

TOWN OF

LEDGEVIEW



BICYCLE & PEDESTRIAN MASTER PLAN

BROWN COUNTY, WISCONSIN

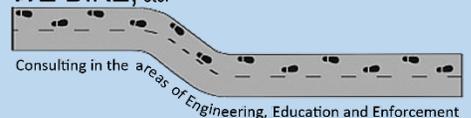
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Goals and Objectives

Goal #1 Develop a well-connected bicycle and pedestrian system that allows users of all ages and abilities to travel to a variety of destinations in the Town and adjacent communities.

Goal #2 Design roads to be pedestrian and bicycle friendly and compatible with adjacent land uses.

Objectives

- a. To determine appropriate bicycle accommodations for Town and County streets and roads based on motor vehicle speeds and volume, urban/rural design, and potential bicycle use.
- b. To provide consistent accommodations by using uniform bicycle facility design standards.
- c. To provide a safe, continuous and, accessible sidewalk network throughout the Town.

Goal #3 Work to maintain the low number of motor vehicle-bicycle and motor vehicle-pedestrian crashes and further, strive to eliminate all crashes.

Objectives

- a. To report and track motor vehicle-bicycle and motor vehicle-pedestrian crashes in the Town of Ledgerview.
- b. To reduce the leading causes of bicycle and pedestrian crashes.
- c. To track rural to urban change and identify countermeasures to improve safety and minimize/eliminate common crash types.

Goal #4 Provide education, enforcement, encouragement, and evaluation programs to support engineering improvements.

Objectives

- a. To provide educational opportunities to professionals, elected and appointed officials about the rights and responsibilities of all road users.
- b. To provide educational opportunities to educate all road users about their rights and responsibilities on roadways and shared-use facilities.
- c. To promote active transportation, healthy life styles, and create advocates.
- d. To increase the safety of transportation facilities by identifying and implementing key enforcement strategies.
- e. To evaluate educational programs and activities and monitor outcomes to determine if goals were met.

Goal #5 Enhance intergovernmental cooperation and coordination to improve multimodal transportation.

Objectives

- a. To work jointly with Brown County and neighboring jurisdictions in planning, funding, and designing, sidewalks, trails, and on-street bicycle facilities.
- b. To increase political buy-in by engaging elected and appointed officials and residents in the development and utilization of bicycle and pedestrian facilities.

Goal #6 Enhance the livability of Ledgeview by improving quality-of-life issues related to transportation throughout the Town by a variety of users.

Objectives

- a. To highlight the natural and scenic beauty of Ledgeview through appropriate placement and development of walking and bicycling facilities.
- b. To enhance neighborhood connectivity through a network of pedestrian and bicycle facilities.

Goal #7 Increase the numbers of people who walk or ride a bicycle for recreation, to work or school, for shopping and utilitarian trips.

Objectives

- a. To work with national, state and local bicycle and pedestrian organizations, local certified instructors, or other groups to increase bicycle education.
- b. To implement Bicycle Loops.
- c. To encourage provision of ample secure bicycle parking by following Town ordinances.
- d. To improve walking conditions in the Town by striping crosswalks, installing crosswalk signals, and slowing traffic.
- e. To improve bicycling conditions in the Town by creating bicycle loops, bicycle routes, and appropriate on-street bicycle facilities.
- f. To engage community members through walking and bicycling events and activities, incentives, and educational opportunities for bicyclists and pedestrians.



Chapter 1

Introduction

The Town of Ledgeview is located in Northeastern Wisconsin in the middle of Brown County, and on the southeastern fringe of the Green Bay metropolitan area. It is a fast-growing and affluent community with a developing urban area to the west and a mostly rural area to the east. A dominant environmental feature of the Town is the Niagara escarpment, a limestone ridge which runs roughly north and south through the middle of the Town. Locally this feature is known as the “Ledge.”

Bicycling is very popular in the Town of Ledgeview due to its mostly low-trafficked roads, scenic beauty, and topography. Residents have expressed a strong desire to maintain, and improve, the bike-ability of the Town. The Town’s Comprehensive Plan, Park and Recreation Plan, and “Ledgeview Loops” survey all reflect this. The Town Board, Park, Recreation, and Forestry Committee and staff support the needs of bicyclists.

The ability of people to walk is supported by the Town as well. As the community urbanizes and traffic volumes increase, the Town recognizes the need to create safe and enjoyable places for people to walk. Sidewalks and shared-use paths are a priority. This is reflected in the Town's sidewalk ordinance.

This Plan provides the opportunity to improve conditions for walkers and bicyclists in the Town now and into the future. It also creates the opportunity to look at all aspects of the Town through pedestrian and bicyclist eyes, a perspective which helps to protect and serve the most vulnerable among us and create a stronger community as a whole. There is a wealth of information available about accommodating bicyclists and pedestrians safely and enjoyably. This Plan will tie that information together with the needs of the community.

The Plan moves through a series of chapters intended to give Town staff, decision makers, and advocates the background information and recommendations needed to develop a well-connected bicycle and pedestrian system that allows users of all ages and abilities to travel to a variety of destinations in the Town and adjacent communities.

This is the Town's first bicycle and pedestrian plan.



Chapter 2

The Importance of Bicycling and Walking

History

Walking and bicycling have been an integral part of life in the Town of Ledgeview since long before automobiles came to town. People have always walked for transportation and recreation and the introduction of bicycles created the ability to travel farther and faster with far less effort.

In the age of automobiles, many people have become less dependent on walking and bicycling for transportation. Still, roughly one third of the population of most communities cannot drive, either because they are too young or are disabled in some manner. These people must rely on walking, bicycling, transit, or others for their transportation needs.

Walking and bicycling are among the most popular recreational activities nationwide.

All people benefit from the ability to walk and bicycle safely and enjoyably. Current and projected conditions in the Town suggest the need to accommodate pedestrians and bicyclist is high and will continue to grow in the future.

The *Town of Ledgeview Comprehensive Plan 2035* paints a picture of a fast-growing community that is young, well educated, and prosperous. These conditions strongly suggest the need to increase accommodations for walkers and bicyclists within the Town, and to connect to adjacent communities and facilities like the East River Trail and the Fox River State Recreational Trail.

Population

The population of the Town has grown significantly over the past four decades, from 1,568 in 1990 to 7,431 in 2015, a 570 percent increase. This is the fastest growth rate among surrounding communities. Population projections suggest a 79 percent growth rate through 2035. ⁽¹⁾

This rapid population growth has increased the number of people moving throughout the community and will continue to do so into the future. Historically, the Town's roadway system has been the only way to move within the community and was designed specifically to support low volumes of motor vehicle traffic. Bicyclists and, to a lesser extent, pedestrians did fine on these roads with little traffic, but the increases in traffic that have inevitably come with the increasing population have made roads less and less suitable for walkers and bicyclists. This is particularly true on the higher speed county roads.

Increased population densities call for additional and improved pedestrian and bicycle accommodations as more walkers and bicyclist move into the Town, and more people look to walking and bicycling for a variety of reasons. Improving conditions for pedestrians and bicyclists will improve conditions for all roadway users by relieving pressure on a strained transportation system, decreasing conflicts, and improving flexibility, sustainability and transportation diversity.

Home Value

Owner-occupied units in the Town of Ledgeview have a median value of \$258,800. Compared to most surrounding municipalities, this is well above the average and \$100,000 more than the median value in Brown County. ⁽²⁾

People who purchase higher value homes often have a strong interest in walking and bicycling within their community. There is antidotal evidence that some people are moving to Ledgeview specifically because of the bicycling opportunities.

Age

The Town has the lowest median age (33.2) of surrounding communities and Brown County. ⁽³⁾

Not surprisingly, younger people tend to bicycle at higher rates than older people. The relatively young age of Ledgeview residents would suggest they will bicycle at higher rates than communities with older residents. While it is likely that, over time, the population of Ledgeview will become older, this does not mean there will be less need for bicycling facilities. Nationwide, studies have shown that people are bicycling at increasing rates in their later years.⁽⁴⁾

Education

As compared to surrounding communities, the Town has the highest percentages of residents with a high school diploma (95 percent) and a college degree (40 percent).⁽⁵⁾

People with graduate or professional degrees tend to bicycle at higher rates than people with, or without, high school degrees.⁽⁶⁾

Income

The median household income (\$77,033) for the Town is among the highest in the immediate area and the per capita income is the highest.⁽⁷⁾

In general, poorer households are more likely to bicycle for transportation, while the richest households are most likely to bike for recreation.⁽⁸⁾

The Benefits of Walking and Bicycling

The benefits of walking and bicycling are tremendous. There are as many reasons for walking and bicycling as there are people who do these activities. However, there are a few generally stated reasons which are useful to know when considering why and where people walk and bike.

Recreation

Walking and bicycling are fun and to many, sports. They can be done by almost anyone and there is a great deal of variety available. Walking, running, jogging, trail running, for example, and all kinds of bicycling are consistently ranked among the most popular recreational activities in the United States.

Fitness

Americans are becoming increasingly aware of the benefits of exercise and being physically fit. Both walking and bicycling are life-long, low-impact forms of exercise that can be done at a wide range of fitness levels.

Transportation

Walking is the most basic and bicycling is the most efficient form of human transportation. They are inexpensive and convenient for many people. The National Bicycling and Walking

study estimated that almost 80 percent of all daily trips are ten miles or less in length, well within biking distance for most people. ⁽⁹⁾

People going to work, school, and a wide variety of other locations use walking and bicycling every day. Although, walking or bicycling to work for Ledgeview residents may prove to be challenging. According to the US Census estimates, residents of Ledgeview experience a mean travel time of 18.9 minutes to work. This is based on a five-year estimate (2013-2017) developed using data collected through the American Community Survey (ACS). ⁽¹⁰⁾

Environment

With the exception of the manufacturing and disposal processes, walking and bicycling are totally non-polluting. These activities have been identified as ways to protect the environment.

Knowing where people walk and bicycle and where they prefer to do these activities is also important. This allows us to monitor current activities and to predict future trends.

Who is a pedestrian?

“A *pedestrian* is any person walking, standing or in a wheelchair. Wisconsin State Statute 340.01 (43) defines *pedestrian* as “... any person afoot or any person in a wheelchair, either manually or mechanically propelled, or other low-powered, mechanically propelled vehicle designed specifically for use by a physically disabled person...” Everyone is a pedestrian at some point in his or her trip, whether it is from the doorstep to public transportation, or from the parking lot to an office building, or for an entire trip.



Most pedestrians are able to use different forms of transportation such as automobiles or bicycles. However, other pedestrians may have no other transportation options except to walk or to use public transit. Examples include people who use wheelchairs and other people with disabilities, the elderly

and children. For those pedestrians, providing and maintaining facilities for access to destinations is critical to daily life.”⁽¹¹⁾

Types of Walkers

There are basically two types of pedestrians: 1) those who can walk, and 2) those with limitations which make walking difficult or impossible. Best practice is to accommodate the least capable walkers in a community, this will insure the ability to walk for all.

Who is a bicyclist?

A bicyclist is someone who rides a bicycle. According to Wisconsin State Statute 340.01 (5) “Bicycle” means every vehicle propelled by feet or hands acting upon pedals or cranks and having wheels any 2 of which are not less than 14 inches in diameter.”

Bicycles and bicyclist come in all shapes and sizes. Bicycles may be ridden on roads, recreational trails or off-road. Bicyclists are the young, the old, able-bodied or disabled persons.

Types of Bicyclists

There are many models for identifying the different types of bicyclists. However, they are commonly based on a bicyclist’s riding ability and their level of comfort riding in traffic. The types of bicyclists can generally be split into three broad categories:

1. **Advanced or experienced adults** who are capable of operating under most traffic conditions;
2. **Casual or novice adults and teenagers** who are less confident in their ability to operate in traffic on arterial and collector streets without provisions for bicyclists; and
3. **Children**, who, because they are not mature mentally or physically, are not capable of bicycling safely without adult supervision.

