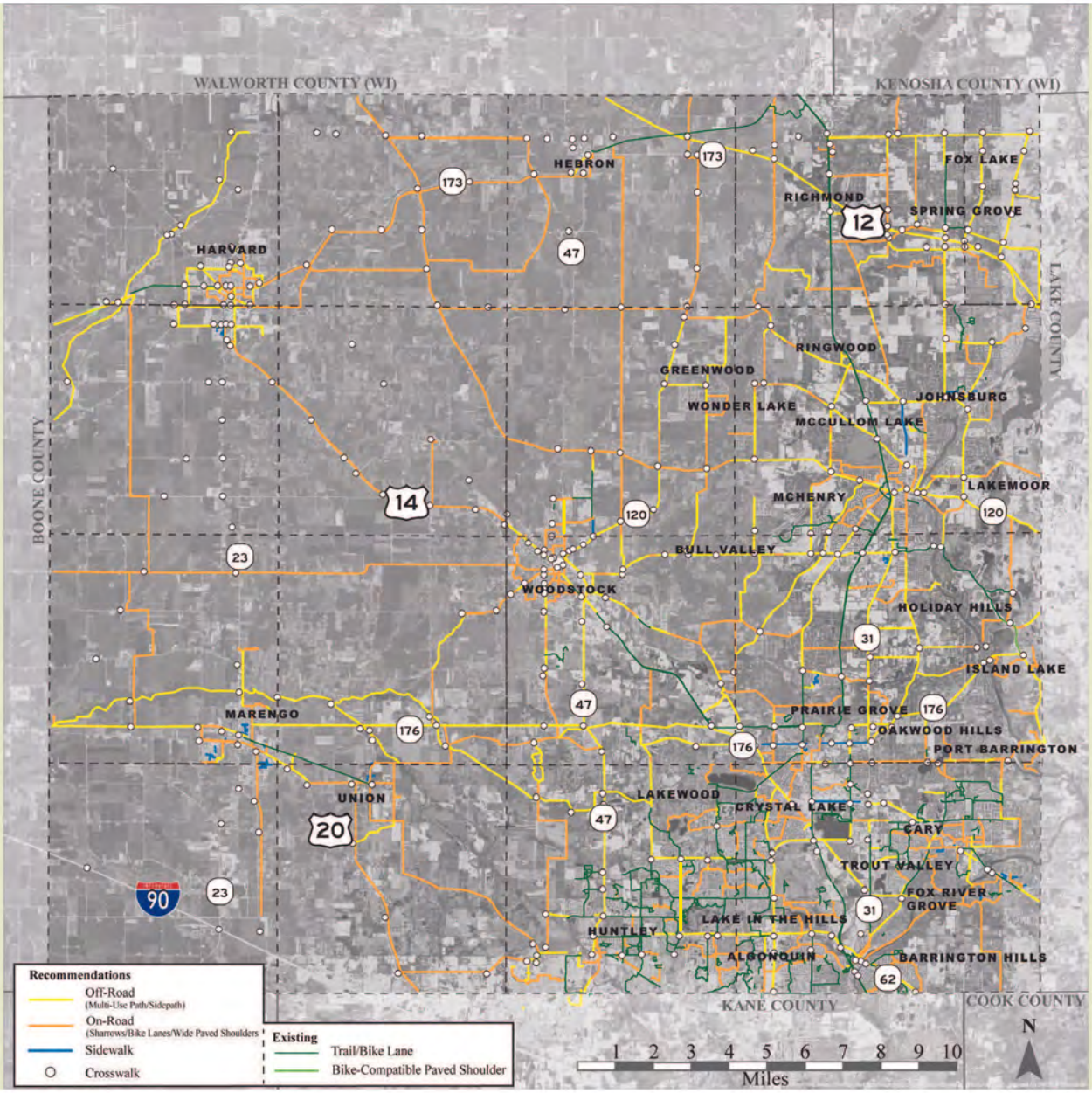
4.6 Summary of Takeaways

McHenry County is not immune to the inequitable transportation conditions found around the country. Due to a variety of factors, including settlement patterns, jurisdictions, and the presence of natural resources and hazards, communities in the County's more densely populated areas tend to be more vulnerable. These densely settled municipalities possess many destinations and were considered as focal points for the larger biking and walking network, connecting communities, bicycle/pedestrian generators, and parks.

4.0 FRAMEWORK + GOALS ALIGNMENT

This Page Left Intentionally Blank

5.0
FACILITIES TYPES + DESIGN CROSS SECTIONS



Recommended Facilities

5.1 Facilities in the Master Plan Framework

Several typologies for bicycle and pedestrian facilities were developed to respond to the context, needs, and existing conditions within McHenry County's communities. The recommendations map indicates which type of bike facility (trail or on-road) best fits the location based on available width and traffic volumes, land use context, roadway vehicle speeds, right-of-way, safety, agency input, and community desires. The cross-sections presented in this section provide a more detailed example of what the facilities may look like. These cross-sections are not intended to represent all possible concepts available for McHenry County but provide initial concepts that implementing agencies can adjust as needed based on specific field conditions and future coordinated planning efforts.

Public input of bicycle facilities that participants feel safest using

YELLOW LINES

- Off-Road Facilities for bicycles and pedestrians - Trail/Shared-Use Path

ORANGE LINES

- On-Road Facilities only for bicycles - bicycle lanes, buffered bicycle lanes, separated bicycle lanes
- In-Road Facilities- sharrows and signage for share-the road
- Wide Paved Shoulders - minimum of 5 feet for cyclists with signage for share-the road

BLUE LINES

- Specific locations for identified missing sidewalks

CROSSWALK CIRCLES

- Locations for facility crossing improvements needed
- High visible crosswalks and vertical awareness

More details on Facility Types

5.2 Community Preferences on Bicycle Facilities

Potential facilities were shared with the public and advisory committee to determine which were most preferred. The majority of users preferred to ride on trails and separated facilities. The Master Plan Framework and recommendations were developed with this input in mind to build out a network of facilities that offers protection for users, especially those most vulnerable. The various facilities shown in the plan include shared bicycle and pedestrian facilities, bike-only facilities, on-road facilities, and off-road facilities. They include:

> Shared Bicycle Lane
> Standard Bicycle Lane
> Buffered/Separated Bicycle Lane
> Trails/Shared-Use Path

5.2.1 Shared Bicycle Lane

0% of survey respondents preferred shared bicycle lanes.

Also known as “sharrows,” on-road markings (often two chevrons with a white painted bicycle), placed within the travel lane aiming to alert motorists of the presence of cyclists and provide some space for biking where a dedicated bicycle lane cannot fit or is unwarranted. Shared bicycle lanes should be considered in the following types of locations:

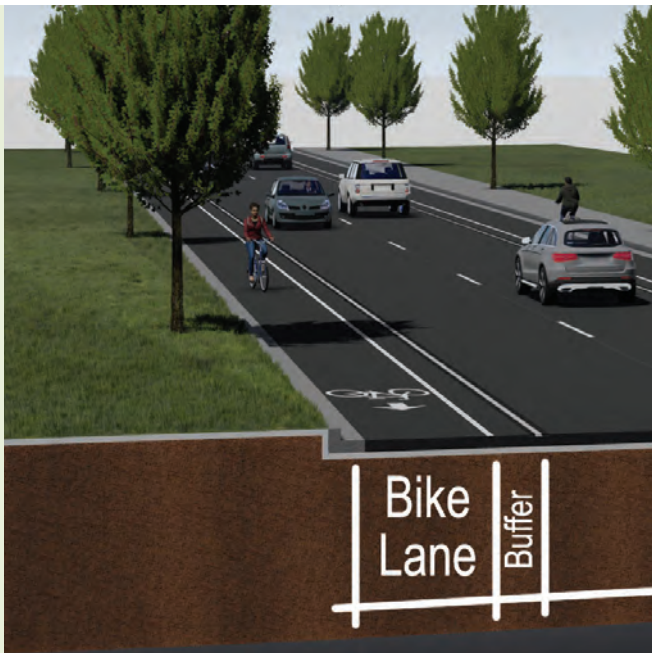
> Low-volume, low-speed residential streets in the County’s incorporated areas
> To provide linkages to more intensive bike facilities (such as standard, buffered, or separated bike lanes)
> Where there is demand for a standard bicycle lane but inadequate space

5.2.2 Standard Bicycle Lane

21% of survey respondents preferred standard bike lanes.

Often used to refer to any type of bicycle facility but in this document refers to an exclusive dedicated space for bicyclists through the use of pavement markings and signage located on both sides of a two-way street. Often located between the travel lane and parking lane, or adjacent to the curb. Standard bicycle lanes should be considered in the following types of locations:

> Where excess roadway width causes speeding
> Low to medium speed roadways
> To connect lower intensity facilities (such as shared bicycle lanes) with higher intensity facilities (such as buffered bike lanes and shared-use paths)



5.2.3 Buffered/Separated Bicycle Lane

13% of survey respondents preferred buffered/separated bicycle lanes.

Buffered bicycle lanes are similar to a bicycle lane but provide additional horizontal separation (typically through a painted buffer) between the travel lane and bicycle lanes. Separated bicycle lanes are similar to a buffered bicycle lane but provide vertical separation (typically through bollards or vertical plantings) between the travel lane and bicycle lane. Can also be known as a “cycle track.” Buffered and separated bicycle lanes should be considered in the following types of locations:

- Where there is ample space for dedicated facilities, high bicycle demand, and high vehicular speeds and/or volumes
- Where high on-street parking turnover or driveway access poses frequent conflicts for cyclists

5.2.4 Trails/Shared Use Path

66% of survey respondents preferred trails/shared use paths.

Trail and shared-use path are two terms often used interchangeably to refer to an off-road bike facility. Colloquially, a trail typically operates within open or recreation areas along a natural or unimproved facility while a shared-use path more often operates adjacent to a corridor, separated from motor vehicles. The term “side path” can also refer to a paved facility running along a roadway corridor Trails and shared-use paths should be considered in the following types of locations:

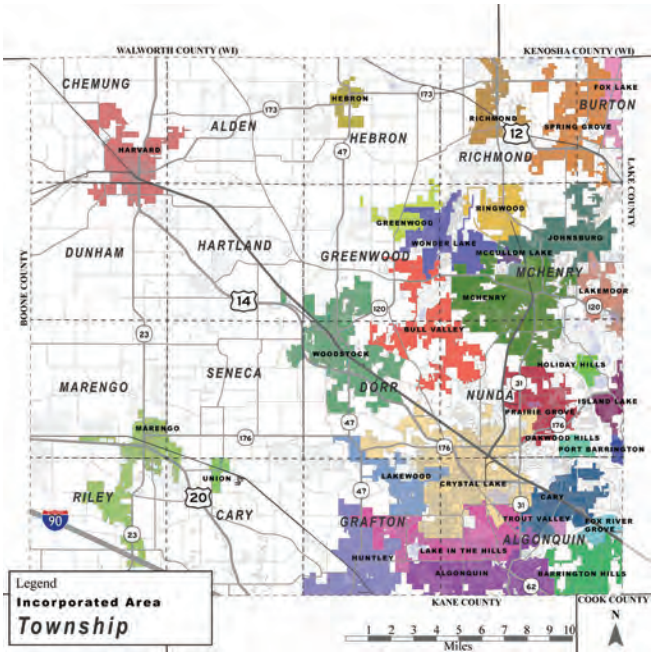
- Along high-speed and/or high-volume corridors where there is ample right-of-way for a sidepath
- Along regional trails where high bicycle demand is expected
- Within natural and recreational areas

5.3 Contextual Design

So much emphasis from the public and public agencies was put on where facilities would be located; places and adjacent land use. This importance was furthered defined by the anticipated user groups, how to most safely connect, population density, and how facilities could be properly maintained. So facilities were recommended with places and land uses as the context for different options.

The cross sections are categorized by the land use context, including “Urbanized,” “Rural,” and “Neighborhood.” These three categories are not meant to be sharply defined for every location in the County, allowing for the implementing agency to determine how and where they should be used. “Rural” refers to less developed areas, including along corridors outside of incorporated areas. “Urbanized” include suburbanized, more densely settled portions of the County as well as centers and cities located throughout. “Neighborhood” refers to lower-speed, lower-volume residential areas located throughout the County. Facility designs and recommendations were also based on public comments. Though the preferred installation of each facility depends on context, land use and demand, respondent’s preferred facilities separate from the roadway. A landscaped trail away from the street provides the greatest level of protection for cyclists while also providing a facility for pedestrians. Such a facility provided an experience more similar to walking or biking in a park, rather than traveling along a busy roadway.

The second public survey asked respondent’s again for their preferences on bicycle facilities by using slight variation on the first survey. Similar to the results of the first survey, a landscaped trail separated from a roadway was the most preferred facility type with other high preferences also indicating support to horizontal and vertical separation. The options, ranked in order of preference are shown to the right.



Map showing the municipalities boundaries which correlates to urbanized, neighborhood, and rural.

59% of survey respondents preferred a landscaped trail further away from the roadway.

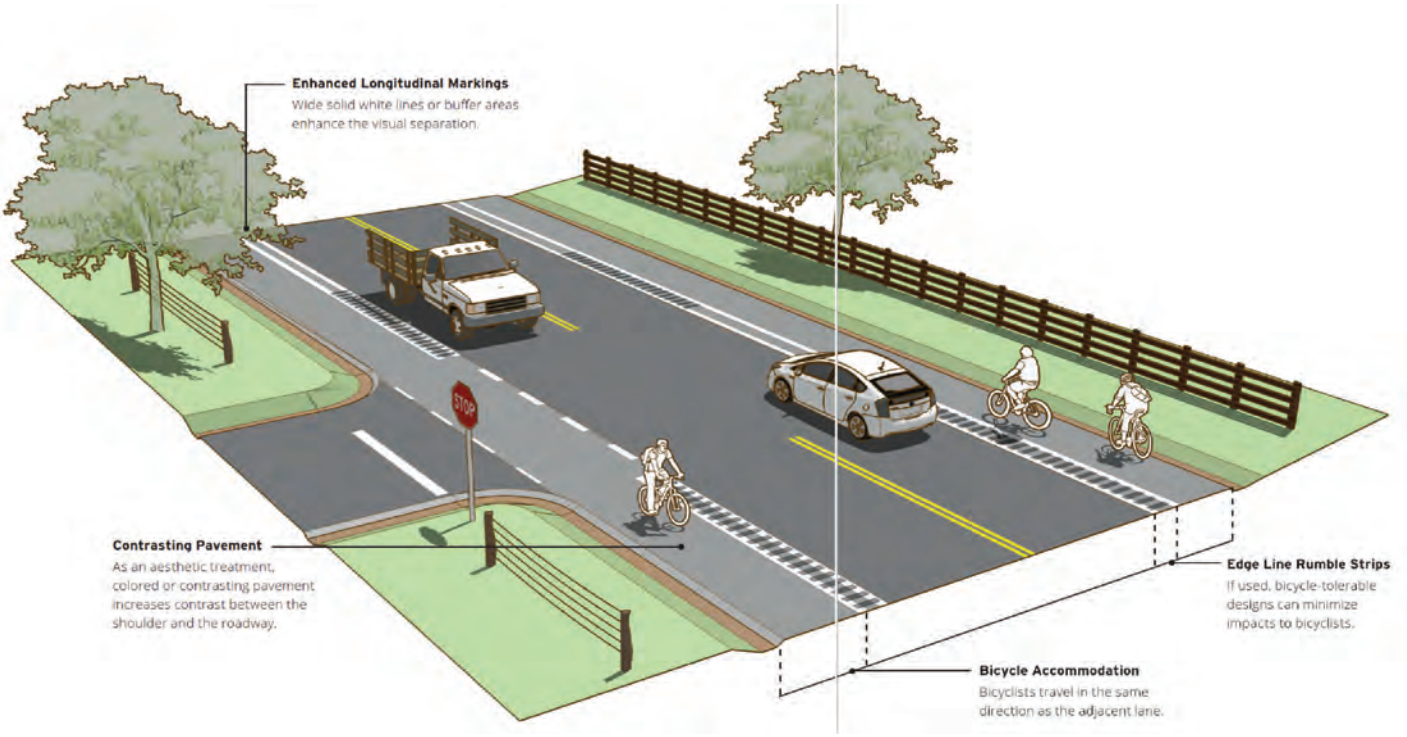
17% of survey respondents preferred a multi-use path combined with walkers.