Best practice is to accommodate the least capable bicyclists in a community, this will ensure the ability to bicycle for all.

-
1. *Town of Ledgeview Comprehensive Plan 2015*, Table 2 Population Trends, Table 3 Population Projections.
 2. *Town of Ledgeview Comprehensive Plan 2015*, p. 14.
 3. *Town of Ledgeview Comprehensive Plan 2015*, Table 7 Age, Gender and Race Characteristics.
 4. People for Bikes - <https://peopleforbikes.org/blog/bike-use-is-rising-among-the-young-but-it-is-skyrocketing-among-the-old/>. Accessed May 28, 2018.

5. *Town of Ledgeview Comprehensive Plan 2015*, Table 10 Educational Attainment.
6. League of American Bicyclists - <https://bikeleague.org/content/new-census-data-bike-commuting>. Accessed May 29, 2018.
7. *Town of Ledgeview Comprehensive Plan 2015*, Table 11, Income Comparison.
8. *National Bicycling and Walking Study: Ten Year Status Report*, Federal Highway Administration. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/resources/study/index_10yr.cfm. Written in 2004. Accessed June 11, 2018
9. *National Bicycling and Walking Study: Ten Year Status Report*, Federal Highway Administration. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/resources/study/index_10yr.cfm. Written in 2004. Accessed June 11, 2018
10. U.S. Department of Commerce, United States Census Bureau - <https://www.census.gov/quickfacts/fact/table/ledgeviewtownbrowncountywisconsin,greenbaycitywisconsin/PST045217>. Accessed December 15, 2018.
11. *Wisconsin Pedestrian Policy Plan 2020*, Wisconsin Department of Transportation. <http://wisconsin.dot.gov/Documents/projects/multimodal/ped/2020-plan.pdf>. Written March 2002. Accessed June 4, 2018.



Chapter 3

Bicycle & Pedestrian Facility Planning

Design guidance

Nationally, there are several references available for pedestrian and bicycle facility designers. The American Association of State Highway and Transportation Officials (AASHTO) publishes the *Guide for the Planning, Design, and Operation of Pedestrian Facilities* and the *Guide for the Development of Bicycle Facilities*. These guides provide information on the development of facilities to enhance and encourage safe pedestrian and bicycle travel. The *Manual for Uniform Traffic Control Devices (MUTCD)*, put out by the U.S. Department of Transportation-Federal Highway Administration, is the standard for highway signs and control devices (including pedestrians and bicycles) in the United States. The *Americans with Disabilities Act Accessibility Guidelines (ADAAG)* provides guidance for accessibility. The Federal Highway Administration encourages use of the *Residential Street Design and Traffic Control* manual, available from the Institute of Transportation Engineers, to help meet the aims of the 2010 US DOT

Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations - "...DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate."

In Wisconsin, the *Wisconsin Pedestrian Policy Plan 2020* and the *Wisconsin Bicycle Transportation Plan 2020* are the long-range plans, based on the 3E's (Engineering, Education, and Enforcement), which provide strategies for safe and efficient pedestrian and bicycle travel. The *Wisconsin Bicycle Planning Guidance* is a step-by-step guide to creating bicycle plans for metropolitan (and larger) areas. To better address the needs of rural bicycling, the Wisconsin Department of Transportation has created the *Wisconsin Rural Planning Guide*. The *Wisconsin Guide to Pedestrian Best Practices* provides detailed design, planning, and programming information for improving all aspects of the pedestrian environment. The *Wisconsin Bicycle Facility Design Handbook* provides detailed guidance for the development of bicycle facilities. The *Facilities Development Manual* is a refinement of the AASHTO guidelines and provides guidelines and standards for the development of pedestrian and bicycle facilities specific to Wisconsin as well. Together, these state and national references form the foundation planners and engineers use to plan, design, and engineer for motorized, and non-motorized travelers.

Locally, the *Brown County Bicycle and Pedestrian Plan Update* (2016) recommends best practices for accommodating pedestrians and bicyclists in the county and its 24 municipalities. The plan also provides information specific to the Town of Ledgeview including public comments, recommended bicycle and pedestrian facilities, bicycle network inventory, and pedestrian gap analysis.

According to the AASHTO *Guide for the Development of Bicycle Facilities*, "Planners and engineers must recognize that their choice of facility design will affect the level of use, the types of user that can be expected to use any given road, and the level of access and mobility that is afforded bicyclists (and pedestrians). For example, a four-lane divided highway with 12-foot travel lanes, no shoulder and 55 mph speed limit will attract only the most confident of riders (or those without other transportation choices). The same road with a 5-foot shoulder or bike lanes might provide sufficient 'comfortable operating space' for many more adult riders but would still not be comfortable for children or less confident adults. This latter group might only be accommodated through an alternative route using neighborhood streets linked by short sections of shared use path. If such an alternative route is provided and a four-lane road has a continuous paved shoulder [or bike lane], most experienced and many casual adult riders will continue to use the shoulder [or bike lane] for the sake of speed and convenience. (Pedestrians are more comfortable using streets with sidewalks. Without sidewalks, many people will simply not see walking as an option.)"

Further, from AASHTO, "Facilities for bicyclists (and pedestrians) should also be planned to provide continuity and consistency for all users. Children using a path to get to school should not have to cross a major arterial without some intersection controls, and shoulders and bike lanes should not end abruptly and unannounced at a difficult intersection or busy stretch of highway."

Pedestrian Infrastructure

According to the *Wisconsin Pedestrian Policy Plan 2020*, “No specific definition for pedestrian facilities exists within Wisconsin Statutes. However, for purposes of this plan, pedestrian facilities are defined as the physical infrastructure that allows for or promotes walking and other forms of pedestrian movement (such as wheelchairs) as a form of travel.”

Pedestrian facilities allow for easier and potentially safer movement by foot or wheelchair through a community. Most facilities below are provided with a CRF (Crash Reduction Factor) which is the percentage crash reduction that might be expected after implementing a given countermeasure. CRFs are derived from the evaluation of multiple studies on pedestrian safety by the Federal Highway Administration. ⁽¹⁾ The CRF is listed after each applicable pedestrian facility type below.

Pedestrian Facility Types

Facilities separated from motor vehicle traffic (sidewalks, walkways, multiuse paths, overpasses and underpasses) are the preferred accommodations for pedestrians. Walkers are safer, and feel more comfortable, on facilities that are separated from the road by either distance (e.g. a grass median) or by some sort of barrier, primarily because of the speed differential between pedestrians and motorists.

Sidewalk (CRF = 88%):

A paved pathway paralleling a highway, road, or street intended for pedestrians. (AASHTO)



Shared Use Path:

A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. (AASHTO)



Paved shoulders (CRF = 71%):

The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface course. (AASHTO) When paved, shoulders provide improved safety for pedestrians on roads without sidewalks.



Refuge islands (CRF = 56%):

A pedestrian refuge, or pedestrian island, is a small section of pavement or sidewalk where pedestrians can stop before completing a road crossing.



Raised medians (CRF = 25-46%):

Raised medians are a safe refuge, elevated above the surrounding roadway, that allows pedestrians to cross only one direction of traffic at a time.

Curb cuts and ramps:

A combined ramp and landing to accomplish a change in level at a curb. This element provides street and sidewalk access to pedestrians using wheelchairs. (AASHTO)



Curb extension/Bulb-out

A section of sidewalk extending into the roadway at an intersection or midblock crossing that reduces the crossing width for pedestrians and may reduce traffic speeds. (AASHTO)



Curb Extension



Bulb Out

Overpasses/Underpasses (CRF = 13-90%):

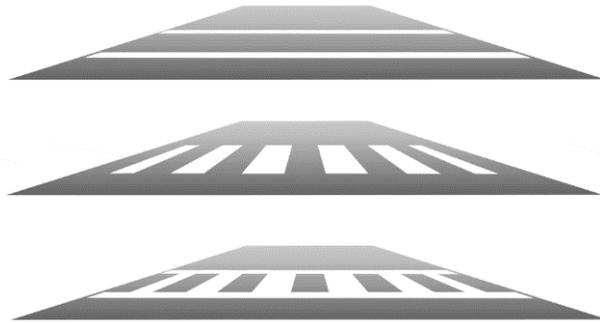
Separated facility to allow pedestrians and bicyclists to go over or under barriers.



Crosswalks:

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

Types (Standard, Continental, Ladder)



Bicycle Infrastructure

Bicyclists may be accommodated in many different ways; therefore, it is important to place the right facility in the proper place.

There are three major factors that affect the suitability of a given road segment for bicycling. They are **traffic volume**, **roadway width**, and **speed**. In general, the greater the traffic volume and heavier (trucks) the less suitable a road is for bicycling. A narrow road with no bicycle facility can be difficult for bicyclists to use. As motor vehicle speeds increase (especially over 25 mph) the suitability of a road decreases. While all three factors are independent, positively modifying one or two of the factors to accommodate bicycling may make a road more suitable for bicycling overall.



Bicycle Facility Types

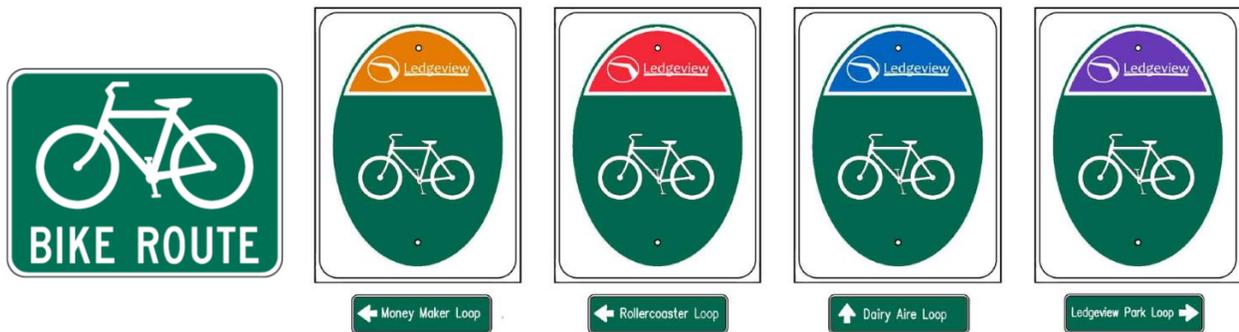
There are four basic types of bicycle facilities. The latter three are considered “bikeways” because they are actually designed with markings and/or signs as bicycle facilities:

Shared Roadway:

A roadway which is open to both bicycle and motor vehicle travel. This may be an existing roadway, street with a wide curb lane, or road with paved shoulders. (AASHTO)

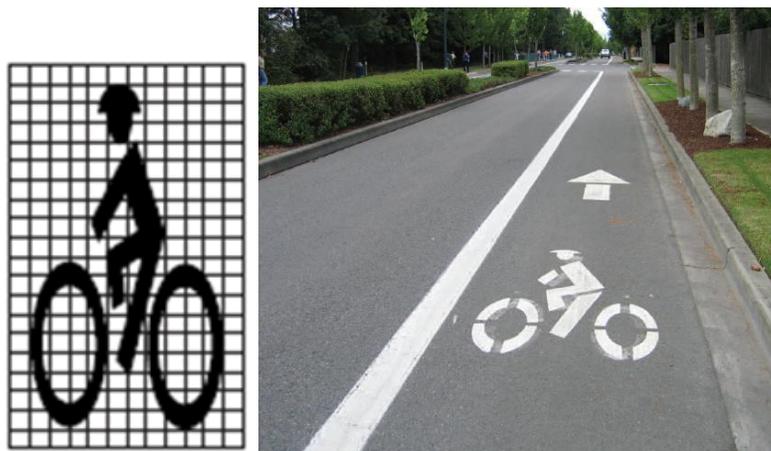
Signed Shared Roadway:

A shared roadway (Bike Route) which has been designated as a preferred route for bicycle use. (AASHTO)



Bicycle Lane/Bike Lane:

A portion of the roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.



Shared Use Path:

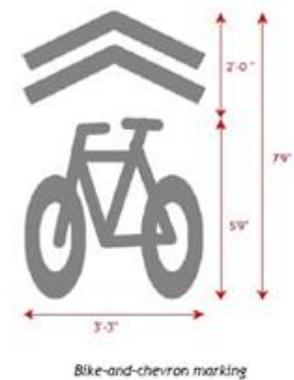
A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users (AASHTO). Shared use Path along Monroe Road in image below.



Other Bicycle Facilities

Shared Lane Marking (“Sharrow”):

Roadway markings intended to assist bicyclists and motorists sharing narrow roads without bicycle lanes.



Wide Curb Lane:

A lane of travel that is used for both motor vehicle and bicycle travel. The lane should be a minimum of 14 ft wide.

Paved Shoulder:

The portion of the road contiguous with the travel lanes for use by stopped vehicles, for emergency use and for lateral support of sub-base, base and surface course. (AASHTO) When paved, shoulders provide more operating space for bikes and improved safety.

Buffered or Separated Bike Lanes:

Bicycle lanes with an additional painted barrier to provide more separation.



Cycle Track:

A bicycle facility totally separated from motor vehicles and sidewalks. Landscaped areas, parked cars, bollards, curbs, etc. can be used as barriers.



Colored Bike Lanes:

The use of colored bicycle lanes attempts to “highlight” the potential areas of conflict between cyclists and drivers and warn both that the potential for conflict is approaching.



The *Brown County Bicycle and Pedestrian Plan Update* (2016) recommends, “When planning and designing bicycle facilities in Wisconsin it is recommended that the State of Wisconsin’s FDM be referenced first for bicycle facility design considerations. If a topic is not covered in the FDM, the AASHTO Guide for the Development of Bicycle Facilities should be referenced next. In the rare occasion that a topic is not included in either of the previously mentioned resources, the Wisconsin Bicycle Facility Design Handbook should be referenced.”

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1. *Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes*, Federal Highway Administration. https://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_tctpepc/ Accessed June 10, 2018.

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Chapter 4

Existing Conditions

Infrastructure (Engineering)

Many different road types presently serve the Town of Ledgeview including one interstate highway, one federal highway, two state highways, seven county trunk highways, and numerous town roads. These roads and highways are the primary means of transportation through the community and must serve all modes of transportation.

The interstate, federal and some sections of state highways are restricted, prohibiting bicycle and pedestrian travel. Limited and challenging crossing opportunities also create a barrier for bicyclists and pedestrians making it more difficult for them to reach their destination. The seven county trunk highways G, GV, MM, PP, R, V, and X serve as arterials in the Town. These roads are intended to serve all modes of transportation, providing service to all areas of the community. Unfortunately, with increased motor vehicle traffic and limited bicycle and pedestrian facilities it has become more difficult for motorists, bicyclists and pedestrians to share these roads. Collector roads include Bower Creek

Road, Glenmore Road, Swan Road, Ledgeview Road, Scray Hill Road, and Sportsman Drive. These roads serve as conduits from neighborhoods to arterials and serve all modes of transportation. With lower volumes of traffic, all users are able to share these roads even though most do not have specific bicycle and pedestrian facilities. However, this is becoming a challenge as development and motor vehicle traffic volumes increase. Local roads have less traffic volume and lower speed and are typically used for shorter trips.

Sidewalks and multi-use trails are located sporadically throughout the Town. Although, since 2006 the Town has required all urban cross section streets that provide primary access to lots that are served by public sewer and water to have sidewalks (5ft wide) on both sides. Town ordinance also requires sidewalks to be cleared of snow within 24 hours of snowfall.

Providing for bicycle circulation is important to the community and Town ordinances specifically address this in 96.9(l):

“Bicycle circulation. Bicycle circulation shall be accommodated on streets and/or on dedicated bicycle paths. Where feasible, any existing bicycle routes through the site shall be preserved and enhanced. Facilities for bicycle travel may include off-street bicycle paths (generally shared with pedestrians and other nonmotorized users), shared on-street driving/bicycle lanes, and striped bicycle lanes on streets. Designated lane signs shall be placed beside the road where bicycle lanes are present, and "bike lane" shall be painted within the lanes to ensure that people understand the lanes are to be used only by bicyclists. The Town of Ledgeview Comprehensive Plan and the most recent version of the Brown County Bicycle and Pedestrian Plan shall be consulted for guidance.”



Example local road typical section with shared use path and on-street bicycle lanes. Image: Mead & Hunt, Inc.

Local roads have a typical cross-section of 37 ft, curb face to curb face (depending on parking restrictions) with sidewalks on both sides. Driving lanes widths vary from 9–16 ft. Curb radii is 100 ft. Collector roads have a typically cross-section of 31-36 ft, curb face to curb face with sidewalks on both sides. Driving lane widths vary from 9–11 ft with parking allowed on both sides. Curb radii is 200 ft. Arterial roads have a typical cross-section of 36 ft, curb face to curb face with sidewalks on both sides.

Drive lane widths vary from 12-14 ft with limited on-street parking. Curb radii is 300 ft. Installation of mountable curbs has been the Town's current practice.



Example typical section with shared use path, on-street bicycle lanes and a vehicular parking lane.

Image: Mead & Hunt, Inc.

Non-Infrastructure (Education and Enforcement)

The built environment (engineering) is only one component of developing a safe and efficient transportation system. The other two key components are education and enforcement.

The Town currently provides few bicycle and pedestrian educational materials or activities for residents. Although, the Town has set up a Bicycle and Pedestrian Committee which when implemented will be tasked with advocating for non-motorized transportation. They will also be instrumental in the distribution of informational, educational and promotional materials for bicyclists, pedestrians and motorists. This group will be a subcommittee of the Park and Recreation Committee and can bring recommendations to the Committee for capital and operating budget needs to identify bicycle and pedestrian programs and facilities.

The Brown County Sheriff's Department provides law enforcement service to Ledgeview. Most law enforcement officers have never received any training specific to bicycle and pedestrian safety. This is true for Brown County Deputies as well. Law enforcement officers are the only ones who can enforce laws to make it safer for people to walk and bicycle in the community. The public also see law enforcement officers as traffic safety experts and view them as bicycle and pedestrian educators as well.

The Town Board, and Park and Recreation Committee are committed to providing bicycle and pedestrian education and this plan will help them to do that.

Public Input

A key aspect of understanding existing conditions is public input. Two recent surveys provided the Town with input from the public on bicycling and walking in the community. The Ledgeview Loops survey was available in January of 2018 and the survey for the Brown County Bicycle and Pedestrian Plan was completed in March of 2016. These surveys provided citizen concerns, likes and dislikes, and specific comments on bicycling and pedestrian conditions in the Town.

The “Ledgeview Loops” Survey was distributed through both traditional and social media. There were 503 responses to the survey, which greatly exceeded the expectations of the Consultant and staff. The twenty-seven-question survey was designed to gather information about area bicyclists, potential bicyclists and information specific to possible loops. Information was also received specific to this plan.

Bicyclists who currently ride in the Town are using the County roads extensively and riding for recreation and or fitness. These roads are popular with bicyclists because of the low traffic volumes, scenery and hills. However, respondents also relayed they are starting to experience higher traffic volumes and increased speed on the County roads. The lack of bicycle facilities on these roads is becoming an issue for even the most experienced bicyclists. Non-bicyclists responded they would like to see bicycle loops placed on County roads.

Both bicyclists and non-bicyclists would like more bicycle facilities (bike lanes, paths, etc.) available in Ledgeview. Non-bicyclists would consider bicycling if there were better bicycle facilities and connections to parks/trails and other neighborhoods. (See Appendix A, Ledgeview Loops Survey Results - Partial Summary)

The Brown County Bicycle and Pedestrian Plan Update survey instruments included both an online survey and online GIS map to solicit public input. The online map allowed participants to comment on specific locations or concerns pertaining to bicycle and pedestrian conditions. The comments received specific to Ledgeview included the desire to extend the East River Trail to the Fox River Trail and bicycle lanes or another bicycle facility on county roads. (See Appendix B, Public Comments within the Town of Ledgeview – figure 12)

Bicycle and Pedestrian Facilities

The Town of Ledgeview has the following bicycle and pedestrian facilities:

- **Monroe Road** - Bicycle Lane from the municipal boundary to Heritage Road
 - Approximately 2 miles within the Town. Continues north in Bellevue.
- **Dickinson Road** - Bicycle Lane from Monroe Road to municipal boundary
 - Approximately 1 mile
- **S. Broadway*** – Bicycle Lane from O’Keefe Road to Viking Lane
 - Approximately 1 mile

- **Dickinson Road*** – Bicycle Lane from municipal boundary to Libal Street
 - Approximately 0.5 mile
- **Miscellaneous Multi Use Trails**
 - East River Trail (De Pere Boundary to Ledgeview Park Winding Waters Way)
 - Monroe Road (CTH GV)
 - Angel’s Path to CTH GV Trail
 - Ledgeview Park Trail
 - Meadow Sound Drive to Euro Lane Trail
 - Approximately 0.5 miles

**Shared with the City of De Pere*

Existing Plans

Many existing plans and policy documents were reviewed for the development of the Ledgeview Bicycle and Pedestrian Plan. The following summaries are the most relevant of these documents and identify issues that may affect or provide guidance for the implementation of this plan’s recommendations.

Connections 2030 Statewide Long-Range Transportation Plan (2009)

Connections 2030 is the long-range transportation plan for the state of Wisconsin. The plan addresses highways, local roads, air, water, rail, bicycle, pedestrian, and transit over a 20-year planning period. Connections 2030 policy among many other recommendations supports a multimodal approach to transportation. Plans affecting Ledgeview include:

Mid-Term (2014 – 2019)

Prepare corridor plan for STH 32/57 from STH 96 to Pershing Rd (De Pere). Support the bicycle/pedestrian connection of the East River Trail with the Fox River State Trail, and with US 141 (Green Bay). Support implementation of the Eastern Arterial Study results if supported by environmental document. Support implementation of Southern Bridge Arterial Study results if supported by environmental document.

Long-Term (2020 – 2030)

Support proposed park and ride construction near the intersection of I-43 and County Rd MM (Brown Co) if supported by environmental document.

Wisconsin Bicycle Transportation Plan 2020 (1998)

The role of this plan is to ensure an interconnected transportation system across government boundaries and highway jurisdictions that can work safely for bicyclists. While there are no recommendations specific to the Town, the plan shows existing state trails and future “priority corridors and key linkages” for bicycling along the State Trunk Highway system in Wisconsin.

Wisconsin Pedestrian Plan Policy 2020 (2002)

The plan outlines statewide and local measures to increase walking and to promote pedestrian safety. The plan establishes state goals and objectives and identifies action steps for WisDOT to take toward achieving these goals and objectives. There are no Ledgeview-specific recommendations in this plan.

2035 Long-Range Transportation Plan for the Green Bay Metropolitan Area (2010)

This plan serves as a guide and vision for the transportation network in the Green Bay urbanized area. One transportation project recommendation in the plan is located within the Town of Ledgeview. The recommendation identified is an extension of the East River Trail through the Town to connect to the Fox River Trail.

Southern Bridge Analysis (2001)

The Town, County, and municipalities adjacent to the future southern bridge project corridor continue planning and development in anticipation of the project. A portion of CTH GV was reconstructed in 2015, the project included bicycle and pedestrian facilities. This corridor is planned to eventually be a major arterial through the Town, connecting the west side of the Fox River to Ledgeview.