10% of survey respondents preferred a protected cycle track on the street.

6% of survey respondents preferred a wide paved shoulder along the road.

4% of survey respondents preferred a buffered/wide bike lane in the road.

4% of survey respondents preferred a bike lane in the road with no buffer.



FHWA's Small Town and Rural Multimodal Network guide shows how paved shoulders can operate and look

Functional classification	Volume (AADT)	Speed (Mi/h)	Recommended Minimum Paved Shoulder Width
Minor Collector	up to 1,100	35 (55 km/h)	5 ft (1.5 m)
Major Collector	up to 2,600	45 (70 km/h)	6.5 ft (2.0 m)
Minor Arterial	up to 6,000	55 (90 km/h)	7 ft (2.1 m)
Principal Arterial	up to 8,500	65 (100 km/h)	8 ft (2.4 m)

Recommended Paved Shoulder Width

PAVED SHOULDERS

In addition to the recommended facility types presented in the preceding pages, the use of paved shoulders is recommended under certain conditions. Paved shoulders are often used on rural roadways, those where there is not sufficient space or demand for a dedicated facility, or where speeds or volumes are high. FHWA's Small Town and Rural Multimodal Networks guide presents several considerations of paved shoulders. Additionally, the table above, adapted from the same guide, shows the recommended minimum paved shoulder widths by roadway conditions. Paved shoulders provide a multitude of benefits including:

- **Improves cyclist expereince on roadways with higher speeds or traffic volumes**
- **Provides a stable surface off the roadway for pedestrians and cyclists to use when sidewalks are not provided**
- **Reduces pedestrian "walking along roadway" crashes**
- **Can reduce "cyclist struck from behind" crashes which represent a signifcant portion of rural road crashes**
- **Provides advantage for all roadway users, by providing space for cyclists, pedestrians and motor vehicles**

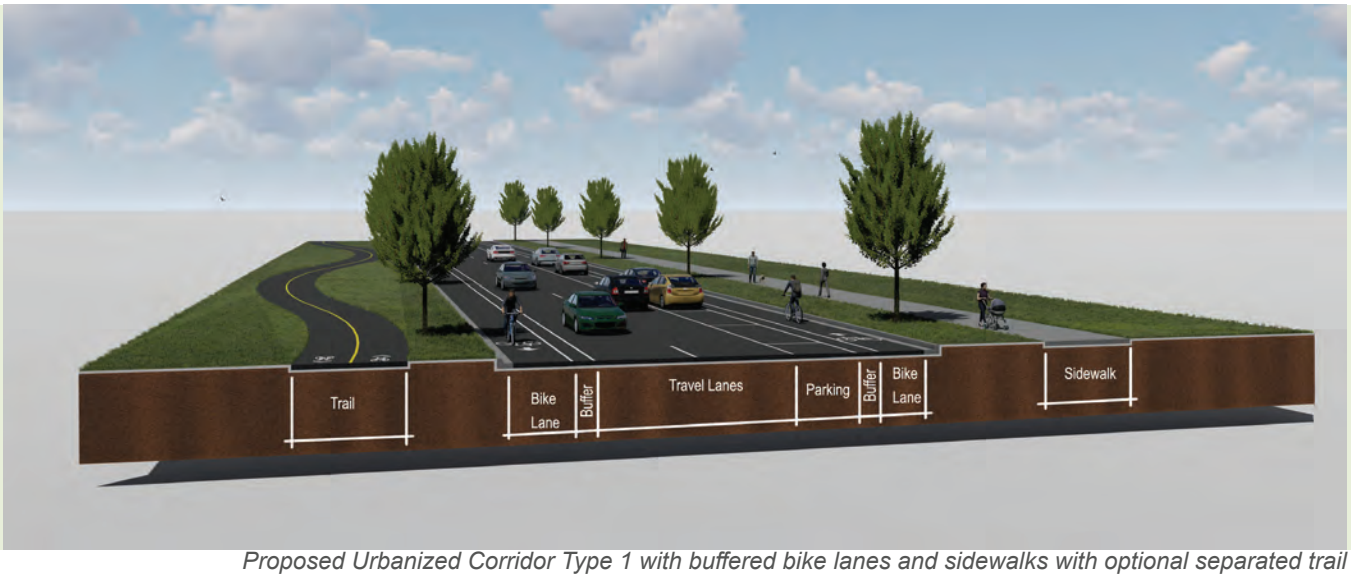
The FHWA's Small Town and Rural Multimodal Networks guide also provides additional information from that presened here, including additional design measures and intersection considerations.

The information and graphics displayed on the following pages present typologies for roadway cross-sections found throughout the County. Each typology pair (or trio) presents cross-sections before and after implementing bicycle and pedestrian treatments.

5.4.1: UC-1
URBANIZED CORRIDOR TYPE 1

A typical urbanized road with one travel lane in either direction, parallel parking on one side, a sidewalk on one side, and standard bike lanes on either side. The bike lane is not parking protected, meaning vehicles entering the exiting the parking lane must travel through the bike lane, creating conflict points. Along the opposite side, the standard bike lane provides dedicated space for cyclists but the lack of a buffer lowers cyclists' comfort.

Existing typical urbanized corridor



Proposed Urbanized Corridor Type 1 with buffered bike lanes and sidewalks with optional separated trail

UC-1-A: TYPICAL BUFFERED

The parking lane is moved to run alongside the travel lanes, moving the standard bike lane alongside the curb, providing separation between cyclists and the travel lanes. A buffer between the bike lane and parking lane provides added protection. The opposite side of the roadway also features a buffer between the bike lane and moving traffic. An off-road trail running along one side of the corridor provides additional infrastructure with added protection for cyclists and pedestrians. The buffers between cyclists and moving traffic can sometimes be provided by a lane diet in which the width of overly wide travel lanes are reduced (i.e. reducing 15 foot lanes to 11 foot lanes).

8%
of respondents on the second public survey preferred some type of buffered and/or separated bicycle only facility.

Design Recommendations

Buffered Bike Lane
- Preferred minimum width of 6.5 ft to allow to ride side-by-side
- Absolute minimum width of 4 ft
- Widths greater than 7 ft may encourage motor vehicle use; if extra width is available, configure with a buffer

Separated Bike Lane
- Preferred minimum width of 7 ft
- Absolute minimum width of 5 ft
- A clear through area of 10 ft is beneficial for allowing access by snow plows and street sweepers

Proposed Urbanized Corridor Type 1 with separated bike lanes and sidewalks with optional separated trail

UC-1-B: TYPICAL SEPARATED

Along the side of the roadway where parallel parking is not provided, a vertical buffer provides additional separation between cyclists and moving traffic. This vertical separation makes it more difficult for automobiles to accidentally infringe on the bike lane, providing added protection. Maintenance should be considered with vertical separation due to the inability for standard maintenance vehicles (such as snow plows) to enter the vertically separated bike facility. The vertical buffers (such as bollards) must also be maintained as vehicles may sometimes damage them.

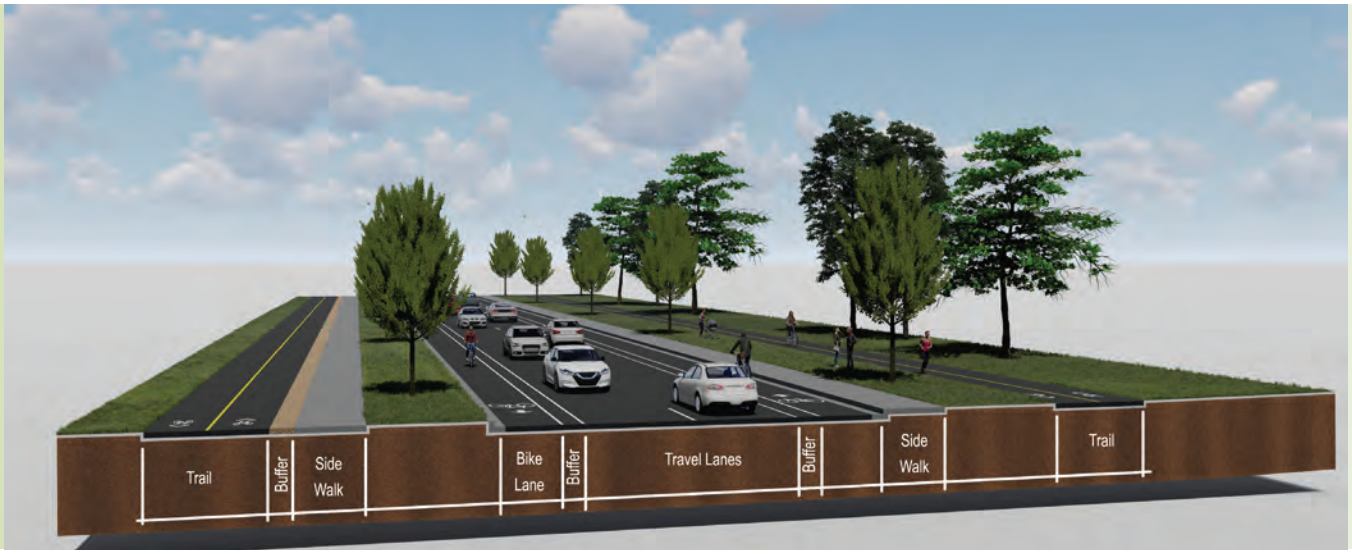
5.4.2: UC-2
URBANIZED CORRIDOR TYPE 2

A typical urbanized road with one travel lane and buffered bike lanes in either direction. A curbside sidewalk is provided along one side of the corridor.

Design Recommendations:

- Buffers should be at least 1.5 ft wide; if the buffer is 4+ ft, mark with diagonal or chevron hatching

Existing typical urbanized corridor



Proposed Urbanized Corridor Type 2 with buffered bike lanes and sidewalks with optional separated trails on both sides

UC-2: TYPICAL

In addition to the configuration described above with one travel lane and a buffered bike lane in either direction, a trail is added along either side of the corridor, as well as a sidewalk along one side with a horizontal buffer from the trail. This array of facilities maximizes options for cyclists and pedestrians, depending on their comfort and trip length they may travel in the buffered bike lane along the roadway or along the separate trail.

19%
of respondents on the first public survey preferred separated/buffered bicycle facilities from sidewalks.

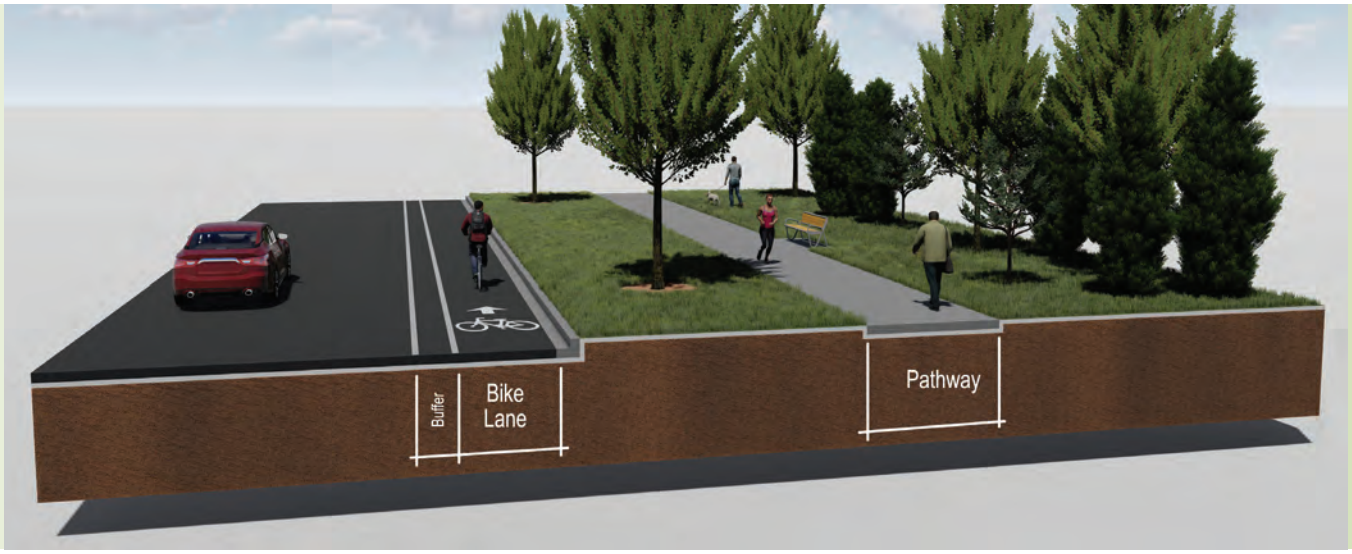
5.4.3: NC
NEIGHBORHOOD CORRIDOR

A typical residential neighborhood road with a sidewalk. Share the road signage is present to improve comfort for cyclists, informing motorists of their presence.

Design Recommendations:

- Crossing enhancement tools can help slow motor vehicles, including crosswalk markings, curb extensions, median island, and active warning beacons

Existing typical neighborhood corridor



Proposed Neighborhood Corridor with buffered bike lanes and a separated pathway with landscaping between the road

NC: TYPICAL

In addition to the configuration described above with one travel lane and a buffered bike lane in either direction, a pathway is added along either side of the corridor, as well as a sidewalk along one side with a horizontal buffer from the trail. This array of facilities maximizes options for cyclists and pedestrians, depending on their comfort and trip length they may travel in the buffered bike lane along the roadway or along the separate trail.

32%
of respondents on the first public survey preferred separated/buffered bicycle facilities from sidewalks

Rendering of Sharrows on Street

Additional Considerations for Neighborhood Corridors

SHARROWS

Shared lane markings or 'sharrows' are road markings used to indicate a shared lane environment for bicycles and vehicles. Among other benefits shared lane markings reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance. The shared lane marking is a pavement marking with a variety of uses to support a complete bikeway network; it is not a facility type.

Sharrows should be placed in the middle of lanes or directly where cyclists should be. Generally these on-street markings and routes are not appropriate on streets with speeds above 35 mph. For more guidance, please visit the NACTO design guide. The Shared Lane Marking in use within the United States is the bike-and-chevron "sharrow," illustrated in MUTCD figure 9C-9.

BENEFITS:

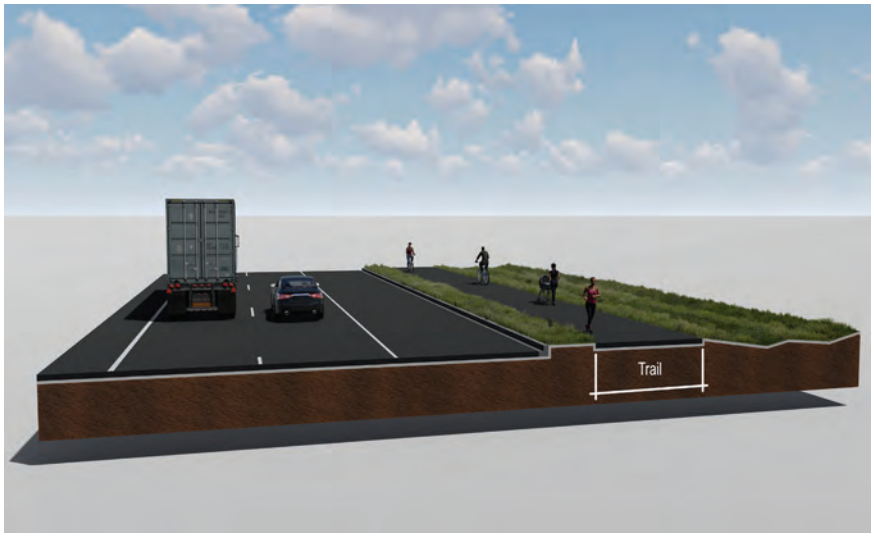
- Encourages cyclists to position themselves safely in lanes
- Alerts drivers to presence of cyclists
- Alerts drivers to placement of cyclists in the lane space
- Indicates a proper route for cyclists through neighborhoods, rural areas, over railroad tracks, through downtowns, etc
- Requires no additional street space
- Reduces cyclists on sidewalks
- Reduces wrong-way cycling

5.4.4: MP
MULTI-USE PATH

A multi-use path runs alongside a busy roadway urbanized corridor. The vertical and horizontal separation provided by the grassy area improves the comfort for cyclists and pedestrians compared to operating in a widely paved lane within the shoulder.

Design Recommendations:

- 8 ft is the minimum width for a two-way path with 14+ ft recommended based on volumes



Existing typical corridors with separated pathway

Proposed corridor including a Multi-Use Path with amenities and markings

MP: TYPICAL

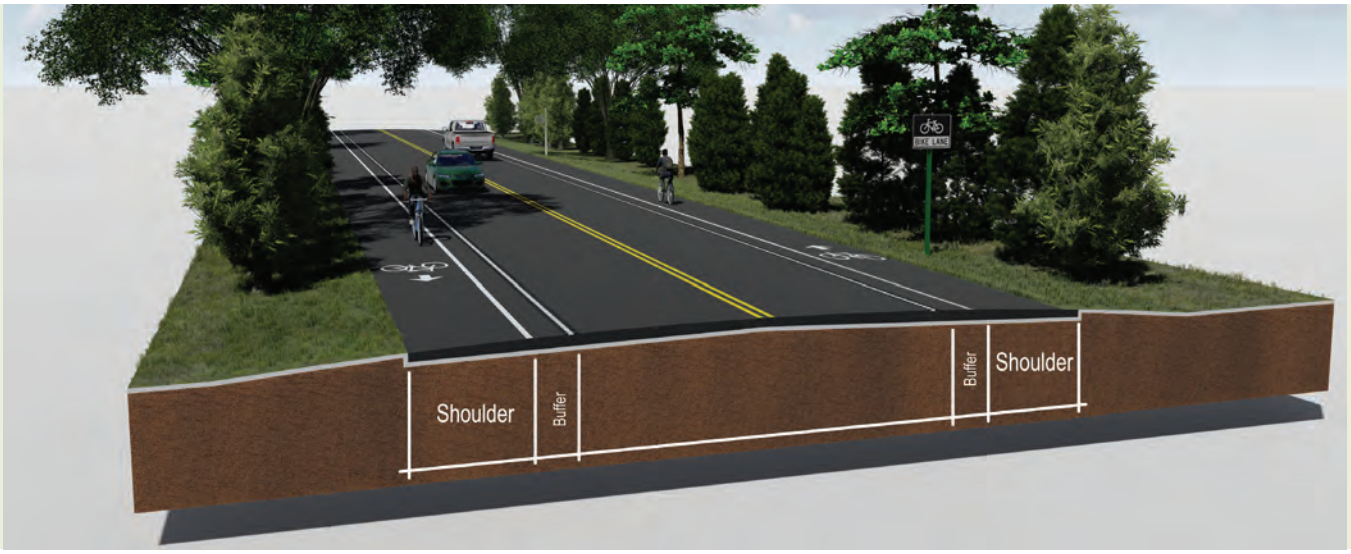
Added markings along the trail better delineate space for users in either direction. Benches are helpful for allowing cyclists and pedestrians to rest, particularly helpful in areas with minimal intersections, crossings and nearby land uses.

59%
of respondents on the second public survey preferred a landscaped buffer between a trail and the roadway.

5.4.5: RC
RURAL CORRIDOR

A typical rural road with one travel lane in either direction, no sidewalk and no bike facilities. Cyclists must jockey with high-speed motor vehicles for space, made more difficult in inclement weather conditions, or in areas with poor visibility due to curves or topography. Without any biking infrastructure, turning or crossing the corridor can be difficult.

Existing typical rural corridor



Proposed Rural Corridor: Typical On-Road with wide shoulder and buffer

RC-A: TYPICAL ON-ROAD

Widened bike-compatible shoulders with a horizontal buffer. The widened shoulder and buffer provide adequate space (recommended five feet or four feet with minimum one-foot buffer space, where possible) for cyclists to comfortably travel along the corridor, separated from motor vehicles. Rumble strips should be provided where possible between the travel lane and bike lane to alert motorists to cyclists and the bike facility's presence. The horizontal buffer provides necessary comfort, minimizing the risk of motor vehicles entering the shoulder. Intersection crossings and infrastructure may be necessary where there is substantial demand for cyclists turning left, requiring them to enter the travel lane.

6%
of respondents on the second public survey preferred wide paved shoulders on the road.

21%
of respondents on the first public survey preferred a shared bicycle and pedestrian trail separated from the road.

Design Recommendations

Paved Shoulder

- 5 ft minimum width up to 8 ft width depending on volumes and speeds
- Wide solid white lines or buffer areas enhance visual separation
- Colored or contrasting pavement increases contrast between the shoulder and roadway
- Edge line rumble strips designed for bicycles can reduce roadway departure crashes
- Bicycles must be considered at intersections through the use of additional markings and signage clarifying movements

Proposed Rural Corridor: Typical Off-Road with separate trail

RC-B: TYPICAL OFF-ROAD

A dedicated trail separated from but parallel to the roadway. A separated trail provides the maximum amount of comfort and safety for cyclists and pedestrians, allowing a substantial grassy area between motor vehicles and active transportation users. Separated from cyclists, motor vehicles are able to travel comfortably at their current speeds. Signalized crossings may be necessary at intersections to allow cyclists and pedestrians to enter and exit the trail. Proper signage along the roadway can alert motorists to such crossings.

5.4.6: RWT
RAIL WITH TRAIL

A trail runs alongside a rail line with a horizontal buffer and fence separating the two. Both of these treatments are necessary to assure pedestrians and cyclists do not infringe on the rail right-of-way, particularly along active rail lines.

Design Recommendations:

- Signage must alert trail users to any active rail lines

Existing typical rail corridor with trail

Proposed Rail with Trail corridor with amenities and markings

RWT: TYPICAL

Improvements to the rail with trail facility include markings along the trail, better delineating space for users in either direction in addition to adding a bench along the trail. Benches are particularly helpful along trails with wide gaps between crossings, intersections and other land uses. People are more likely to bike or walk along a facility where there are ample places to rest and relax.

5.4.7: RT

RURAL TRAIL

A trail runs through an open area, providing a scenic walking or biking experience through a naturalized environment.

Design Recommendations:

- 8 ft is the minimum width for a two-way path with 14+ ft recommended based on volumes
- Amenities including bathrooms, benches, security call boxes and bike parking can make a rural trail more appealing

Existing typical rural trail

Proposed rail with trail corridor with amenities and markings

RT: TYPICAL

Added markings along the trail better delineate space for users in either direction. Benches along the trail are helpful in recreational areas, where other places to sit or depart the trail may be minimal. These could also be replicated between property lines in easements or between neighborhoods to connect on-street facilities.

59%

of respondents on the second public survey preferred a landscaped buffer between a trail and the roadway.

5.4.8: C-UT
URBANIZED TRAIL CROSSING

A standard urban mid-block trail crossing with diagonal crosswalk markings, crossing a road with one lane in either direction with a painted median with a sidewalk on either side of the corridor. These on-road markings provide some visibility for the crossing and pedestrians but are not high-visibility. Additionally, the lack of signage minimizes motorists' awareness of the crossing.

Existing typical urbanized trail crossing
(most don't have quality visible painted crosswalks)

Proposed urbanized trail crossing with high visible paint, vertocal bollards, signage, lighting, wayfinding, and optional lane narrowing/median landscaping/veritcal element

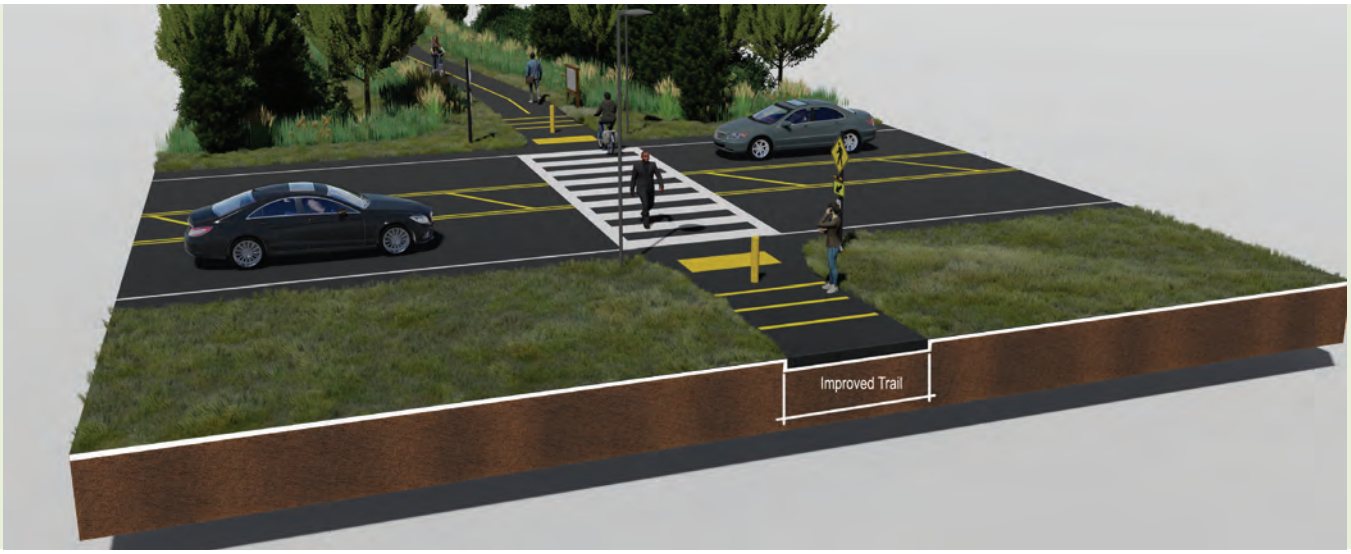
C-UT: TYPICAL

An urban mid-block trail crossing with rectangular rapid flashing beacons (RRFB), detectable warning strips with ADA-accessible curb ramp entering the roadway, high-visibility ladder crosswalk markings, a raised median, bollards preventing vehicles from entering the trail, lighting above the crossing and wayfinding signage along the trail. The high-visibility ladder crosswalk and RRFB improve the visibility of the crosswalk and pedestrians, providing adequate notice to motorist that there is a crossing and pedestrians present. Lighting above the crossing allows the trail to be used at night, providing a safe crossing even in dark conditions. Bollards along the trail prevent large vehicles from accidentally entering the trail and detectable warning strips alert pedestrians with limited vision that a crossing with intersecting motor vehicles is present.

5.4.9: C-RT
RURAL TRAIL CROSSING

A standard mid-block rural trail crossing with diagonal crosswalk markings, crossing a road with one lane in either direction with a painted median, lacking sidewalks in either direction. These on-road crosswalk markings provide some visibility for the crossing and pedestrians but are not high-visibility. Additionally, the lack of signage minimizes motorists' awareness of the crossing.

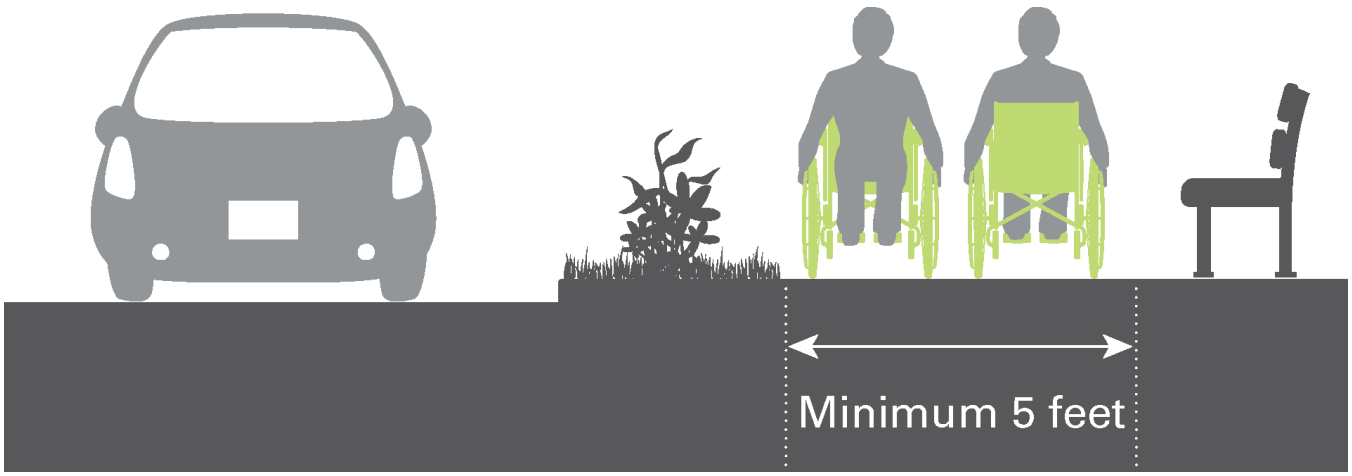
Existing typical rural crossing
(most don't have quality visible painted crosswalks)



Proposed rural trail crossing with high visiblility paint, vertical bollards, signage, lighting, and wayfinding

C-RT: TYPICAL

A mid-block trail crossing with rectangular rapid flashing beacons (RRFB), detectable warning strips entering the road, high-visibility ladder crosswalk markings, lighting above the crossing, and bollards preventing vehicles from entering the trail, lacking sidewalks in either direction. The high-visibility ladder crosswalk and RRFB improve the visibility of the crosswalk and pedestrians, providing adequate notice to motorists that there is a crossing and pedestrians present. Lighting above the crossing allows the trail to be used at night, providing a safe crossing even in dark conditions. Bollards along the trail prevent large vehicles from accidentally entering the trail and detectable warning strips alert pedestrians with limited vision that a crossing with intersecting motor vehicles is present.