Brown County Comprehensive Plan (2007, 2019 update ongoing)

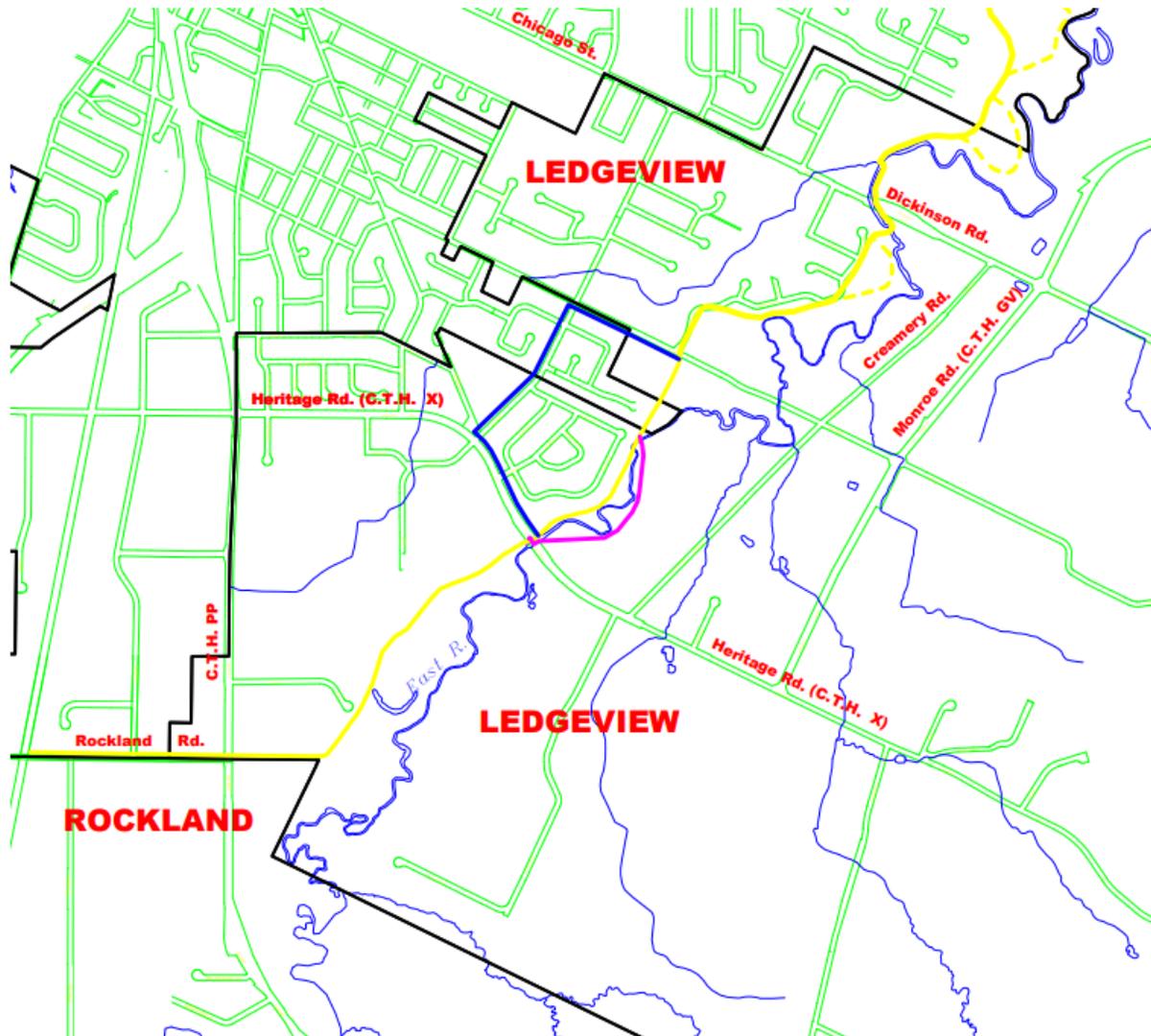
The 2007 plan indicates that it is important to continue to develop bicycle and pedestrian trails throughout the County to create a continuous system that connects the County internally and to surrounding counties. The plan specifically recommends the extension of the East River Trail through the Town of Ledgeview to connect to the Fox River Trail on the north or south side of Rockland Road. Further, the plan recommends trails be developed along rail rights-of-way as they are proposed for abandonment, such as on the Town's east side. The County is currently in the process of updating its Comprehensive Plan and it's important that these bicycle and pedestrian recommendations remain interests of the County. Additionally, the extension of CTH GV as a Southern Bridge Crossing of the Fox River should be coordinated with the county to allow for bicycle and pedestrian accommodation.

Brown County Open Space and Outdoor Recreation Plan (2017)

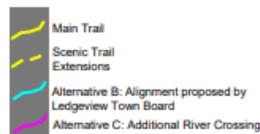
The plan was updated in 2017. It includes the desire to preserve, while providing access to the Niagara Escarpment with a trail through Ledgeview connecting adjacent communities and trails. Fonferék's Glen Conservancy Area is located in Ledgeview and provides residents with a geological gem to explore. The park has no direct access by bicycle or pedestrian facilities at this time.

Brown County Bicycle and Pedestrian Plan Update (2016)

This plan provides information specific to the Town of Ledgeview including public comments, recommended bicycle and pedestrian facilities, bicycle network inventory and pedestrian gap analysis. The pedestrian gaps include Dickinson Road (Angels Path to Chase Avenue), Heritage Road (County PP to Swan Road), County PP (Heritage Road to Rockland), Jordon Road (O’Keefe Road to Heritage Road), and Rockland Road (County PP to Enterprise Drive).



MAP 1
EAST RIVER TRAIL EXTENSION PLAN
Recommended Trail Alignment



Map Drawn by Brown County Planning Department
I:\deptdata\planning\county\gis_proj\county\eastrivertrailplan.apr
May, 2000

Map 1 from the East River Trail Extension Plan (2000) shows the potential connections that could be made throughout the County and beyond along the Fox River State Trail.

City of De Pere Comprehensive Plan (2010)

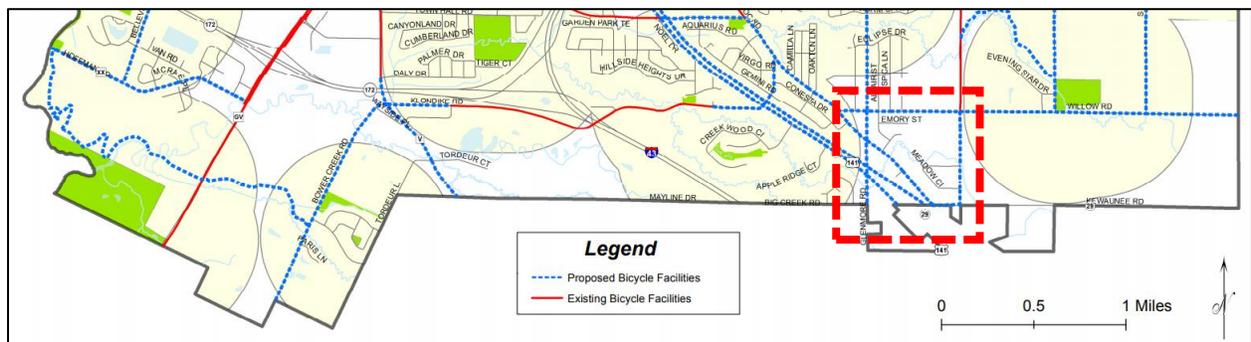
The plan specifically mentions working with the Town of Ledgeview on an expansion of the East River Trail, a multiuse trail spanning multiple communities. Chapter 10 of the Comprehensive Plan serves as the De Pere Bicycle and Pedestrian Plan. It identifies existing and recommended facilities in the City. These recommendations should be taken into account in the Ledgeview plan to provide a safe transportation network for pedestrians and bicyclists.

City of De Pere Bicycle and Pedestrian Plan (2010)

The plan (Chapter 10 of De Pere Comprehensive Plan) includes multiple recommended bicycle and pedestrian facilities near the Ledgeview/De Pere border. These recommendations should be taken into account in the Ledgeview plan to provide a safe transportation network for pedestrians and bicyclists.

Village of Bellevue Bicycle and Pedestrian Plan (2017)

The plan includes multiple recommended bicycle and pedestrian facilities near the Ledgeview/Bellevue border. These included sidewalks and bicycle facilities on Bower Creek Road, County Road V (Lime Kiln Road), Hwy 29/141, Manitowoc Road, Glenmore Road and Elmview Road. These recommendations should be taken into account in the Ledgeview plan to provide a safe transportation network for pedestrians and bicyclists.



Snip from Village of Bellevue Existing and Proposed Bicycle Facilities Map showing future connections into the Town of Ledgeview. Projects planned within 2-5 years are on Manitowoc Road, WIS 29 and S. Huron Road on the east side of the Village (red dashed box).

Village of Bellevue Comprehensive Plan (2012)

The plan provides some general discussion on bicycle and pedestrian facilities and the importance of incorporating bicyclists and pedestrians in the transportation system. There are no recommendations that affect Ledgeview, although the plan directs readers to the Village of Bellevue Bicycle and Pedestrian Plan for specific bicycle and pedestrian recommendations.

Town of Ledgeview Park and Recreation Plan (2019 Update)

This plan will help the Town of Ledgeview meet the parks and recreation demands of a growing community. It also provides long-range recommendations to guide future development. Bicycle and pedestrian facilities are also addressed in the plan. Recommendations for multi-use trails, paths, bicycle routes and on-street bicycle facilities are included.

Bicycle and Pedestrian Crash History

The Town does not currently have a significantly demonstrable bicycle and pedestrian safety problem. A review of Wisconsin Department of Transportation motor vehicle crash data was conducted for Town roads for the years 2012-2016. The data shows there were no pedestrian crashes and two bicycle crashes reported with motor vehicles during that time. One crash occurred in October 2013 and the other in September 2016. Both crashes took place at the intersection of Dickinson Road (CTH G) and Red Bird Circle and involved juvenile male bicyclists. In both cases the bicyclist was riding on the sidewalk against the flow of traffic in the adjacent roadway. Both bicyclists suffered minor injuries.

However, despite a lack of supporting crash data, Ledgeview Loops survey respondents still reported feeling unsafe on some roads within the Town, particularly narrow, high-speed County Roads such as G, V, and X.

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Chapter 5

General Recommendations

How our communities develop is the result of the choices we make, both in terms of how we plan for the future and how we react to conditions outside of our control. The goal of this plan is to help the Town of Ledgeview develop as a safe and enjoyable community for everyone. The following general recommendations will help improve the transportation system for pedestrians and bicyclists.

Community Sensitive Design

The design of each transportation project should take into consideration the needs of the community, including the needs of pedestrians and bicyclists. No two projects are the same.

Recommendation:

Use Community Sensitive Design Principals on all projects:

1.5 Principles of Community Sensitive Design

Project development is successful when it leads to lasting public works projects that fit the community and environmental context through which they pass. The following principles are the cornerstone of WisDOT's project development philosophy.

1. Involve customers and stakeholders early and continuously.
2. Use an interdisciplinary project development approach.
3. Emphasize good project management.
4. Be sensitive to environmental issues.
5. Provide an aesthetically pleasing quality product.
6. Provide safe and efficient facilities.
7. Deliver quality projects on time and within budget.

(<https://wisconsin.gov/rdwy/fdm/fd-11-03.pdf>)

Speed Limits

Minimal increases in motor vehicle speeds dramatically decrease pedestrian and bicyclist safety.



As motor vehicle speeds increase, the risk of serious injury or fatality for a pedestrian also increases (AARP Impact Speed and a Pedestrian's Risk of Severe Injury or Death 2011, p. 1). Also, motorist visual field and peripheral vision is reduced at higher speeds.

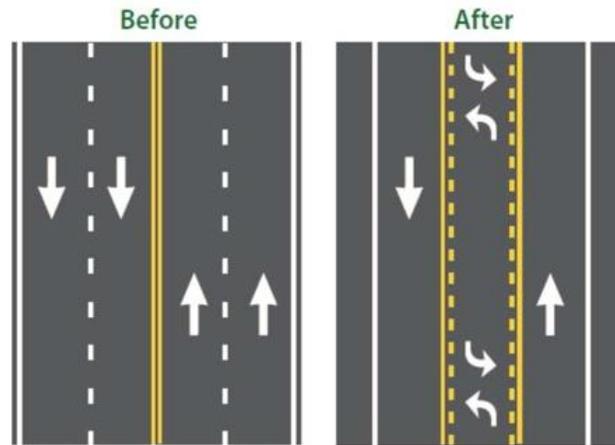
(https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/fhwahep16055.pdf) (2018)

Recommendation:

Speed limits should be set as low as possible with an eye toward the safety of the Town's most vulnerable users of the transportation system, pedestrians and bicyclists, particularly the young, elderly, and disabled.

Street widths

The number of lanes a street has, and the width of these lanes is directly related to pedestrian and bicycle safety. For example, decreasing the number of road lanes from four to three has been shown to decrease crashes by 29 percent (4-3 lane CMF 0.71 = 29 percent reduction in all crashes)⁽¹⁾.



Recommendation:

Build roads with the fewest and narrowest lanes possible.

Paved shoulders

When paved, shoulders provide operating space for bicyclists outside of the normal travel way. Paving shoulders also provides pedestrians with somewhere to walk and has been shown to reduce pedestrian walk-along-roadway crashes by 71 percent (CMF .29 = 71 percent reduction in pedestrian crashes).⁽²⁾ Further, paved shoulders provide motor vehicle safety benefits such as decreasing run-off-roadway crashes, decreased maintenance costs, and providing space for traffic stops and disabled vehicles.

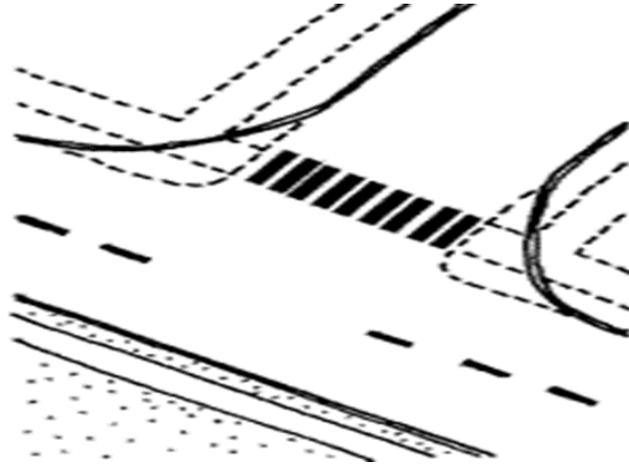


Recommendation:

Pave 5-foot shoulders on recommended roads.

Curb radii

The radius of a curb affects the speed at which a vehicle can negotiate the corner and the amount of time it takes for pedestrians and bicyclists to cross the road at the intersection. Both vehicle speed and crossing distance affect pedestrian and bicycle safety.



Recommendation:
Build roads with the smallest curb radii possible.

Lighting

It is difficult for road users to interact safely if they cannot see one another.

Recommendation:
Provide appropriate lighting where necessary.



Shared use Paths

Shared use paths are preferred facilities for many pedestrians and bicyclists because of their separation from motor vehicle traffic and perceived safety. However, path design has a lot to do with actual safety. While paths virtually eliminate crashes with motor vehicles between roadway intersections, path/roadway intersections can be very dangerous, even more dangerous for some users than on-road facilities.

Paved trail surfaces allow for a wider variety of path users but may not be possible in some locations due to environmental constraints.



Recommendation:

Place paths where they provide pedestrians and bicyclists with preferred access over motor vehicle travelers and where cross traffic is kept to a minimum. At path/roadway intersections pay particular attention to the safety needs of pedestrians and bicyclists. The Sidepath Suitability Form (Village of North Aurora, IL Non-Motorized Transportation Plan, <http://rideillinois.org/blos/sidepathform.htm>) can be of assistance in determining the appropriate location of paths.

Urban vs Rural design

It is important to accommodate pedestrians and bicyclists in both the urban and rural parts of the Town. Non-motorized travelers have the same basic needs for mobility and access as motor vehicle drivers in both environments. However, how best to accommodate these needs change. Pedestrians and bicyclists in rural areas must typically travel longer distances to reach their destinations. There is usually less traffic yet, the roads being traveled are mostly narrow, high speed, and lack pedestrian and bicycle accommodations. Paving 5 ft shoulders on primary rural roads is usually sufficient to accommodate the needs of these users.

In urban areas, pedestrians and bicyclists have more reasons for walking, and bicycling and there are more facilities for them. But they have higher traffic volumes to contend with and the pedestrian and bicycle network is often incomplete. Pedestrians and bicyclists in the urban environment benefit most from a continuous network of sidewalks, bicycle lanes and shared-use paths.

Recommendation:

Plan to accommodate the needs of pedestrians and bicyclists as parts of the Town transition from rural to urban.

Bicycle parking

The presence of appropriate bicycle parking facilities provides bicyclists with somewhere safe and secure to park their bicycles and may encourage more bicycling. Town ordinances, specifically, Chapter 135 Zoning addresses Bicycle parking (135.205 (b) (4)). The Zoning code also provides Table 1 - *Minimum and Maximum Parking Ratios*, which provides parking requirements for all development types.

The *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works (2015)*, provides a brief overview of Association of Pedestrian and Bicycle Professional's comprehensive *Bicycle Parking Guidelines*. This free guide covers the following topics: site planning for short- and long-term parking, bicycle rack selection, placement, spacing, and installation. Although, the more comprehensive *Bicycle Parking Guidelines* is the appropriate document for adoption by local agencies as official bicycle parking policy. www.apbp.org/page/Publications

Recommendation:

Follow the recommendations of the Association of Pedestrian and Bicycle Professional's comprehensive *Bicycle Parking Guidelines*.

-
1. *Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes*, Federal Highway Administration.
<http://www.pedbikeinfo.org/cms/downloads/pedToolboxofCountermeasures2013.pdf>
Accessed September 5, 2018
 2. *Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes*, Federal Highway Administration.
<http://www.pedbikeinfo.org/cms/downloads/pedToolboxofCountermeasures2013.pdf>
Accessed September 5, 2018



Chapter 6

Bicycle and Pedestrian Facility Recommendations

Factors used to make specific facility recommendations

There are a wide range of ways in which pedestrians and bicyclists may be accommodated. On the low end of the range, non-motorized travelers can be required to share space with motor-vehicles on existing roadways. At the high end of the range, pedestrians and bicyclists may be provided facilities completely separated from motor-vehicle traffic (e.g. shared-use paths, protected bicycle lanes, overpasses, and underpasses). In general, most pedestrians and bicyclists prefer facilities separated from motor-vehicles. However, due to cost, environmental, and even safety considerations, this may not always be possible, or advisable. Choices about how to accommodate pedestrians and bicyclists always need to be made.

Factors taken into consideration when recommending pedestrian and bicycle facilities included:

General

- Crash history
- Speed
- Traffic volume
- Number of travel lanes
- Origins and destinations
- Connectivity and wayfinding
- Ledgeview and other communities' plans
- Needs and abilities of bicyclists and walkers

Pedestrian

- Presence of sidewalks or shared-use paths

Bicyclist

- Outside lane width
- Connectivity to bicycle network (1/2-mile spacing)

Pedestrian recommendations

- Install sidewalks per subdivision ordinance
- Complete sidewalk network, fill in missing links
- Pave 5-foot shoulders on rural collector and arterial roads
- Add sidewalks to collector and arterial streets when urbanized
- Look for opportunities to install shared-use paths

Bicycle recommendations:

- Install 5-foot bicycle lanes on arterial, and some collector, roads to establish a ½-mile grid pattern
- Install 5-foot bicycle lanes on narrow and low-speed residential streets only for purposes of connectivity to other bicycle facilities

The Wisconsin Department of Transportation's Facilities Development Manual provides some guidance on when to consider installing on-road bicycle accommodations based on Average Daily Traffic (ADT) counts and other considerations.

Urban areas:

“Bikeways are generally needed on highways with design year ADT \geq 1,500 within an “Urban Areas” or “Semi Urban District”.

Rural areas:

It may not be necessary to provide additional roadway improvements in an outlying district or rural area if the highway that is the subject of the modernization project has, or upon completion will have, less than 750 ADT and any of the following applies:

- a. The average bicycle traffic volume on the highway is or is expected to be less than 25 per day during the 10 most traveled days for bicycling of the year.
- b. The highway is not identified in part of a government bike transportation plan, in the Wisconsin Bicycle Transportation Plan or in any other bicycle plan endorsed by or supported by WisDOT.
- c. The highway does not provide a connection of one mile or less between any existing or planned bike routes, as defined in State Statute 340.01 (5m), Stats.
- d. The highway is not a short connection of one mile or less needed to connect an existing bikeway to the nearest local road.

Consider a bikeway on a highway with a design year ADT<750 if, based on an official land use plan, there will be significant development within the outlying district within the next 10 years, and establishing a bikeway will do any of the following:

- Complete a gap of one mile or less in an otherwise continuous bike route.
- Make a connection of not more than 3 miles from communities or urban areas to a town or county roadway network, excluding any dead-end roadway.

Also, if land use is expected to change over the design life of a project such that a bikeway should be provided by the end of a project’s design life, then give greater weight to the land use projected for the second half of the design life than the first half. This does not mean including a bikeway as part of the project. It could mean designing the project to make it easier to install a bikeway in the future.”⁽¹⁾

Recommended High Priority Areas

In reviewing the high priority roads in the plan, it became apparent there are specific areas within the Town which contain a number of these roads. Therefore, high priority roads have been grouped into high priority areas, so they may be more efficiently addressed:

Winding Waters Way Area:

- Winding Waters Way
- Windy Acres Way
- Stone Silo Circle

Swan Road Area:

- Swan Road
- Ledgeview Road
- Lone Oak Road

Dollar Lane Area:

- Dollar Lane
- Dollar Road
- Euro Lane
- Half Crown Court
- Meadow Ridge Drive

East River Drive Area:

- East River Drive

O’Keefe Road Area:

- O’Keefe Road
- Jordon Road
- Weatherstone Trail
- Silverstone Trail

Scray Hill Road Area:

- Scray Hill Road

County Roads/State Highway:

- CTH G (Dickinson Road)
- CTH MM (Dutchman Road)
- CTH PP (Broadway)
- CTH R (Main Street)
- CTH V (Lime Kiln Road)
- CTH X (Heritage Road)
- WIS 32/57 (Greenleaf Road)

-
1. *Facilities Development Manual, Chapter 11 Design, FDM 11-46 Bicycle and Pedestrian Accommodation Guidance, 1.3.1.4.2 Bikeways, Wisconsin Department of Transportation.*
<https://wisconsindot.gov/rdwy/fdm/fd-11-46.pdf#fd11-46> Accessed December 6, 2018, p.14.