Minimum dimensions for sidewalk

5.5 Additional Details for Pedestrian Facilities

Sidewalks

Sidewalks are an extension of the street system. They are the primary conduit for pedestrian travel and fundamental to facilitating residential, commercial, and social activity in urban, suburban, and rural communities. Sidewalks provide access between buildings and provide space for dynamic street life. Sidewalks, particularly in commercial and downtown areas, form the foundation for a vibrant community. Lively sidewalks are venues for people to participate in face-to-face activities and support businesses. Sidewalks should be part of a continuous network and connected with crosswalks at roadway intersections. They should be safe, comfortable, and attractive facilities that provide accommodations for people of all ages and abilities. While at a quick glance it may seem as if all sidewalks are equally effective, there are several variables relating to the ability for a sidewalk to serve it's purpose. As the basic unit of mobility within the transportation system, every sidewalk should be accessible and well maintained. In order to maintain accessibility, a sidewalk must be:

- Accessible by all users
- Of adequate width
- Safe to use
- Continuous and connected

Pedestrian Zone

The pedestrian zone is the area of the sidewalk that is reserved for pedestrian travel. This area should be free of all obstacles, protruding objects and vertical obstructions. The pedestrian zone should be at least six to ten feet wide in high pedestrian volume areas, which allows pedestrians to walk side by side or pass one another. The pedestrian zone should never be less than four feet wide, which is the minimum width required for people using a guide dog, crutches, and walkers. Wheelchair users need approximately four feet to turn around or five feet to pass another wheelchair.

ADA Accessibility

ADA (Americans with Disabilities Act of 1990) standards specify a minimum five-foot clear path width to accommodate two wheelchairs passing each other. In addition to providing a more accessible facility, this minimum width also creates a more comfortable environment for pedestrians to walk side-by-side and pass each other, and for families with strollers. This five-foot clear path refers only to the area of the sidewalk unencumbered by obstructions, away from bushes, seating, and trash bins.

Heaved sidewalk posing hazard for pedestrians

Sidewalk with bench, plantings and lighting in Crystal Lake

Sidewalks should be constructed as wide as possible to accommodate foot traffic and improve pedestrian comfort, given available street right-of-way. Sidewalk width should support the surrounding street context, land uses, and current and future pedestrian demand – the greater the density, demand, and mix of activities, the wider the sidewalks should be. Downtown and commercial areas, for example, generally require wider sidewalks. No existing sidewalk should be reduced in width in the course of street widening projects. Opportunities for widening sidewalks and narrowing curb-to-curb should always be considered whenever roads are constructed.

Surface Materials

The choice of surface materials for sidewalks, plazas, or other spaces where pedestrians walk can have a significant impact on accessibility. Sidewalk materials generally consist of concrete or asphalt; however, tile, stone, and brick can also be used. Although these materials provide an aesthetic benefit, they can lead to grooves or spacing that can catch wheelchair castors or create a tripping hazard for pedestrians, especially those with vision or mobility disabilities. Decorative surfaces may also create a vibrating, bumpy ride uncomfortable or painful for those in wheelchairs.

Brick or cobblestone are not recommended surface materials for the pedestrian zone. Creative alternatives include using these materials as trim or decorative elements in the furnishing zone or using colored concrete. Surface materials should be slip resistant. A broom finish on concrete can help increase slip resistance.

It is common for sidewalks to rise or heave, reducing comfort for pedestrians and having the potential to cause damage or massive inconvenience to users of wheelchairs, walkers or canes. To reduce the likelihood of heaving the following should be considered:

- Surface texture should not include more than ¼ inch rise for every 30 inches
- A ¼ to ½-inch rise should be beveled with a maximum grade at 50 percent
- If there is greater than ½-inch rise, the surface should be leveled or a ramp should be installed with a maximum grade of 8.3 percent

This Page Left Intentionally Blank

6.0 PROGRAMMING + WAYFINDING

Wayfinding Signage in Lakewood

Wayfinding Signage in Barrington Hills

6.1 The Importance of Programming and Wayfinding

Additional programming and wayfinding infrastructure can operate as essential components of a biking and walking network. These elements assist with assuring users feel safe and comfortable utilizing biking and walking facilities.

6.2 Wayfinding Signage

Pedestrian and bicycle wayfinding systems provide navigational aids that help pedestrians and bicyclists orient themselves within their surroundings and determine the best route to reach a destination. Wayfinding systems also help create a sense of place within a community or corridor, knitting it together through consistent treatments to help residents and visitors navigate between points of interest. Wayfinding signage should clearly identify the locations of key destinations, such as businesses, recreational areas, historical or cultural landmarks, bicycling routes, transit, and connections to nearby areas of interest.

Signage should be flexible and fit its context and need. Types of wayfinding signage are shown in the graphic above, including sidewalk signs with area maps, decision point signs at intersections showing directions and distances to nearby destinations, and bicycle route signs used to indicate where the cyclist is and directions/distances to other paths or destinations. Wayfinding has many benefits for a community. By helping pedestrians and bicyclists overcome the hurdle of distance perception (where the time needed to walk or bike tends to be over-estimated), wayfinding can help encourage different transportation choices, including improving access to transit.

Many transit agencies have found that one of the simple, yet critical ways to increase transit ridership is to improve the communications of information to passengers. Real-time bus or rail information (on a smartphone, computer, or at a transit stop) and improved route planning are among the ways that transit agencies have improved service and made transit a more attractive option. Similarly, a comprehensive wayfinding system for a bicycle network has many benefits that can help increase bicycle ridership, including the following:

- Familiarizes cyclists with the bicycle network
- Improves awareness of the bicycle network and the presence of bicyclists among motorists

Informational Signage | *Decision Signage* | *Locational Signage*

Typical types of wayfinding signage

- Identifies the preferred routes to key destinations
- Makes bicycling and the bicycle network more accessible and convenient for visitors and casual users
- Minimizes the tendency to overestimate the amount of time it takes to travel via bicycle by including information on mileage and/or travel time to destinations

The three typical types of wayfinding signage are illustrated on the image above, they include: Informational signage, decision signage, and location signage.

Design Guidance

In order to be as effective as possible, a wayfinding system should be implemented in a consistent and deliberate manner. The following guidelines should be followed, when possible, when implementing or retrofitting a wayfinding system:

- Signage should maintain a clean, visible, and consistent design
- Signs should be posted on both sides of the street or trail along major walking or bicycling routes
- Maps should be oriented so that the direction the user is facing is at the top; indicate the orientation with the underlined phrase “You Are Here” where the pedestrian is within the map, and place an upward arrow under it
- Distances should be defined by the time needed to reach them (e.g., “It’s a 15-minute walk away” or circles encompassing destinations within a 5-, 10-, or 15-minute walk)
- A standard prioritization system should be used on maps to limit the number of landmarks identified
- The facades of important landmarks should be illustrated on maps to help orient pedestrians
- Indexes of major landmarks should be included
- Public data should be made available to private organizations to develop smartphone applications (“apps”) at no cost to governmental agencies. QR codes can be incorporated to improve information delivery and reduce visual clutter.

Additional guidance can be found in the National Association of City Transportation Official’s Urban Bikeway Design Guide and Urban Street Design Guide.

Pedestrian-Scale Lighting

6.3 Lighting

Pedestrian-scale lighting should be provided near transit stops, crossings, commercial areas, or other locations where night-time pedestrian activity is likely. Pedestrian-scale lighting, such as streetlamps, help to illuminate a sidewalk and improve pedestrian safety, security and comfort. Streetlights should be energy efficient, evenly spaced, and focused downward to reduce light pollution. Lighting fixtures should reflect the character and urban design of the street type. Properly designed and installed pedestrian-scale lighting can both help define a streetscape and create a sense of place in a community.

The following variables should be considered when siting pedestrian-scale lighting:

- Proximity - should light sidewalks and crosswalks without blocking them
- Spacing - evenly distributed approximately 60 feet apart along corridors
- Brightness - 20 lux measured at a height of five feet from road surface
- Direction - fixtures faced downward to direct light onto pedestrians and avoid causing nuisance
- Height - poles should be shorter than street lights; 12-16 feet
- Glare - brighter is not always better; glare factors include fixture and background luminance, and size and angle of the fixture
- Energy Efficiency - due to light depreciation, initial light levels should be above what is required; adaptive technology can allow to operate at maintained level for longer times

The graphics on this page show the difference street lighting can make in visibility.

Bicycle Parking at Crystal Lake Metra Station

6.4 Bicycle Parking

Providing adequate, secure bicycle parking is an important measure to accommodate and encourage cycling as an alternative travel mode. Proper parking facilities increase the convenience of cycling for commuting, utilitarian, or recreational purposes while also alleviating the threat of theft.

Design Guidance

The typical bicycle is 6 feet long and 2 feet wide, making bicycle parking spaces efficient and easy to locate. Parking should be conveniently located, well lit, and easily visible for cyclists arriving at a destination. A variety of bicycle parking racks are available. Based on guidance from the Association of Pedestrian and Bicycle Professionals (APBP), a bicycle rack should meet the following requirements:

- Be intuitive to use
- Support the bicycle upright by its frame in two locations
- Enable the frame and one or both wheels to be secured
- Support bicycles without a diamond-shaped frame and horizontal top tube (e.g., step-through frames)
- Allow both front-in and back-in parking with a U-lock through the frame and front or rear wheel
- Resist the cutting or detaching of any rack element with hand tools

Bike Corral in Chicago (Source: CDOT)

6.5 Bicycle Corrals

Bicycle corrals are rows of bicycle racks installed in the curbside lane of the street instead of the sidewalk. Bicycle corrals provide ample bicycle parking without occupying sidewalk space and are a good treatment in locations where bicycle parking is desired but sidewalk space is limited. Bicycle corrals can also help "daylight" an intersection by preventing motor vehicles from parking close to intersections, beyond designated spaces.

Further guidance is provided in APBP's Essentials of Bicycle Parking.

Seating in Crystal Lake

6.6 Seating

Seating comes in a variety of temporary and permanent forms, including chairs, benches, seating walls, or planters. Seating helps create a more inviting environment and encourages active public spaces.

Design Guidance

Permanently installed seating should not interfere with building entrances, loading zones, parked vehicles, access to fire hydrants, or other potential conflicts.

ADA requirements for seating include:

- 3-foot minimum on each side of the bench
- 5-foot minimum from fire hydrants
- 1-foot minimum from any other amenity, utility, or fixture
- 5-foot minimum clear path in front of the bench located at the back of the sidewalk, facing the curb
- 5-foot minimum clear path behind a bench when located at the front of the sidewalk facing the curb

6.7 Programming ideas

Programming refers to events or programs that utilize McHenry County's biking and walking infrastructure. These can include fun events for locals and tourists, as well as programs intended to educate children or other groups about how to safely walk and bike.

Programming incorporating the McHenry County Connection network can include existing events, such as festivals. street festivals, County Fair and other local fairs, farmers markets, park district events, and parades that utilize trails. These events can add organized walks, hikes and bike rides to their slew of events.

Additional, potential programming identified by stakeholders include bike rides and walks conducted to educate people about historic sites in the County, as well as brewery rides conducted to highlight the County's many breweries and wineries. Others include pop-up events, pop-up lending libraries, foodpantries, biking campgrounds, nature walks, and educational opportunities like Safe Routes to School or Trail cleanups.

Crystal Lake Farmers Market
(Source: downtowncl.org)

Pub in the Park (Lake in the Hills)
(Source: pubinthepark.org)

Woodstock Farmers Market
(Source: woodstockfarmersmarket.org

Stade's Farm & Market (McHenry)
(Source: enjoyillinois.com)

Blues, Brews and BBQ (McHenry)
(Source: visitmchenry.org)

Festival of the Sugar Maples (Marengo)
(Source: visitmchenrycounty.com

Woodstock Groundhog Day
(Source: The Woodstock Independent)

Lakeside Festival at the Dole (Crystal Lake)
(Source: thedole.org)

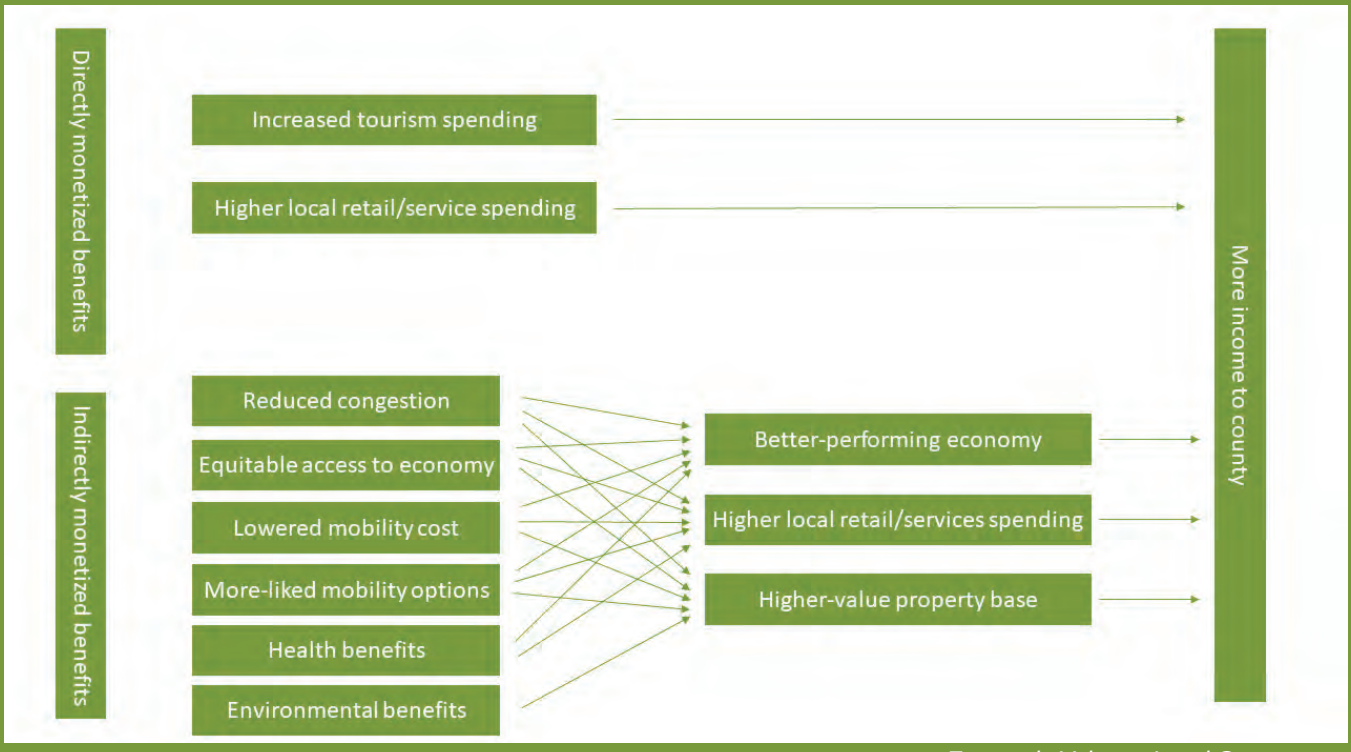
Economic Benefits

In addition to direct community, transportation, and health benefits, active transporation presents numerous economic benefits to local goverments that are significantly larger than the costs of construction. These benefits support the McHenry County Connection's goal to "promote economy & tourism of the natural and built environment." Studies from around the country noting this impact include:

- A $6.7 million investment in off-road trails and widened marked shoulders in North Carolina generated $60 million in annual tourism revenue from cyclists[1]
- Cycling recreation and tourism contribute approximately $900 million to Wisconsin's economy (with an additional $400 million of health benefits)[2]
- State spending on an off-road trail in Maryland was found to return 1.5x as much revenue to the state with the first the trail was open[3]

Economic benefits from cycling infrastructure occur directly and indirectly. The chart below shows some of the vectors by which the economic value to local governments is created. Much of the economic benefit of biking infrastructure results from tourism:

- Generally, off-road trails are estimated to be used by approximately 2,000 visitors per mile per year[4], and these visitors spend approximately $100 per day locally (these figures vary by community and can be higher or lower locally)[5]
- Events, such as races and charity rides, are enabled by cycling infrastructure and have a meaningful positive economic impact, in addition to promoting health and charitable giving
- Cyclists spend approximately 25% more at businesses they visit than drivers[6] - this is partly because cyclists interact with their environment more actively than drivers when traveling. As a result of this, and that shopping is more pleasant and easier in lower-speed environments[7], retail sales tend to spike by as much as 50% when



Economic Value to Local Government

protected cycling infrastructure is installed along a corridor[8]. Near an off-road trail in Pennsylvania, businesses reported that a quarter of their revenue was due to trail users[9]. This effect is particularly stark for bars and restaurants.[10]

Various benefits of cycling infrastructure that do not directly generate increased funds for the local government do so through indirect mechanisms:

- **As a new mobility option is introduced, locals and tourists can reach a greater range of destinations for work, education, commerce, and entertainment, which helps the local economy function more efficiently, and results in greater local spending**
- **The benefits of having cheaper and more-preferred mobility options, more developed local retail and services, and a more pleasant built environment, result in higher standards of living, which drives both population density and real estate prices. This effect results in increased income to the local government, though attention must be paid to effective displacement safeguards if property values are expected to change significantly**
- **The popularity of the highest-quality cycling infrastrucute can cause bike-oriented development. For example, a $36 million investment in an off-road trail in Minneapolis catalyzed $750 million of new residential development, and the $400 million investment in an off-road trail in Atlanta led to $2.4 billion in private development along the trail[11]**

	Improved Active Transport Conditions	More Active Transport Travel	Reduced Autombile Travel	More Compact Communities
Benefits	• Improved user convenience, comfort and safety • Improved accessibility for non-drivers, which supports equity objectives • Option value • Higher property values • Improved public realm (more attractive streets)	• User enjoyment • Improved public fitness and health • More local economic activity • Increased community cohesion (positive interactions among neighbors) • More neighborhood security	• Reduced traffic congestion • Road and parking facility cost savings • Consumer savings • Reduced chauffeuring burdens • Increased traffic safety • Energy conservation • Pollution reductions • Economic development	• Improved accessbility, particularly for non-drivers • Transport cost savings • Reduced sprawl costs • Open space preservation • More livable communities • Higher property values • Increased security
Costs	• Facility costs • Lower traffic speeds	• Equipment costs (shoes, bikes, etc.)	• Slower travel	• Increases in some development costs

Active Transportation Benefits and Costs

7.0 MANAGEMENT & MAINTENANCE

Both costs and economic value vary based on the quality of cycling infrastructure provided. The table on the following page shows the approximate cost of various types of cycling infrastructure, as well as the percentage of cyclists comfortable using the infrastructure (the percentages for on-road facilities can change significantly with auto volumes and speed limit). The greater share of people who feel comfortable riding, the greater the economic benefit. Additionally, the effect is non-linear, as families and larger groups may default to the preferences of the least-confident cyclist. The table also notes the expectation of how much the cycling infrastructure impacts the experience of walking along the corridor, which creates additional economic value.

Measure	Typical Costs
Bike Lanes	$15,000-75,000 per mile
Bike Parking	$750-7500 per bike rack
Marked Crosswalk	$150-300 per crosswalk
Path (5-foot asphalt)	$45-60 per linear foot
Path (12-foot concrete)	$120-180 per linear foot
Sidewalk (5-foot width)	$30-75 per linear foot

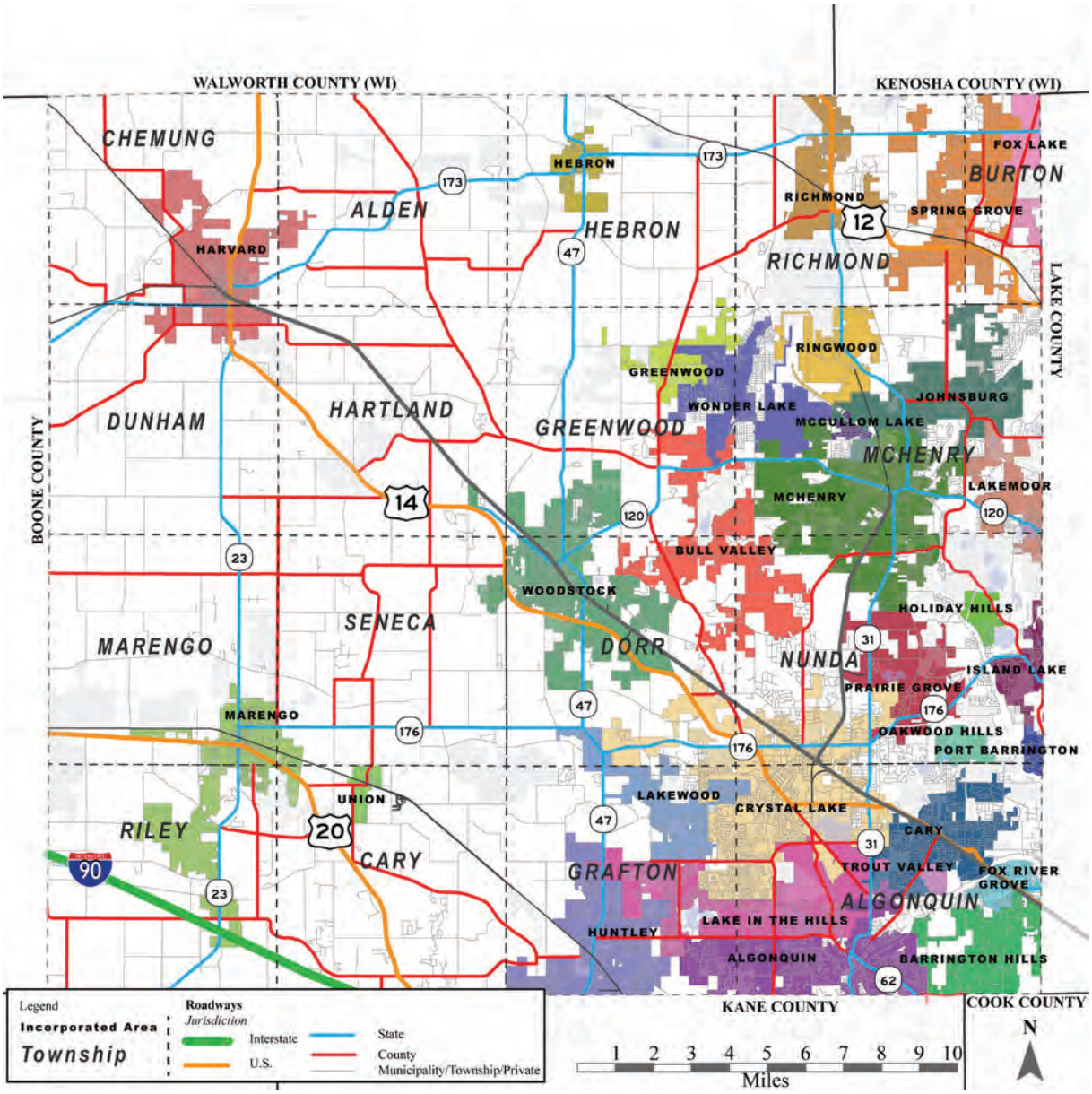
Typical Facility Costs for Planning Level Cost Estimates (FDOT 2003; Zegeer, et al 2002; Krizek, et al. 2006) and Escalated to 2020 Dollars. These are typical costs and dependent on many measures that should be addressed during design.

Type	Approximate Cost	Comfortable Cycling	Benefit for Walking
Sharrows	Minimal	15%	None
Bike Lanes	$25,000 per mile	30%	Minimal
Protected Bike Lanes	$130,000 per mile	55%	Low
Narrow Off-Road Path	$180,000 per mile	95%	Moderate
Wide Off-Road Path	$500,000 per mile	95%	Significant

Approximate and Typical Costs and Comfort of Bike Facilities

[1] *"WALKBIKENC, Benefits", North Carolina DOT, https://www.ncdot.gov/bikeped/walkbikenc/economy_post/benefits-2/default.aspx*
[2] *"Bicycling Means Business: The Economic Benefits of Bicycle infrastructure", League of American Bicyclists (Darren Flusche), 2012, https://bikeleague.org/sites/default/files/Bicycling_and_the_Economy-Econ_Impact_Studies_web.pdf*
[3] *"Analysis of economic impacts of the Northern Central Rail Trail", PKF Consulting for the Maryland Department of Natural Resources, 1994, https://headwaterseconomics.org/wp-content/uploads/Trail_Study_92-MD-North-Central-Rail-Trail.pdf*
[4] *"WALKBIKENC, Economics", North Carolina DOT, https://www.ncdot.gov/bikeped/walkbikenc/pictures/EconomyImpact-Analysis.pdf*
[5] *"Bicycle Tourism Trails Study, Technical Memorandum 1: Benefits of Bikeways and Trails", Jacobs for Texas DOT, 2018, https://ftp.txdot.gov/pub/txdot-info/ptn/tech-memo-1-bikeway-trail-benefits.pdf*
[6] *"Active Transportation and Real Estate, the Next Frontier", Urban Land Institute, 2016, http://uli.org/wp-content/uploads/ULI-Documents/Active-Transportation-and-Real-Estate-The-Next-Frontier.pdf*
[7] *League of American Bicyclists, 2012.*
[8] *"Measuring the Street: New Metrics for 21st Century Streets", New York City DOT, 2012, http://www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf*
[9] *League of American Bicyclists, 2012.*
[10] *"Bike-Oriented Development Sprouts in Portland", Planetizen (Jonathan Nettler), 2013, https://www.planetizen.com/node/61064*
[11] *Urban Land Institute, 2016.*

7.0 MANAGEMENT + MAINTENANCE



Municipalities and Roadway Jurisdiction

7.1 The Importance of Maintenance and Management

Assuring a biking and walking network that works for everyone entails more than merely implementing facilities and infrastructure. These facilities must be properly designed with the assurance from local jurisdictions that facilities will be maintained. Procedures can vary between jurisdictions but developing a maintenance schedule is helpful in preventing unnecessary delays and costs to maintain an existing facility. Poorly maintained facilities discourage activity, leading to further funding issues. Maintenance involves not only maintenance of the physical infrastructure but also establishing a network or group of people or entities who are responsible for making decisions regarding the operations and maintenance of biking and walking facilities.

7.2 Collaboration with IDOT

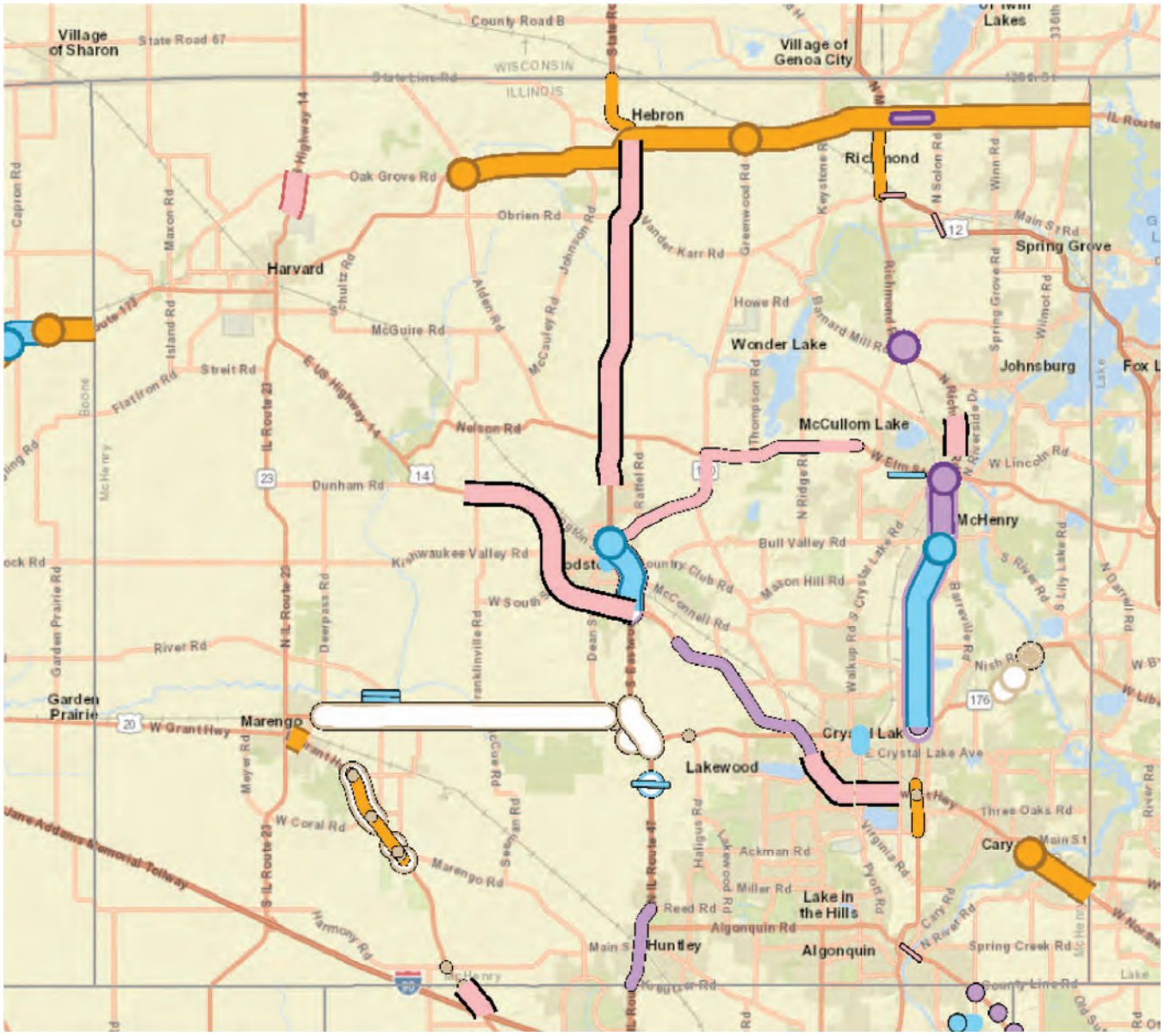
Roadways maintained by IDOT include some of the most highly traveled in the County, catering to high-speeds and providing connectivity and access between all corners of the County, municipalities, and beyond. For a countywide biking and walking network to flourish, it is necessary for IDOT and its roadways to be a vital piece of the overall connected infrastruture.