Bicycle and Pedestrian Recommendation Table

	A	B	C	D	E	F	G	H	I	J
1	PROJECT NAME	FROM STREET	TO STREET	LENGTH (MILES)	FACILITY RECOMMENDATION	PROJECT COST ESTIMATE	PRIMARY JURISDICTION	COMMENTS	PEDESTRIAN FACILITY PRIORITY	BICYCLE FACILITY PRIORITY
2	CTH G (Dickinson Road)	Red Bird Circle	Brule Road (De Pere)	N/A	None	N/A	Brown County	Bike lanes and sidewalks already exist in this section. (**, Priority Road, Pg. 89)	N/A	N/A
3	CTH G (Dickinson Road)	Brule Road (De Pere)	East River Road	0.27	Sidewalk north side only	\$44,630.04	Brown County	Support the City of De Pere in installing sidewalk in this section. (**, Priority Road, Pg. 89)	High	N/A
4	CTH G (Dickinson Road)	East River Road	CTH GV (Monroe Road)	0.62	Sidewalk north side only	\$103,914.72	Brown County	(**, Priority Road, Pg. 89)	High	N/A
5	CTH G (Dickinson Road)	CTH GV (Monroe Road)	CTH MM (Dutchman Road)	2.88	Bike lanes (\$25,546.75), sidewalks (\$964,694.02)	\$990,240.77	Brown County	5 foot paved shoulders marked as bike lanes. When urbanized add sidewalks. Existing pathway from Angels Path to CTH GV on north side of CTH G. (*, 5 foot paved shoulders, Pg. 148-149) (**, Priority Road, Pg. 87, 89)	High	High
6	CTH G (Dickinson Road)	CTH MM (Dutchman Road)	Pine Grove Road	0.63	Bike lanes (\$5,575.20), sidewalks (\$210,530.08)	\$216,105.28	Brown County	5 foot paved shoulders. When urbanized add bike lanes and sidewalks. (*, 5 foot paved shoulders, Pg. 148-149) (**, Priority Road, Pg. 89)	Medium	Medium
7	CTH GV (Monroe Road)	North Town border	CTH X (Heritage Road)	2.02	Multi-use path on east side	\$533,280.00	Brown County	All bike and pedestrian facilities should be extended to proposed southern bridge crossing.	Medium	Medium
8	CTH MM (Dutchman Road/Elmview Road)	CTH G (Dickinson Road)	I - 43	2.99	Bike lanes (\$26,522.50), sidewalks (\$1,001,539.97)	\$1,028,062.46	Brown County	5 foot paved shoulders marked as bike lanes. When urbanized add sidewalks. (*, 5 foot paved shoulders, Pg. 149-150)(**, Priority Road, Pg. 89)	High	High
9	CTH MM (Dutchman Road/Elmview Road)	I-43	North Town border	.26-0.55	Bike lanes (\$2,274.72 - \$4,927.42), sidewalks (\$85,897.76 - \$186,069.52)	\$88,172.48 - \$190,996.94	Brown County	When the road becomes urbanized, consider adding sidewalks. (*, 5 foot bike lane, Pg. 149-150) (**, Priority Road, Pg. 89)	High	High
10	CTH NN (Stagecoach Road)	CTH R (Main Street)	Pine Grove Road	0.95	Bike lanes (\$8,411.76), sidewalks (\$317,644.08)	\$326,055.84	Brown County	5 foot paved shoulders marked as bike lanes. When urbanized add sidewalks.	Medium	Medium
11	CTH PP (Broadway)	O'Keefe Road	South Town border	1.05	Sidewalk on west side	\$175,855.68	Brown County	Existing bike lanes and sidewalk on east side.	High	N/A
12	CTH R (Main Street)	WIS 29	East Town border	2.09	Bike lanes	\$18,539.14	Brown County	Add a 5 foot paved shoulder outside of existing shoulder and rumble strips, to be marked as a bike lane. Create gaps in rumble strips to allow bicyclists to enter and exit bike lanes.	High	High
13	CTH V (Lime Kiln Road)	North Town border	Scray Hill Road	2.23	Bike lanes (\$19,780.99), sidewalks (\$746,967.94)	\$766,748.93	Brown County	5 foot paved shoulders marked as bike lanes. When urbanized add sidewalks. (**, Priority Road, Pg. 89)	High	High
14	CTH X (Heritage Road)	WIS 32/57	CTH PP (Broadway)	0.6	Bike lanes (\$5,246.64), sidewalks (\$198,123.12)	\$203,369.76	Brown County	5 foot paved shoulders marked as bike lanes. When urbanized add sidewalks. (**, Priority Road, Pg. 89)	High	High
15	CTH X (Heritage Road)	CTH PP (Broadway)	Morrison Road	3.88	Bike lanes (\$34,417.15), sidewalks (\$1,299,657.22)	\$1,334,074.37	Brown County	5 foot paved shoulders marked as bike lanes. When urbanized add sidewalks. (**, Priority Road, Pg. 89)	High	High
16	WIS 32/57 (Greenleaf Road)	Roundabout	South Town border	0.71	Bike lanes (\$6,291.60), sidewalks (\$237,582.80)	\$243,874.40	State of Wisconsin	5 foot paved shoulders marked as bike lanes. When urbanized add sidewalks.	High	High
17	Arcadian Lane	Heritage Road	Swan Road	0.21	Sidewalks	\$71,877.52	Town of Ledgewiew		Medium	N/A
18	Agatha Christie Avenue	Reginald Hill	Oak Ridge Circle	0.33	Bike lanes (\$2,945.04), sidewalks (\$111,210.32)	\$114,155.36	Town of Ledgewiew	Connects to Scray Hill Road from Oak Ridge Circle to Oak Ridge Court.	High	High
19	Altmeyer Drive	Brayden Lane	Bingham Drive	0.24	Bike lanes (\$2,128.56), sidewalks(\$40,189.24) to complete west side	\$42,317.80	Town of Ledgewiew	Creates north/south connection to Angels Path and south to Oak Ridge Circle.	Medium	Medium
20	Angels Path	Chase Ave	CTH G (Dickinson Road)	0.33	Bike lanes (\$2,956.80), sidewalks (\$111,654.40)	\$114,611.20	Town of Ledgewiew	Complete sidewalks from CTH G to Kuyper Lane.	Medium	Medium
21	Beachmont Road	Meadow Sound Drive	Copper Lane	0.36	Bike lanes (\$3,235.68), sidewalks (\$122,185.44)	\$125,421.12	Town of Ledgewiew	Connects to Euro Lane from path, planned connection to Copper Lane.	Medium	Medium
22	Berkley Road	CTH GV	Reginald Hill	0.35	Bike lanes (\$3,096.24), sidewalks (\$116,919.92)	\$120,016.16	Town of Ledgewiew	Connects to Kafton Road on the west. Crosswalks on GV north and south of this intersection.	High	High
23	Big Creek Road	Cul-de-sac at I-43	Glenmore Road	0.61	Sidewalks	\$203,578.96	Town of Ledgewiew	Add sidewalks when urbanized.	Low	N/A
24	Bingham Drive	Altmeyer Drive	Chase Avenue	0.11	Bike Lanes	\$979.44	Town of Ledgewiew	Potential for pathway off west cul-de-sac, to connect to north-west corner of Angels Path.	N/A	Medium
25	Blue Stem Lane	Trellis Drive	CTH GV (Future Extension)	0.12	Sidewalks	\$39,650.36	Town of Ledgewiew	New subdivision.	High	N/A
26	Bower Creek Road	North Town border	CTH G (Dickinson Road)	0.9	Bike lanes (\$7,976.64), sidewalks (\$301,213.12)	\$309,189.76	Town of Ledgewiew	Bike facilities/sidewalks planned for Bellevue section of Bowers Creek Road, should continue in Ledgewiew. (**, Priority Road, Pg. 88) (***, Village of Bellevue Recommendation, Pg 52)	Medium	Medium
27	Brayden Lane	CTH GV (Monroe Road)	Bower Creek Road	0.8-0.12	Bike lanes (\$1,028.16 - \$7,047.60), sidewalks (\$38,825.28 - \$266,130.80)	\$39,853.44 - \$273,178.40	Town of Ledgewiew	Will connection to CTH GV which has bike lanes and a multi-use trail on west side. Also potential connection to Dallas Lane from Bower Creek Road.	Medium	Medium
28	Cal Lane	Big Creek Road	I-43	0.01	None	N/A	Town of Ledgewiew	Paper street	N/A	N/A