Though IDOT is responsible for state roadways, McHenry County and its municipalities have input and the opportunity to facilitate the maintenance of these roadways. IDOT does not initiate or manage bicycle and pedestrian-focused projects but under current practices, IDOT is required to consider biking and walking accommodations during all IDOT projects consisting of more than resurfacing. In such instances, IDOT will contact local municipalities and bike advocacy groups for feedback. This does not mean that all such projects receive bike and pedestrian accommodations, as in some locations it may be infeasible, but merely that such facilities are considered.

Begining in 2019, off-road facilities were considered for IDOT projects in all land use contexts. The standard in many rural communities is the provision of an 8' wide paved shoulder for cyclists. Municipalities (cities, villages, census-designated places, and townships) are encouraged to bring local transportation issues and requests to IDOT's attention. Demand for biking and walking facilities on state routes can be accommodated by IDOT during upcoming projects. In locations where a lane reduction is requested, it is the municipality's responsibility to obtain an engineering report showing quantitative support for such a proposal. Municipalities are encouraged to review IDOT's multi-year capital program (currently 2022-2027) to determine where there is overlap between a local bike/ped plan's recommended facilities and the IDOT plan. In areas where plans overlap, improvements can be relatively easily accommodated.

IDOT Policy TRA-23, passed in 2019 intended to consolidate research, and provide uniform guidance and policy reasons for pedestrian crossings on IDOT roadways. The policy includes a procedure for evaluating a request for a new crossing and a chart with recommended treatments. Site-specific designs are recommended on all roadways with an 85th percentile speed of at least 45 mph. Other roadway treatments include pedestrian signage, timed or pedestrian-actuated warning beacons, on-road pavement indicators, and rectangular rapid flashing beacons. Under this policy, the presence of a traffic signal is preferred for new pedestrian crossings.

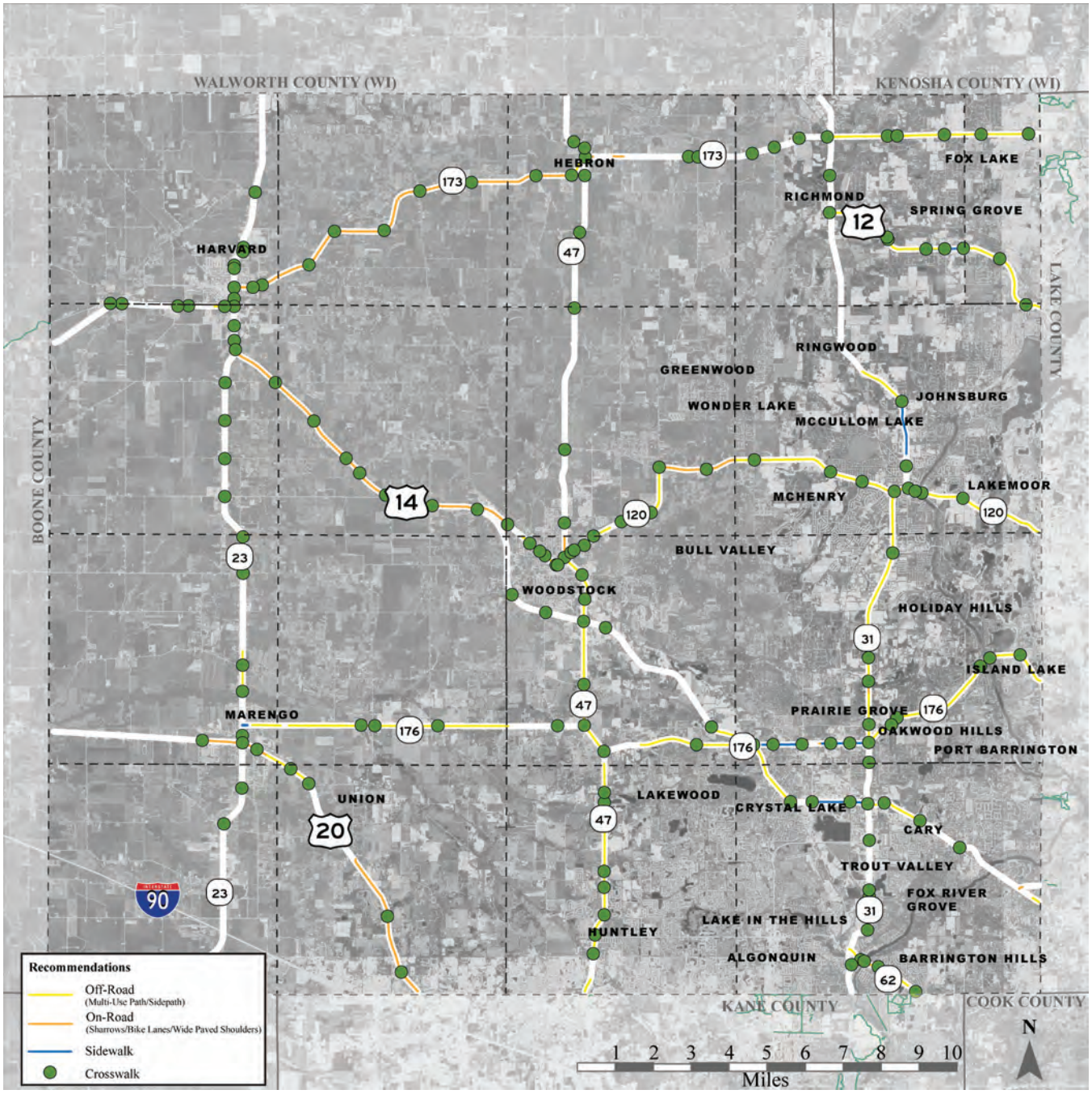
Beyond obtaining public support for a project, a major hurdle for biking and walking accommodations on state roadways is the ability to financially contribute to the construction and be responsible for the maintainance of such facilities. Under current IDOT practice, the municipality must contribute 20% of the construction cost and be responsible for maintainance of all new bike and pedestrian facilities (including sidewalks) on state roadways. Illinois House Bill 270, passed into law, adjusts this practice to remove the 20% match for all municipalities with more than 1,000 residents, though a local maintenance agreement would still be required. It is expected that this law will go into effect at the start of 2022.



Ongoing and Future IDOT Projects in McHenry County

Ongoing and Future IDOT Projects

The Illinois Department of Transportation's Illinois Roadway Analysis Database System was reviewed to determine where IDOT work will be taking place over the next several years and to identify overlaps between IDOT work and infrastructure recommendations made in this plan. The list of project is located in Appendix C with the cost of each project provided in millions of dollars, and the overlap of the project with facilities recommended in this plan is indicated in the final four columns of the table (Multi Use Path, On Road, Crossing, Sidewalk). As seen in the table, there is substantial overlap between proposals made in this plan and budgeted work in McHenry County expected to occur over the next decade. The table should be updated as needed and merged with other resources and depositories of information available to the County.



Recommended Facilities on State Roads

Recommended Facilities on State Routes

The above map shows all recommendations, both bicycle and pedestrian facilities, located on Illinois state routes. Acting mainly as vehicular connections through the State, state roadways also provide the greatest potential for biking and walking connectivity within McHenry County and to adjacent counties. Recommendations along state routes include locations identified as priority or equity areas routes detailed later in this plan. Implementing facilities along these routes will require cooperation between the County, State and local jurisdiction. The County and its partner municipalities should maintain an open dialogue with the Illinois Department of Transportation to assure the feasibility of implementing improvements along these routes and maintaining facilities.

Strategies

The following strategies are proposed to facilitate the maintenance and management of biking and walking facilities in McHenry County. While divided into four categories, there are opportunities for overlap between individual strategies, with the ultimate goal to promote the cost-effective and safe use and maintainance of biking and walking infrastructure.

Policy + Ordinances	
Action 1	The McHenry County Council of Mayors should work with CMAP and IDOT to determine where there is a need for Complete Street policies and ordinances. These policies are likely not warranted for every municipality but should be adopted where appropriate.
Action 2	The County and its municipalities should consider adopting a bicycle parking ordinance in specific portions of communities. Any ordinance should define minimum short-term and long-term bicycle parking facilities based on land use and size, and define appropriate design standards. Bicycle parking shoud also be mandated in vehicular parking facilities. Bike parking can be required in certain areas for developments exceeding a certain size.
Action 3	Consider establishing a committee after the publication of the McHenry County Connection Plan to help implement the recommendations laid herein, overcome jurisdictional and political barriers, and make steady progress in seeing the McHenry County Connection become a reality.

Design + Implementation	
Action 1	Identify potential opportunities for green infrastructure based on local context and feasibility. Assessment of feasibility should be the first step taken and include a shared understanding of maintenance needs and responsibilities. Execution of a formal memorandum of agreement to establish responsibilities for maintenance should be completed in advance of final design and construction.
Action 2	Building off of wayfinding best practices elaborated upon in the previous chapter, identify targeted opportunities where creative placemaking strategies can be combined with wayfinding systems and amenities. Public art, for example, can be used to create a sense of place as an addition to its direct functional purpose. Instead of typical wayfinding signage or standard off-the-shelf bike rack, signage and amenities can also be public works of art, i.e. a sculpture that provides directional signage/cues, or a bike rack with an unusual artistic design that reflects and blends with the local context and surroundings and/ or is designed by a local artist.
Action 3	Develop a checklist or compliance form to aid county and municipal planning and engineering staff in development, assessment, and review of potential network improvements and enhancements. This checklist/compliance tool could be similar to existing Complete Streets checklists or roadway audit procedures.

Partnerships + Development	
Action 1	Construction and maintenance of certain facilities can be incorporated into local zoning codes; the land use and development review process can be used to ensure new development includes appropriate bicycle and pedestrian accommodations. Leveraging private development activity provides an opportunity for the County to advance planned improvements and preferred design standards by requiring their integration in development site plans. Potential elements addressed through site plan review include streetscape improvements, filling sidewalk gaps, repairing existing sidewalks, driveway access modifications, and installing bicycle parking. Large scale projects can also include intersection or roadway improvements.
Action 2	The County should work with local non-profits and advocacy organizations regarding the implementation and maintenance of facilities, as well as to continue to engage stakeholders and identify new infrastructure opportunities.
Action 3	Consider working with business and economic development organizations, and the Conservation District to promote recreational tourism in the County's many parks and natural areas, and the bike facilities within and connecting to these areas.
Action 4	Support education concerning biking and walking for children through educational programs teaching children how to bike and walk safely, as well as implementing biking and walking projects near schools through funding from IDOT's Safe Routes to School Program. Presently, the maximum grant through Safe Routes to Schools is $250,000 with a total of $12,000,000 available through federal funding.
Action 5	Create a Municipal Partnering Initiative (MPI) to collaborate in bidding and funding opportunities and establish a program to maintain trails and sidewalks.

Maintain + Operate Facilities	
Action 1	Incorporated areas, townships, McHenry County, and adjacent counties should maintain an open dialogue about maintaining facilities, as biking and walking facilities often cross jurisdictions and cooperation is helpful in assuring proper funding, design and maintenance.
Action 2	Develop a snow plow prioritization plan to ensure the resources and ability to plow biking and walking facilities in a timely manner.
Action 3	Purchase equipment to plow bike lanes/ off street facilities - Lake in the Hills purchased the Bobcat Toolcat 5600 and attachments with cost around $90,000
Action 4	Develop maintenance plans for bike facilities and sidewalks, including timeline, costs, and responsible jurisdiction to assure maintenance issues are minimized, and the larger biking and walking network is accessible to all throughout the year. Prioritize sidewalks connecting to pedestrian generators such as downtowns, train stations, parks, schools, and trails.
Action 5	Consider establishing an "Adopt a Trail" program to engage stakeholders and provide a funding stream for maintenance
Action 6	Establish a pavement/surface rating program for facilities. This should be updated annual or biannually similar to roadways for asset management.
Action 7	Establish an inter-jurisdictional group or funding directed to implement and maintain greenways. Such entity could be partially funded by a taxing district. Funding could also be provided through an area-wide or County-wide set-aside for transportation funds, allocating an identified percent of all transportation fundings for bicycle and pedestrian improvements and maintenance.

This Page Left Intentionally Blank

8.0
NEXT STEPS

8.0 NEXT STEPS

Priority Bike Facilities

Priority recommended bike routes were established based on the goals analysis conducted concering demographics and existing infrastructure, and the Loop concept preferred by 69% of survey respondents. The goals analysis led to the identification of equity areas home to historically underrepresented populations or areas deemed to present the greatest need of improved bike facilities. The loop concept focused on connecting the County's many parks and natural areas, creating major loops and rings linking these vital assets together with communities.

Based on this methodology, priority routes encompassing several levels of loops and connections were identified, shown on the following pages. These maps also show portions of existing routes in order to emphasize the numerous extensions and connections provided by the recommendations. Taking advantage of this existing infrastructure is essential for providing a comprehensive bike network throughout the County. On the following maps, the type (on-road vs. off-road) of recommended bike facility is not shown. This is intended to convey the prime importance of providing connections along these routes. While these and all other recommended routes are shown as being on-road or off-road earlier in the document, the precise design of the bike facilities will be determined based on context and existing data by the controlling jurisdiction. While certain connections are proposed as on-road, frequent monitoring of these facilities for which linkages are identified is encouraged. Frequent monitoring and evaluation of these identified on-road connections will contribute to future determinations of these routes being moved to off-road facilities in the event that appropriate warrants are met (i.e. ADT, speed, safety considerations, bicycle counts along identified connections, etc.) and resources are available to construct and maintain off-road facilities. While the design of individual routes is important, a higher priority is providing connections with designs fitting the local context.

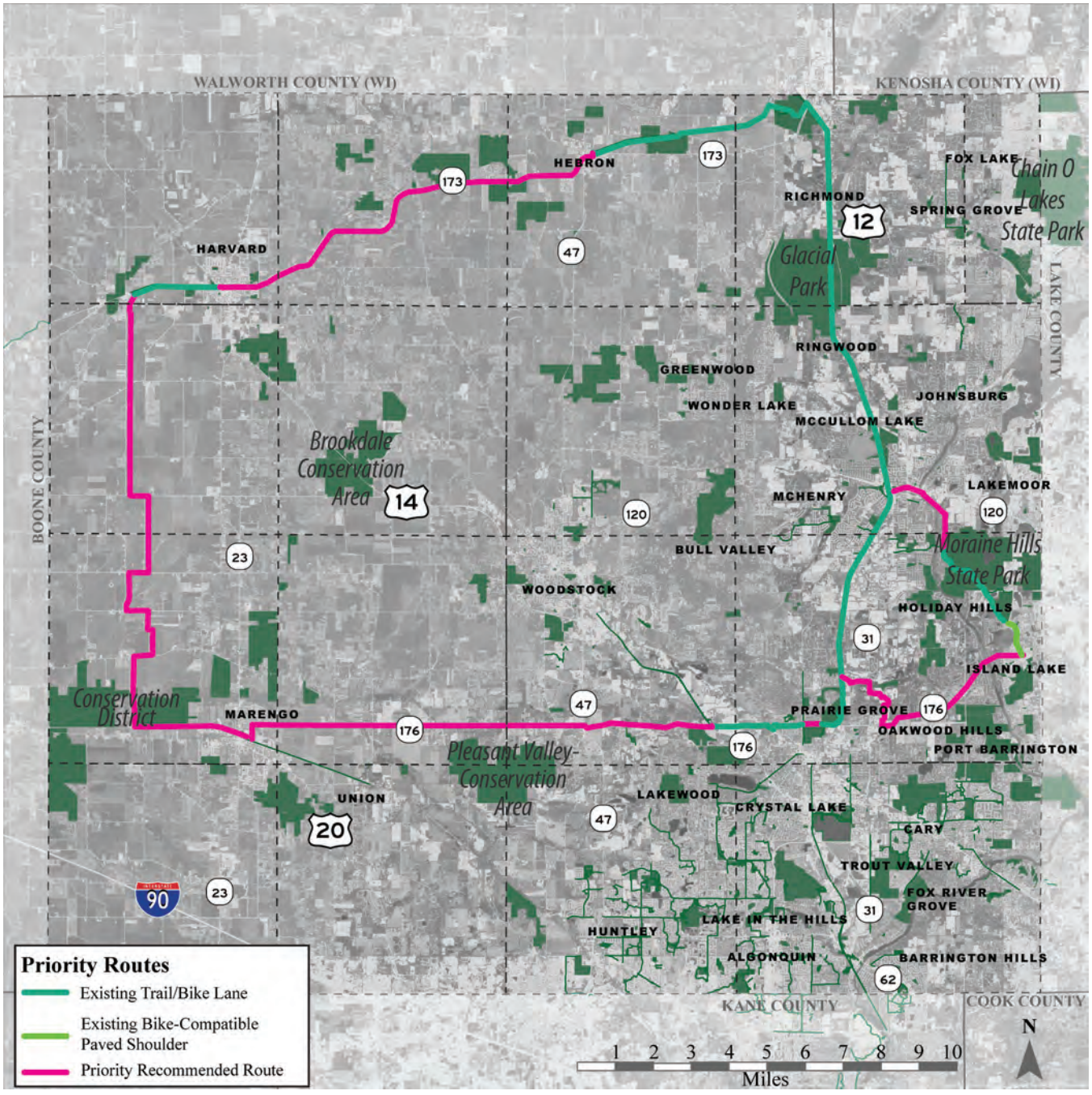
The three categories of priority routes (Outer Loop, Inner Loops, Additional Connections) are all priority routes with no differentiation between their priority. Additional information about the priority routes are provided on the following pages though each of the routes together aim to provide regional connections throughout McHenry County.

Following these priority route maps is a map of equity area recommendations, highlighting recommended facilities located in equity areas, identified through the earlier analysis of demographic data and existing infrastructure. Recommendations in equity areas should also be prioritized. These areas are home to communities who are the most underserved by biking and walking infrastructure. Recommendations in equity areas include short local bike facilities connecting to residential areas and schools, as well as portions of regional loops.

This McHenry County Connection Plan provides a framework for developing walking and biking infrastructure in McHenry County. The County, and its partners and stakeholders should now take the following steps to make these connections and facilities a reality.

Next Step Recommendations

1. Work towards implementing priority routes
2. Fill in the gaps with other roadway projects where applicable
3. Develop a Complete Streets Policy for the County and municipalities
4. Identify partners to create a coalition
5. Coordinate within County and State for grant opportunities

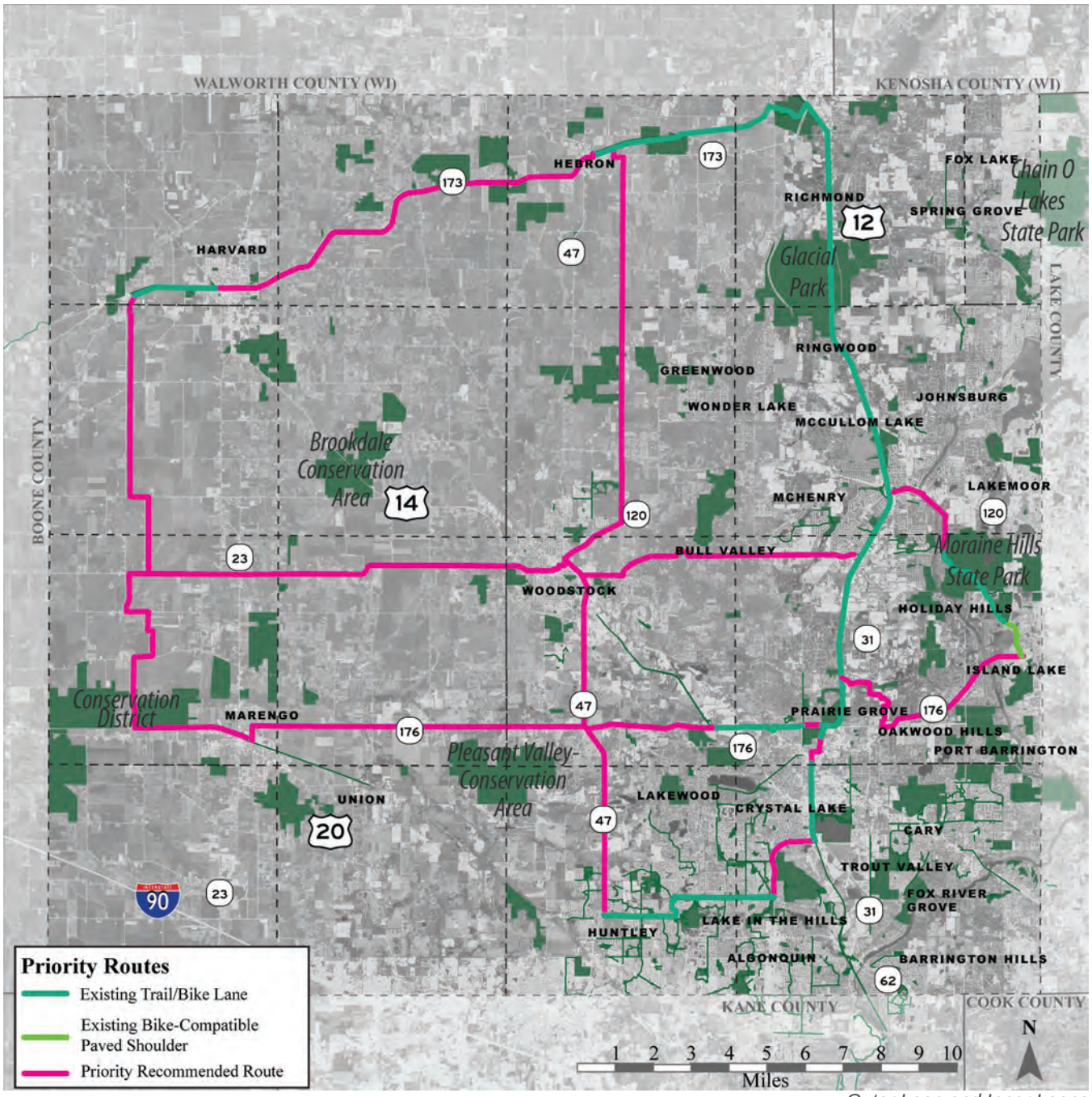


Outer Loop

Outer Loop

The Outer loop forms the foundation of McHenry County's biking facilities, providing a 97 mile loop around the County west along IL 176 into Marengo, north along County roadways into Harvard, east along IL 173 through Hebron, and south along the existing Prairie Trail into Crystal Lake. The primary loop includes a 13 mile mini-loop between the Prairie Trail and Moraine Hills State Park. With a mix of existing and recommended facilities, this outer loop provides a mini-network of bike facilities to the equity areas of Harvard, Marengo, McHenry and the greater Crystal Lake area, as well as connecting to Glacial Park Conservation Area.

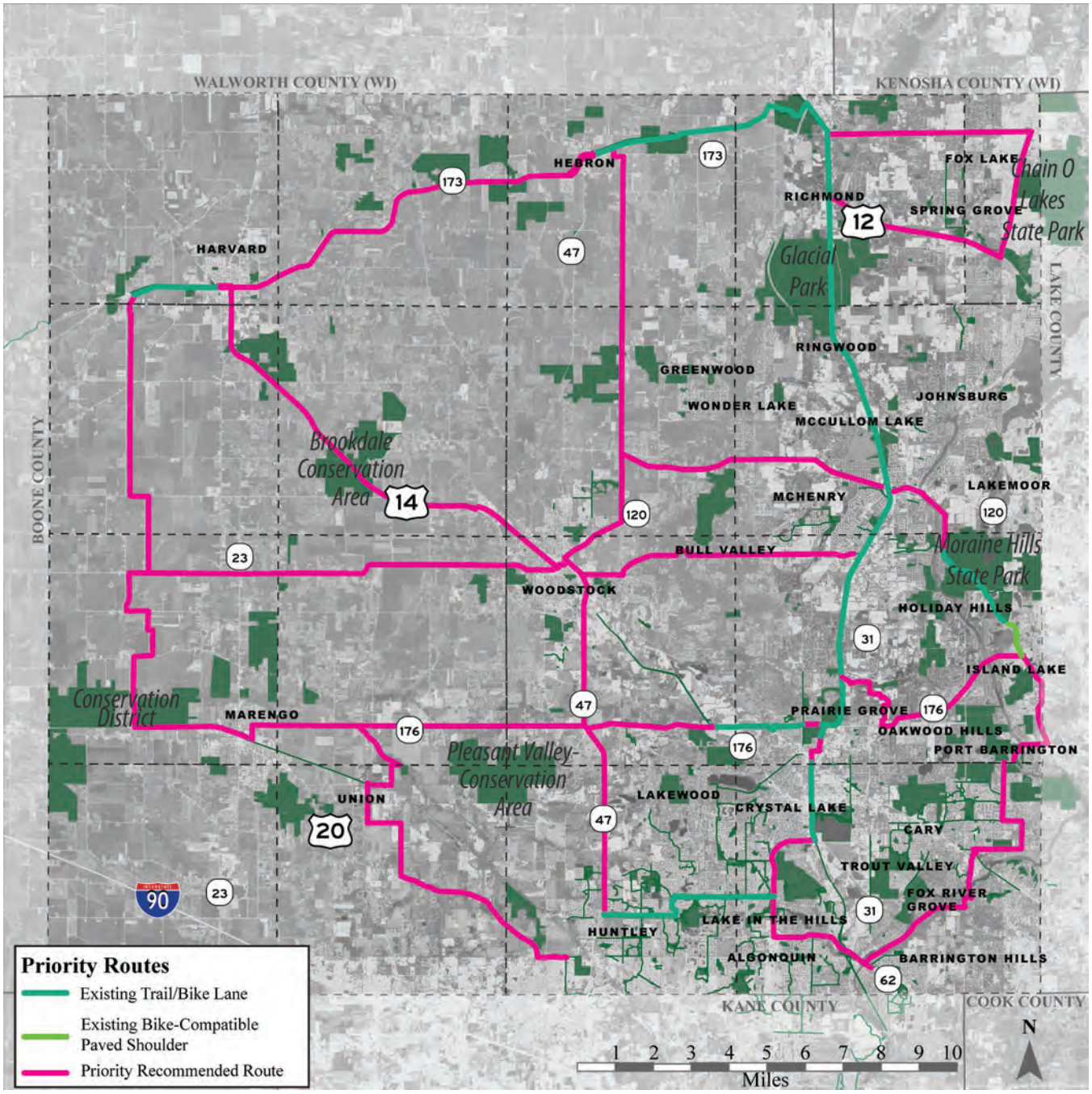
8.0 NEXT STEPS



Outer Loop and Inner Loops

Inner Loops (Plus Outer Loop)

Building off of the Outer Loop, the Inner loops provide shorter circuits around the County, adding connections between Woodstock and the larger Primary Loop along IL 47 and county roadways. As the county seat and identified equity area, Woodstock presents a vibrant downtown atmosphere, providing an important place for transportation connections to all corners of McHenry County. The facilities added by these inner loops provide an additional 56 miles of bike facilities, entirely along recommended routes, with connections to the existing Prairie Trail and Hebron Trail.

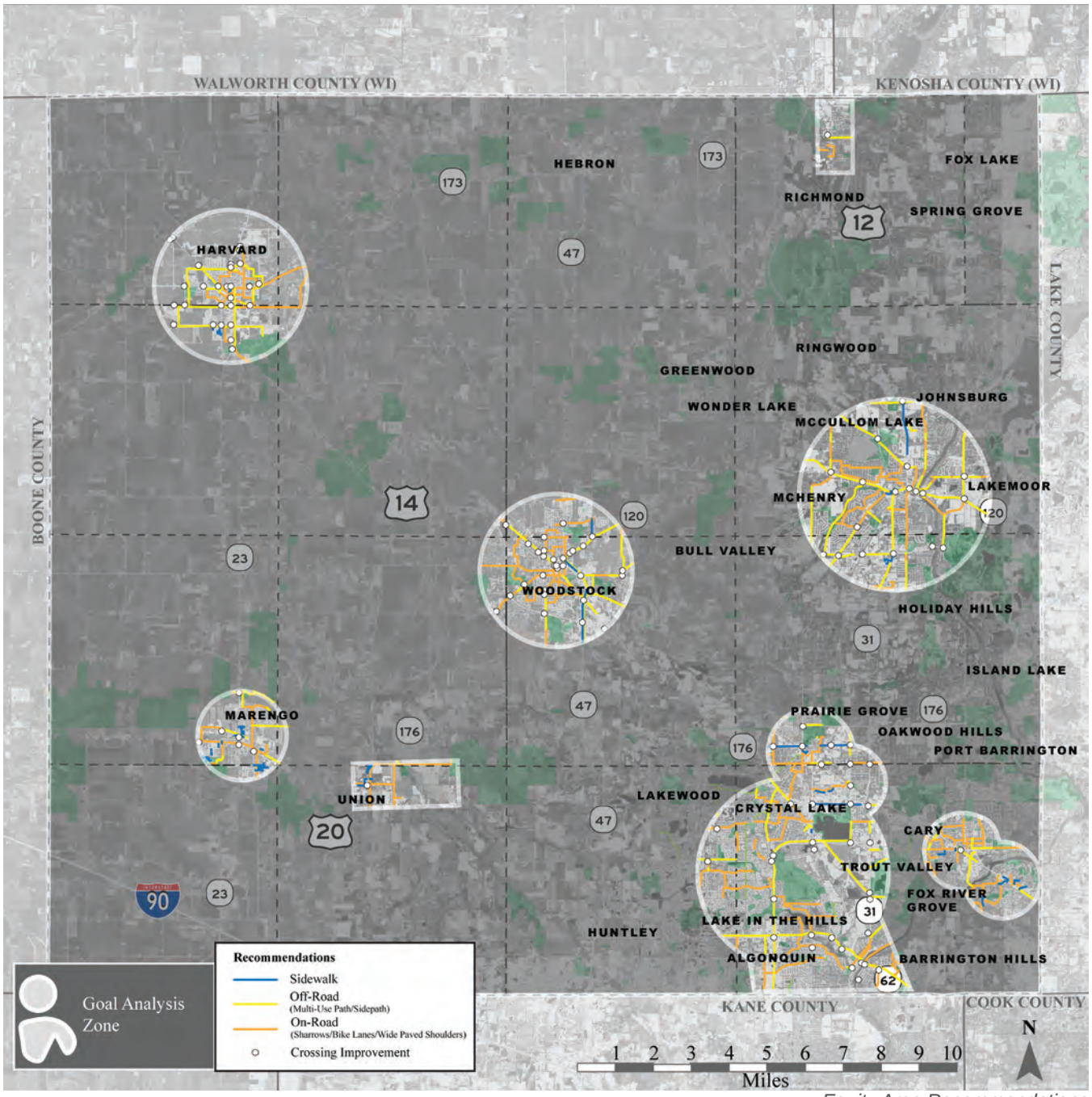


Outer Loops, Inner Loops and Connections

Prioirity Loop Network (Outer & Inner Loops and Additional Connections)

Building off of the Outer and Inner Loops, the additional connections shown above add connections to the identified equity areas of Union and Cary/Fox River Grove, as well as providing more direct connections between Harvard and Woodstock along U.S. 14, Woodstock and McHenry along IL 120, Union and the eastern part of the County, Moraine Hills State Park with the southeast communities of Algonquin, Fox River Grove, Lake in the Hills and Barrrington Hills, and to Chain O Lakes State Park along U.S. 12. These recommended facilities add 64 miles to the County's robust biking network.