	A	B	C	D	E	F	G	H	I	J
1	PROJECT NAME	FROM STREET	TO STREET	LENGTH (MILES)	FACILITY RECOMMENDATION	PROJECT COST ESTIMATE	PRIMARY JURISDICTION	COMMENTS	PEDESTRIAN FACILITY PRIORITY	BICYCLE FACILITY PRIORITY
29	Chase Avenue	Bingham Drive	CTH G - Dickinson Road	0.27	Bike lanes (\$2,394.00), Complete sidewalks (\$90,402.00)	\$92,796.00	Town of Ledgeview		Medium	Medium
30	Camero Court	Shadow Lane	to south	0.36	None	N/A	Town of Ledgeview	Paper street	N/A	N/A
31	Copper Lane	Beachmont Road	Marble Rock Circle	0.97	Bike lanes (\$8,643.60), sidewalks (\$326,398.80)	\$335,042.40	Town of Ledgeview	Bike lanes and sidewalks added when urbanized. Connects Beachmont Road to Marble Rock Circle (private). Will connect to planned trail along waterway east of Marble Rock Circle to Fonferek's Glen.	Medium	Medium
32	Cottage Road	North Town border	Railroad	N/A	None	N/A	Town of Ledgeview		N/A	N/A
33	Cottonwood Lane	CTH X (Heritage Road)	Extended to Sportsman Drive	1.03	Bike lanes (\$9,136.51), sidewalks (\$345,012.10)	\$354,148.61	Town of Ledgeview	Future connection to Sportsman Drive at Carter Lane. Avoids CTH X.	Medium	Medium
34	Creamery Road	CTH G (Dickinson Road)	CTH X (Heritage Road)	1.26	Bike lanes (\$11,177.04), sidewalks (\$422,066.32)	\$433,243.36	Town of Ledgeview	(**, Priority Road, Pg. 87, 88)	Medium	Medium
35	Creekend Lane	Elmview Road	to east	0.24	None	N/A	Town of Ledgeview	Unimproved two-track.	N/A	N/A
36	Dallas Lane	Bower Creek Road	Approx. 2000 feet east to Dollar Road trail	0.54	Bike lanes(\$4,821.60), sidewalks (\$182,072.80)	\$186,894.40	Town of Ledgeview	Trail planned to connect to Brayden Lane.	Medium	Medium
37	Dollar Lane	Dollar Road	CTH G (Dickinson Road)	0.33	Bike lanes (\$2,903.04), sidewalks (\$109,624.32)	\$112,527.36	Town of Ledgeview	Complete sidewalks	High	High
38	Dollar Road	West end	East end	1.89	Bike lanes (\$16,764.72) , sidewalks (\$633,067.76)	\$649,832.48	Town of Ledgeview	Potential trail connection to Dallas Lane on west end. (**, Priority Road, Pg. 88)	High	High
39	E. Higgins Hill	Agatha Christie Avenue	Garrett Street	0.24	Sidewalks	\$80,822.56	Town of Ledgeview		Medium	N/A
40	East River Drive	North Town border	CTH G (Dickinson Road)	0.34	Bike lanes (\$3,003.84), sidewalk (\$111,430.72)	\$116,434.56	Town of Ledgeview	Add sidewalk to west and north side. Extends into De Pere and Allouez.	High	High
41	Elmview Road	CTH MM Dutchman Road	Pine Grove Road	0.52	Bike lanes (\$4,636.80), sidewalks (\$175,094.40)	\$179,731.20	Town of Ledgeview	Bike lanes and sidewalks added when urbanized.	Low	Low
42	Euro Lane	North Town border	Half Crown Run	0.93	Bike lanes (\$8,232.00), sidewalks (\$310,856.00)	\$319,088.00	Town of Ledgeview	Trail off Euro Lane connects to Beachmont Road. Euro Lane also connects to Half Crown Run extended to CTH G. (**, Priority Road, Pg. 88)	High	High
43	Flagstone Court	Hawthorne Heights Drive	Scray Hill Road Extended	0.14-0.50	Sidewalks	\$1,219.68 - \$4,465.44	Town of Ledgeview		Low	N/A
44	Fox River Drive	North Town border	Roundabout	0.57	Bike lanes (\$5,041.68), sidewalks (\$190,383.44)	\$195,425.12	Town of Ledgeview		High	High
45	Garrett Street	Reginald Hill	Oak Ridge Circle	0.4	Sidewalks	\$134,048.72	Town of Ledgeview		High	N/A
46	Gemstone Trail	Silver Lane extended	CTH MM (Dutchman Road)	0.55	Bike lanes (\$4,912.32), sidewalks (\$185,498.56)	\$190,410.88	Town of Ledgeview	Bike lanes, sidewalks when urbanized and/or connection to Copper Lane is complete.	Medium	Medium
47	Glenmore Road	Big Creek Road	Pine Grove Road	2	Bike lanes (\$17,740.80), sidewalks (\$669,926.40)	\$687,667.20	Town of Ledgeview	Bike lanes and sidewalks added when urbanized. Crosses under I-43. (**, Priority Road, Pg. 88)	Low	Low
48	Grace Street	West Town border	Lone Oak Road	0.2	Sidewalks	\$65,343.20	Town of Ledgeview		Medium	N/A
49	Half Crown Run	Cul-du-sac	Euro Lane	0.32	Sidewalks	\$107,530.80	Town of Ledgeview		Low	Low
50	Half Crown Run	Euro Lane	CTH G (Dickinson Road)	0.44	Bike lanes (\$3,939.60), sidewalks (\$148,766.80)	\$152,706.40	Town of Ledgeview	Connects to Euro Lane to the north and CTH G extended to the south. Consider connecting Half Crown Run extended south to Hawthorne Heights Drive	High	High
51	Hawthorne Heights Drive	Scray Hill Road	Dead end	1.32	Bike lanes(\$11,707.92), sidewalks (\$442,113.36)	\$453,821.28	Town of Ledgeview	Consider connecting Half Crown Run extended south to Hawthorne Heights Drive	Medium	Medium
52	Heritage Heights	Oak Ridge Circle	Hyland Court	0.33	Bike lanes (\$2,953.44), sidewalks (\$111,527.52)	\$114,480.96	Town of Ledgeview	When extended to Oak Ridge Circle.	Medium	Medium
53	Hickory Valley Boulevard	Lone Oak Road	Hickory Valley Court	0.08	Sidewalks	\$26,391.04	Town of Ledgeview		Medium	N/A
54	Hickory Valley Court	North cul-de-sac	South cul-de-sac	0.12	Sidewalks	\$40,728.48	Town of Ledgeview		Medium	N/A
55	Hidden Valley Lane	Dead end	CTH MM (Dutchman Road)	0.87	Sidewalks	\$292,141.20	Town of Ledgeview	Sidewalks when urbanized	Low	N/A
56	Jordan Road	O'Keefe Road	CTH X (Heritage Road)	0.17	Sidewalks	\$57,540.08	Town of Ledgeview	Sidewalk existing on west side from O'Keefe to Weatherstone Trail.	High	N/A
57	Kaftan Way	Creamery Road	CTH GV (Monroe Road)	0.15	Bike lanes (\$1,357.44), sidewalks (\$51,259.52)	\$52,616.96	Town of Ledgeview	Connects to Berkley Road on the east. Crosswalks on GV north and south of this intersection.	High	High
58	Kuyper Lane	Chase Avenue	Angels Path	0.11	None	N/A	Town of Ledgeview	Has sidewalks.	N/A	N/A
59	Lansdale Lane and Circle	Prescott Place	Agatha Christie Avenue	0.12-0.32	Sidewalks	\$41,489.76 - \$108,736.16	Town of Ledgeview		Low	N/A
60	Ledgeview Road	Lone Oak Road	Swan Road	0.35	Bike lanes (\$3,114.72), Sidewalk north side (\$58,808.88)	\$61,923.60	Town of Ledgeview	(**, Priority Road, Pg. 88)	High	High

	A	B	C	D	E	F	G	H	I	J
1	PROJECT NAME	FROM STREET	TO STREET	LENGTH (MILES)	FACILITY RECOMMENDATION	PROJECT COST ESTIMATE	PRIMARY JURISDICTION	COMMENTS	PEDESTRIAN FACILITY PRIORITY	BICYCLE FACILITY PRIORITY
61	Ledgeview Road	Swan Road	Winding Waters Way	0.27	Bike lanes (\$2,412.48) and complete sidewalk on south side (\$45,549.92)	\$47,962.40	Town of Ledgeview		High	High
62	Ledgeview Road	Winding Waters Way	Creamery Road	0.4	Bike lanes (\$3,536.40), sidewalks (\$133,541.20)	\$137,077.60	Town of Ledgeview		High	High
63	Ledgeview Road	Creamery Road	CTH GV (Monroe Road)	0.2	Bike lanes (\$1,740.48), Sidewalk on south side (\$32,861.92)	\$34,602.40	Town of Ledgeview	Serves planned subdivision south of Ledgeview Road.	High	High
64	Little Valley Court	Dead end	Old Valley Road	0.16	Sidewalks	\$55,256.24	Town of Ledgeview		Low	N/A
65	Lane Oak Road	North Town border	Ledgeview Road	0.31	Sidewalk east side	\$51,545.00	Town of Ledgeview	Sidewalks on the west side of road.	High	N/A
66	Mencheski Lane	Elm View Road	to west	0.14	None	N/A	Town of Ledgeview	Paper street	N/A	N/A
67	Meadow Ridge Drive	Euro Lane	CTH V (Lime Kiln Road)	0.28	Bike lanes (\$2,447.76), sidewalks (\$92,432.08)	\$94,879.84	Town of Ledgeview		High	High
68	Meadow Sound Drive	Meadow Ridge Drive	Extended to Dollar Road	0.5 - 1.01	Sidewalks	\$167,481.60 - \$338,312.83	Town of Ledgeview		High	N/A
69	Mayline Road	North cul-de-sac	Glenmore Road	1.12	Bike lanes (\$9,934.85), sidewalks (\$375,158.78)	\$385,093.63	Town of Ledgeview	Bike lanes, sidewalks added when urbanized. Road travels along I-43, will serve two new subdivisions.	Low	Low
70	Morrison Road	Sunnyview Road	Heritage Road	0.33	Bike lanes (\$559.44), sidewalks (\$21,125.52)	\$113,439.04	Town of Ledgeview	Bike lanes and sidewalks added when urbanized.	Low	Low
71	N. Hidden Falls Court	Cul-de-sac	Peso Place	0.06	Sidewalks	\$21,188.96	Town of Ledgeview		Low	N/A
72	North Parker Way	Cul-de-sac	Oak Ridge Circle	0.08	Sidewalks	\$26,200.72	Town of Ledgeview		Low	N/A
73	Oak Ridge Circle	CTH GV (Monroe Road)	CTH G (Dickinson Road)	1.91	Bike lanes(\$16,942.46), sidewalks (\$639,779.71)	\$656,722.18	Town of Ledgeview	To Oak Ridge Court - cut thru available to Scray Hill.	High	High
74	Oak Ridge Court	Oak Ridge Circle	Scray Hill Road	0.28-0.30	Bike lanes (\$2,462.88 - \$2,651.04), sidewalks (\$93,003.04 - \$100,108.32)	\$95,465.92 - \$102,759.36	Town of Ledgeview	Pathway connection to Scray Hill.	High	High
75	O'Keefe Road	CTH PP (Broadway)	Jordan Road	0.44	Sidewalks south side	\$73,495.24	Town of Ledgeview	Has sidewalk on north side, connects to trail east of Jordan. (**, Priority Road, Pg. 88)	High	N/A
76	Old Plank Road			N/A	None	N/A	Town of Ledgeview	Rustic Road.	N/A	N/A
77	Old Valley Court	Swan Road	Cul-de-sac	0.17	Sidewalks	\$56,398.16	Town of Ledgeview		Low	N/A
78	Old Valley Road	Hickory Valley Court	Swan Road	0.28	Sidewalks	\$93,510.56	Town of Ledgeview		Medium	N/A
79	Olivia's Way	Swan Road	S. Broadway Street	0.41	None	N/A	Town of Ledgeview	Use Viking Lane for connection to Swan Road.	N/A	N/A
80	Peso Place	N. Hidden Falls Court	Half Crown Run	0.14	Sidewalks	\$46,247.76	Town of Ledgeview		Low	N/A
81	Pine Grove Road	CTH G (Dickinson Road)	CTH R (Main Street)	3.51	Bike lanes (\$31,135.10), sidewalks (\$1,175,720.83)	\$1,206,855.94	Town of Ledgeview	Add bike lanes and sidewalks when urbanized.	Low	Low
82	Prescott Place	Berkley Road	Landsdale Circle	0.16	Sidewalks	\$53,226.16	Town of Ledgeview		Low	N/A
83	Quindalee Road	Swan Road	Trumpeter Trail	0.18	Sidewalks	\$59,252.96	Town of Ledgeview		Medium	N/A
84	Ravine Road	W/S 32/57 Greenleaf Road	Ravine cul-de-sac	0.26	Bike lanes(\$2,293.20), sidewalks (\$86,595.60)	\$88,888.80	Town of Ledgeview	Potential future connection to Fox River Trail.	Medium	Medium
85	Reginald Hill	CTH G (Dickinson Road)	Agatha Christie Avenue	0.4	Bike lanes (\$3,462.48), sidewalks (\$130,749.84)	\$134,212.32	Town of Ledgeview	Reginald Hill extended to CTH G.	High	High
86	Reginald Hill	Agatha Christie Avenue	Cul-de-sac	0.25	Sidewalk	\$82,852.64	Town of Ledgeview		High	N/A
87	Ridge Haven Court	Cul-de-sac	Euro Lane	0.29	Sidewalks	\$96,365.36	Town of Ledgeview		Low	N/A
88	River Birch Lane	Stillmeadow Circle	Trellis Drive	0.15	Sidewalks	\$50,244.48	Town of Ledgeview		Low	N/A
89	S. Hidden Falls Court	Cul-de-sac	Peso Place	0.09	Sidewalks	\$31,529.68	Town of Ledgeview		Low	N/A
90	Scenic Way	Oak Ridge Circle	CTH X Road (Heritage Road)	0.24-0.66	Sidewalks	\$80,568.80 - \$223,245.36	Town of Ledgeview		Low	N/A
91	Scray Hill Road	CTH G (Dickinson Road)	CTH V Road (Lime Kiln Road)	2.37	Bike lanes (\$21,023.52), sidewalks (\$793,888.16)	\$814,911.68	Town of Ledgeview	(**, Priority Road, Pg. 88)	High	High
92	Shadow Court			N/A	None	N/A	Town of Ledgeview		N/A	N/A
93	Shadow Lane	Glenmore Road	CTH MM	0.53	Bike lanes (\$4,685.52), sidewalks (\$176,934.16)	\$181,619.68	Town of Ledgeview	When this becomes a thru road and urbanized.	Low	Low
94	Shadow Lane	CTH MM	CTH R Street (Main Street)	0.68	Bike lanes (\$5,995.92), sidewalks (\$226,417.36)	\$232,413.28	Town of Ledgeview	When urbanized add bike lanes and sidewalks.	Medium	Medium
95	Silver Lane	Lime Kiln Road	Gemstone Trail extended	0.95	Sidewalks	\$318,215.04	Town of Ledgeview		Low	N/A
96	Silverstone Trail	O'Keefe Road	South cul-de-sac	0.31	Sidewalk west side, complete sidewalk on east side	\$105,373.84	Town of Ledgeview		High	N/A
97	Sportsman Drive	CTH X Heritage Road	South Town border	0.94	Bike lanes (\$8,336.16), sidewalks (\$314,789.28)	\$323,125.44	Town of Ledgeview	Escape route for bicyclists	Medium	Medium
98	Stillmeadow Circle and Stillmeadow Court	Cottonwood Lane North	Cottonwood Lane South		None. Sidewalks required by new development	N/A	Town of Ledgeview	New subdivision.	N/A, required by new subdivision	N/A