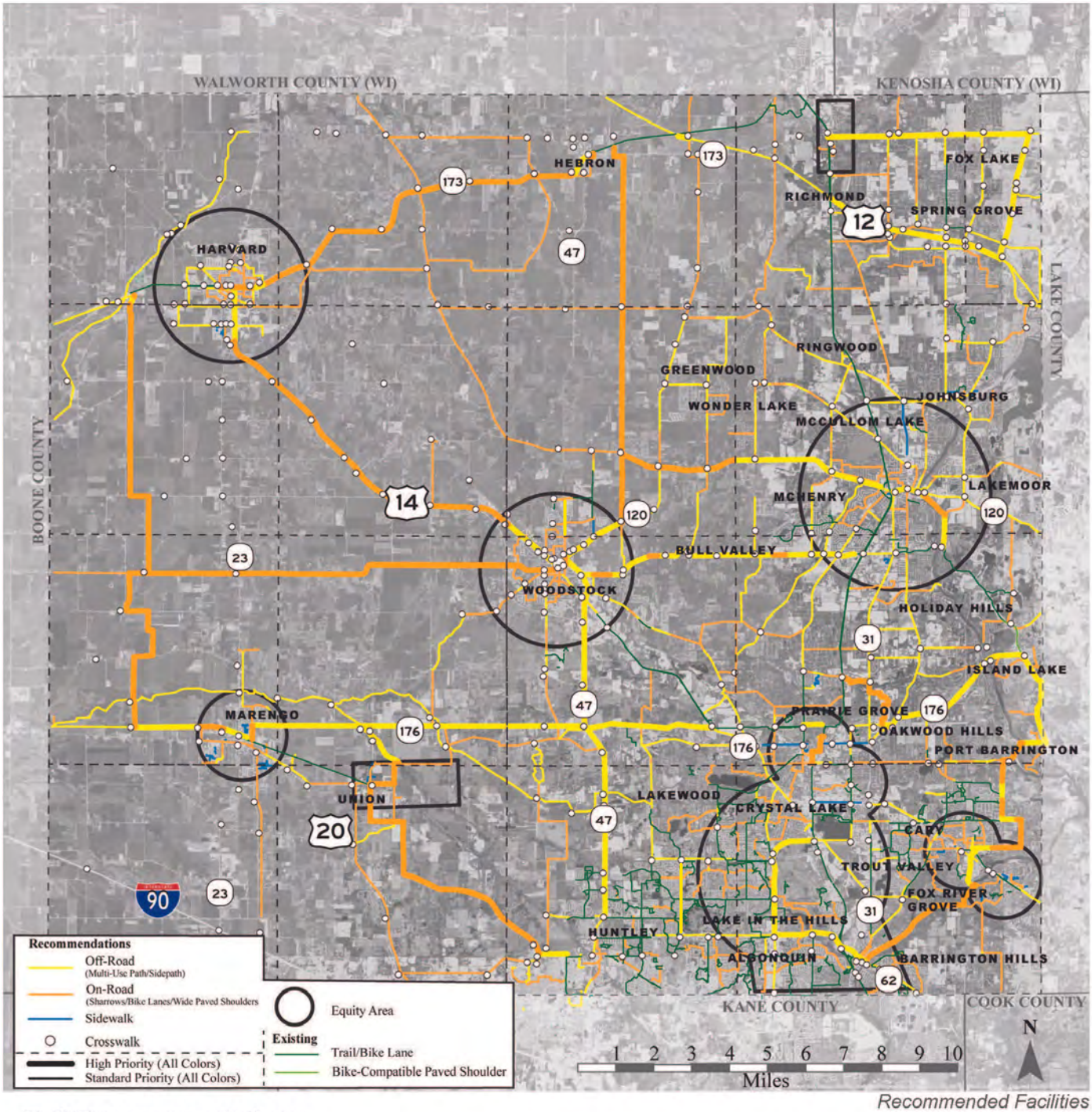
8.0 NEXT STEPS



Equity Area Recommendations

Equity Area Recommendations

In addition to the recommended bike facilities identified as part of regional loops, facilities located in equity areas are highlighted in the above map due to their greater ability to connect underserved communities as well as the potentially unique funding opportunities available to them. These equity areas tend to be in more densely populated and older communities with lower incomes and rely more on public transit. These communities also tend to be further from the County's several large recreational areas. Prioritizing biking and walking facilities in these areas promotes these communities as destinations and serves as a stepping stone in changing the auto-dominant culture by further enriching more walkable communities.



Recommended Facilities

Full Recommendations

The above map shows all recommendations as part of the McHenry County Connection, highlighting equity areas and other priority routes. The plan includes on-road and off-road recommended facilities aimed at providing the most appropriate type of facility for a roadway based on traffic conditions, demand, right-of-way and local land uses. The network of bike facility recommendations are complemented by sidewalk and crosswalk recommendations which further enhance the ability for people to utilize active transportation in the County. These infrastructure, and other policy recommendations in this plan represent a step forward to improving biking and walking throughout McHenry County.

FOR ADDITIONAL INFORMATION
PLEASE CONTACT:

McHenry County Council of Mayors
16111 Nelson Road
Woodstock, IL 60098
815-334-4624
planningliaison@mchenrycountyil.gov

Appendices

THE MCHENRY COUNTY CONNECTION

A PEDESTRIAN BICYCLE AND TRAILS MASTER PLAN

PREPARED BY:

wsp

PREPARED FOR:
McHenry County
Council of Mayors

Appendix A: Engagement

Appendix B: Framework Maps

Appendix C: Ongoing and Future IDOT Projects

Appendix A: Engagement

Appendix B: Framework Maps

Appendix C: Ongoing and Future IDOT Projects

Contract	Route	Extents	Type	Cost (M)	Multi Use Path	On Road	Crossing	Sidewalk
MYP Structure FY 2023-2027	IL 47	at IL 176 and Pleasant Valley Rd	Reconstruction-Bridges	35	x		x	
	IL 173	at N Branch Nippersink E of Hunt Club Rd	Initial Construction-Bridges	0.38	x			
MYP Spot FY 2023-2027	IL 173	Alden Rd to Greenwood Rd	Rehabilitation-Pavement	5		x	x	
	IL 173	Greenwood Rd to Lake County line	Rehabilitation-Pavement	5.3	x	x	x	
	IL 47	N of IL 120 to U.S. 14	Initial Construction	3.6	x		x	x
	IL 31	S of IL 120 to N of IL 176 & Drainage Ditch 4 Mi S of U.S. 12	Initial Construction	4	x		x	
	US 14	Spring Beach Way to Lake County Line	Rehabilitation-Pavement	2.28	x			
MYP Roadway FY 2022	IL 47	Ware Rd to S of IL 173	Preservation-Pavements	1.98			x	
	IL 31	Diamonds Dr to McCullom Lake Rd	Preservation-Pavements	1.2				x
	US 14	W of Hartland Rd to E of IL 47	Preservation-Pavements	3.33		x	x	
	US 14	Crystal Lake Ave to Teckler Blvd	Preservation-Pavements	1.72	x		x	
	US 14	E of Teckler Rd to Pingree Rd	Preservation-Pavements	1.3			x	x
	US 20	McHenry County Line to I-90	Preservation-Pavements	0.35				

Contract	Route	Extents	Type	Cost (M)	Multi Use Path	On Road	Crossing	Sidewalk
MYP Roadway FY 2023-2027	US 14	N of Oak Grove Rd to Crowley Rd	Preservation-Pavements	1			x	
	US 20	Page St to Locust Rd	Rehabilitation-Pavement	0.23		x	x	
	IL 173	Alden Rd to Greenwood Rd	Rehabilitation-Pavement	5				
	IL 173	Greenwood Rd to Lake County line	Rehabilitation-Pavement	5.3				
	IL 47	S of Thayer Rd to Charles Rd	Preservation-Pavements	2.5			x	
	IL 47	N of IL 120 to U.S. 14	Initial Construction	23.2	x		x	x
	IL 31	S of IL 120 to N of IL 176 & Drainage Ditch 4 Mi S of U.S. 12	Reconstruction-Pavement	31.4	x		x	
	IL 31	S of IL 120 to N of IL 176 & Drainage Ditch 4 Mi S of U.S. 12	Initial Construction	43.9	x		x	
Annual Bridge Improvement	Oakwood Dr	at Boone Creek	Reconstruction-Bridges	0.55	x			
	IL 47	at Kishwaukee River	Reconstruction-Bridges	7.1	x		x	
	Millstream Rd	at Kishwaukee River and S Branch Kishwaukee River	Reconstruction-Bridges	2.3	x		x	
Annual Engineering	S Madison St	at South St and Lake St	Reconstruction-Pavement	0.1	x	x		
	Hunter Rd	at Little Beaver Creek	Reconstruction-Bridges	0.1				
	Millstream Rd	at Kishwaukee River and S Branch Kishwaukee River	Reconstruction-Bridges	0.10	x		x	

Contract	Route	Extents	Type	Cost (M)	Multi Use Path	On Road	Crossing	Sidewalk
Annual Engineering	Johnson Rd	at Nippersink Creek	Reconstruction-Bridges	0.24		x		
	White Oaks Rd	at W Branch Piscasaw Creek	Reconstruction-Bridges	0.12				
	Melody Ln	at Silver Creek W of IL 47	Reconstruction-Bridges	0.12				
	Oakwood Dr	at Boone Creek	Reconstruction-Bridges	0.04				
	IL 31	S of IL 120 to N of IL 176 & Drainage Ditch 4 Mi S of U.S. 12	Initial Construction-Pavements	5.8	x		x	
	IL 47	at Kishwaukee River	Reconstruction-Bridges	0.45	x		x	
	IL 47	N of IL 120 to US 14	Initial Construction-Pavements	1.03	x		x	x
Annual Construction	S Madison St	at South St and Lake St	Reconstruction-Pavement	2.52	x	x		
	Main St	IL 176 to Union Pacific Railroad	Reconstruction-Pavement	2.73		x		
	IL 176	at Nish Rd	Miscellaneous Improvements	1.72	x		x	
Annual Land Acquisition	IL 31	S of IL 120 to N of IL 176 & Drainage Ditch 4 Mi S of U.S. 12	Initial Construction-Pavements	8	x		x	
	IL 176	at Buhl Rd and at Bay View Beach Rd	Miscellaneous Improvements	0.7	x			
FTR Bridge Improvement	IL 62	at Fox River	Preservation-Bridges	1.52	x		x	
FTR Engineering	IL 47	N of IL 120 to US 14	Initial Construction-Pavements	2.9	x		x	x
	IL 47	S of IL 176 to Reed Rd	Initial Construction-Pavements	0.2	x		x	

Contract	Route	Extents	Type	Cost (M)	Multi Use Path	On Road	Crossing	Sidewalk
FTR Engineering	IL 47	US 14 to S of IL 176	Initial Construction-Pavements	0.38	x		x	x
	US 20	at Marengo-Beck Rd/S Union Rd	Miscellaneous Improvements	2.13		x		
	US 20	at W Union Rd and at Coral Rd	Miscellaneous Improvements	0.41	x	x	x	
	US 14	over ditch S of Oak Grove Rd	Maintenance-Bridges	0.2			x	
	US 14	W Lake Shore Dr to Crystal Lake Ave and at Ridgefield Rd	Initial Construction-Pavements	1.32	x			
	IL 47	Reed Rd to Kreutzer Rd	Initial Construction-Pavements	0.38	x		x	
	IL 31	at IL 176 and Pleasant Valley Rd	Miscellaneous Improvements	0.06	x		x	x
	IL 173	at Wilmot Rd	Miscellaneous Improvements	0.09	x		x	
	US 20	North of W Union Rd to S of Marengo-Beck Rd	Rehabilitation-Pavement	0.97	x	x	x	
	US 20	at Marengo-Beck Rd/S Union Rd	Miscellaneous Improvements	3.24	x	x	x	
	IL 120	IL 47 at Martin Rd	Preservation-Pavements	3.57	x	x	x	
	IL 47	State Line Rd to IL 173	Rehabilitation-Pavement	1.27			x	
	IL 176	at Hagus Rd/Mt Tabor Rd	Miscellaneous Improvements	3.5	x			
	IL 176	at Hagus Rd/Mt Tabor Rd	Miscellaneous Improvements	0.04	x			

Contract	Route	Extents	Type	Cost (M)	Multi Use Path	On Road	Crossing	Sidewalk
FTR Construction	US 20	at W Union Rd and at Coral Rd	Miscellaneous Improvements	1.8	x	x	x	
	US 20	at W Union Rd and at Coral Rd	Miscellaneous Improvements	0.5	x	x	x	
	US 12	IL 173 to Tryon Grove Rd	Rehabilitation-Pavement	1.49			x	
	IL 31	Shamrock Ln to N of Edgewood Rd	Preservation-Pavements	1.06	x			
	US 14	at IL 31	Miscellaneous Improvements	0.79	x		x	
	IL 31	N of US 14 to James R. Rakow Rd	Rehabilitation-Pavement	0.85	x		x	
FTR Land Acquisition	IL 176	at Nish Rd	Miscellaneous Improvements	1.08	x		x	
	IL 47	At Kishwaukee River	Reconstruction-Bridges	0.66	x		x	
	US 20	at Creek 0.4 mi W of Beck Rd	Miscellaneous Improvements	0.2				
	US 20	at Marengo-Beck Rd/S Union Rd	Miscellaneous Improvements	0.9		x		
	IL 176	Ditch 1.1 mi W of IL 47 and drainage ditch 8.6 mi E of IL 23	Miscellaneous Improvements	0.08	x			
	US 20	at W Union Rd and at Coral Rd	Miscellaneous Improvements	0.17	x	x	x	
	IL 176	Deerpass Rd to Dean St	Miscellaneous Improvements	0.38	x		x	
	IL 47	IL 176 at Pleasant Valley Rd	Miscellaneous Improvements	3.5	x			
	IL 47	N of IL 120 to US 14	Initial Construction-Pavements	9.6	x		x	x