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1	PROJECT NAME	FROM STREET	TO STREET	LENGTH (MILES)	FACILITY RECOMMENDATION	PROJECT COST ESTIMATE	PRIMARY JURISDICTION	COMMENTS	PEDESTRIAN FACILITY PRIORITY	BICYCLE FACILITY PRIORITY
99	Stone Silo Circle	Windy Acres Way	Winding Waters Way	0.22	Bike lanes (\$1,974.00), sidewalks (\$74,542.00)	\$76,516.00	Town of Ledgeview	Trail planned between Stone Silo Circle and Trumpeter Trail	High	High
100	South Parker Way	Oak Ridge Circle	Future Road to CTH GV	0.09-0.31	Sidewalks	\$31,720.00 - \$102,582.48	Town of Ledgeview	Will be extended to CTH GV, CTH X, and Sportsman Drive.	High	N/A
101	Swan Pointe Terrace	Swan Road	Cul-de-sac	0.22	Sidewalks	\$72,702.24	Town of Ledgeview		Medium	N/A
102	Swan Ridge Trail	Swanstone Circle	CTH X Road (Heritage)	0.26	Sidewalks	\$86,595.60	Town of Ledgeview		Medium	N/A
103	Swan Road	CTH G (Dickinson Road)	Ledgeview Road	0.53	Bike lanes	\$4,704.00	Town of Ledgeview	(**, Priority Road, Pg. 88)	N/A	High
104	Swan Road	Swan Stone Circle	CTH X Road (Heritage)	0.19	Bike lanes (\$1,725.36), sidewalk on east side (\$32,576.44)	\$34,301.80	Town of Ledgeview	(**, Priority Road, Pg. 88)	High	High
105	Swan Road	CTH X (Heritage Road)	Viking Lane	0.78	Bike lanes (\$6,961.92), sidewalks (\$262,895.36)	\$269,857.28	Town of Ledgeview	(**, Priority Road, Pg. 88)	High	High
106	Swan Stone Circle	Swan Road	Swan Road	0.86	Sidewalks	\$287,763.84	Town of Ledgeview		Medium	N/A
107	Trellis Drive	CTH GV (future extension)	Stillmeadow Circle	0.70	Sidewalks	\$234,474.24	Town of Ledgeview	New subdivision.	Low	N/A
108	Trestle Road	Stagecoach Road	East Town border	0.26	Bike lanes (\$2,276.40), sidewalks (\$85,961.20)	\$88,237.60	Town of Ledgeview	Add bike lanes and sidewalks when urbanized. Crosses under railroad, connects to WIS 29.	Low	Low
109	Trumpeter Trail	Cul-de-sac	Swan Point Terrace	0.24	Sidewalks	\$81,583.84	Town of Ledgeview	Proposed trail to Stone Silo Circle.	Medium	N/A
110	Video Lane	CTH X	Northeast Asphalt Property	0.30	None	N/A	Town of Ledgeview		N/A	N/A
111	Viking Lane	CTH PP Broadway	Swan Road	0.25	Bike Lane (\$2,199.12), sidewalks (\$83,042.96)	\$85,242.08	Town of Ledgeview		Medium	Medium
112	W. Higgins Hill	Agatha Christie Avenue	Lansdale Lane	0.19	Sidewalks	\$63,440.00	Town of Ledgeview		Low	N/A
113	Wall Street	US 141	WIS 29	0.38	None	N/A	Town of Ledgeview	Industrial road between US 141 and WIS 29.	N/A	N/A
114	Wayne Lane	Cul-de-sac	CTH X Road (Heritage)	0.26	Sidewalks	\$87,230.00	Town of Ledgeview		Low	N/A
115	Weatherstone Trail	Silverstone Trail	Jordon Road	0.35	Sidewalk on south side	\$57,793.84	Town of Ledgeview	Sidewalk existing on north side.	High	N/A
116	Winding Waters Way	Cul-de-sac	Ledgeview Road	0.66	Bike lanes (\$5,843.04), sidewalks (\$220,644.32)	\$226,487.36	Town of Ledgeview	(**, Priority Road, Pg. 88)	High	High
117	Windy Acres Way	CTH G (Dickinson Road)	Stone Silo Circle	0.13	Bike lanes (\$1,177.68), sidewalks (\$44,471.44)	\$45,649.12	Town of Ledgeview		High	High
118	Whisper Lane	CTH G (Dickinson Road)	Scray Hill Road	0.6	Bike Lane (\$5,327.28), sidewalks (\$201,168.24)	\$206,495.52	Town of Ledgeview		Medium	Medium
119	Whistling Swan Circle	Swan Ridge Trail	Swan Ridge Trail	0.21	Sidewalks	\$68,959.28	Town of Ledgeview		Medium	N/A
120	KEY: * Brown County Bicycle and Pedestrian Plan Update 2016									
121	** Ledgeview Parks and Recreation Plan 2015-2020									
122	*** Bellevue Bicycle and Pedestrian Plan 2017									
123	Sidewalk cost estimated at \$31.72 per linear foot. Bike lane marking cost estimated at \$0.84 per linear foot. Multi-use trail cost estimated at \$50.00 per linear foot.									



Chapter 7

Non-Infrastructure Recommendations

The built environment (engineering) is only one component of developing a safe and efficient transportation system. The other two key components, education and enforcement, are of equal importance.

Quality education teaches pedestrians, bicyclists and motorists how to safely and predictably share the infrastructure which has been created for them. Each user needs to understand how to use facilities properly or there will be chaos and walking and bicycling will be unsafe no matter how well facilities are designed.

Consider that without proper education pedestrians may give motorists and bicyclists mixed messages about their intent to cross the street making yielding at crosswalks confusing. Bicyclists may choose to ride against the flow of traffic (a contributing factor in 1/3 of all bicycle/motor vehicle crashes). And, despite the law, many motorists will continue to be unaware that bicyclists have an equal right to the road. This leads to dangerous conflicts. Education can correct many of our current problems.

Education can also encourage people to give walking and bicycling a try. The benefits of walking and bicycling are tremendous. Studies have shown that the health benefits of bicycling and walking (reduced rates of obesity and diabetes as well as increased life span) greatly outweigh the risks associated with interacting with motor vehicle traffic.

Education

Pedestrian and bicycle education is important for everyone: adults, children, pedestrians, bicyclists, motorists, law enforcement officers and others working in the traffic safety field. Without education, it is unrealistic to expect there will be a positive change in pedestrian or bicycle safety and enjoyment in the near future. Improving the knowledge and skills of pedestrians, bicyclists and motorists is important in eliminating crashes.

Sources of Education

People receive pedestrian and bicycle education from many sources, all of which have their advantages and disadvantages.

Self-taught:

Inexpensive and convenient, but may be time-consuming, bad habits can be learned and retained.

Peers:

Convenient and fun, but information and skills being learned may, or may not, be correct.

Parents:

Parents generally have the best interests of their children in mind however, they may not be available; and if they are, they may have bad information and habits.

Schools:

Schools have trained teachers and there are several educational curricula available (e.g., Safe Routes to School, Smart Cycling). However, few schools actively teach pedestrian and bicycle safety.

Law Enforcement:

Law enforcement officers can provide pedestrian and bicycle safety education during the course of their regular duties and may also participate in activities like bicycle safety rodeos, and school talks. While these are appropriate activities for law enforcement officers, the concern is that officers may not have been taught themselves. Many officers have not ridden a bicycle in years nor have they had any formal pedestrian or bicycle safety education training.

Pedestrian and Bicycle Safety Education Experts:

Various professionals, including state and local pedestrian and bicycle consultants and coordinators, have formalized training in many aspects of pedestrian and bicycle safety and education. Experts can provide an invaluable resource. Unfortunately, there are few of these experts and there is likely a cost for their services.

Adults

Adults often learn through experience how to avoid crashes. However, with consistent safety education they will learn more quickly, integrate better with other traffic, and be in a better position to share their knowledge with children.

Children

Pedestrian and bicycle education is especially important for children. For most children, walking, and then bicycling, is their first exposure to the complexities of traffic. Children, however, are not just small adults, they have different psychological and motor skills, and these change with age. We need to understand children's developmental stages in order to assess their limitations in dealing with traffic, and how to teach them to avoid crashes.

Children (up to age 15): ⁽¹⁾

- Have one-third less peripheral vision than adults.
- Are not able to perceive danger until they are about nine or 10 years old.
- Cannot easily judge a car's speed and distance.
- Are easily distracted.
- Often have difficulty determining the direction of sound.
- May be impatient and impulsive.
- Assume that if they can see a car, its driver must be able to see them.
- Mix fantasy and reality.
- Concentrate on only one thing at a time.
- Imitate the (often bad) behavior of others, especially older children and adults.

Children are among our most vulnerable users of the traffic environment, along with the elderly and disabled. Our educational efforts must be developed to protect them. If they are geared to keep our most vulnerable users safe, they should work well for all.

Recommended Education Messages

The majority of bicycle and pedestrian crashes are a result of the violation of only a few laws. Educational messages should be targeted at preventing these crashes as well as promoting shared use of our roads. Bicycle and pedestrian safety education messages are readily available. Messages may be obtained from any of the organizations below and adapted to meet the needs of the Town.

Share & Be Aware GB is a campaign to educate everyone who uses roads in the Greater Green Bay area to make biking even safer. Every person – whether they’re driving or biking – contributes to safety. Further, the more people bike, the safer it is for all people biking. Sponsored by BayCare Clinic. <https://www.baycare.net/share-be-aware/>

Wello is a community-engaged organization that uses a systems-based approach to improve the overall well-being of the Greater Green Bay Area. They collaborate with citizens, schools, businesses, and community partners to reimagine how we can work together to implement evidence-based strategies that result in improved health, increased productivity, and lowered health care costs. <http://wello.org/>

League of America Bicyclists is a national organization whose mission is to lead the movement to create a Bicycle Friendly America for everyone. Their commitment is to listen and learn, define standards and share best practices to engage diverse communities and build a powerful, unified voice for change. <https://www.bikeleague.org/>

Green Bay Bicycle Collective is an organization that promotes cycling as an effective and sustainable form of transportation, through education, encouragement, and advocacy, thus creating a safe, healthy, community-based bike culture. <http://www.gbbicycle.org/>

Center for Childhood Safety is an organization whose mission is to be the leading source of safety education and programming in Northeast Wisconsin, dedicated to preventing and eliminating childhood injury. <https://www.centerforchildhoodsafety.org/>

Greater Green Bay Active Communities Alliance is a group of professionals, advocates, citizens, and elected officials who meet quarterly to share, discuss and brainstorm ways to make the greater Green Bay area more bicycle and pedestrian friendly. Led by Wello. <http://wello.org/>

Wisconsin Share & Be Aware is a data driven statewide campaign to make walking and biking even safer by educating all road users. Every person, whether walking, biking, or driving has a role to play in traffic safety. Sponsored by the Wisconsin Bike Fed. <http://www.bfw.org/programs/share-be-aware/>

Example of Share & Be Aware Message:

The Share & Be Aware message contains a broad array of sub-messages and applies to bicyclists, pedestrians, and motorists:

Bicyclists – As the operators of vehicles (as defined by state statute) bicyclists have the same rights and responsibilities as operators of other vehicles.

- Always wear a helmet
- Yield the right-of-way when entering the road (applies to motorists, as well)
- Ride in the same direction as other vehicular traffic
- Stop, and then yield the right-of-way, at stop signs and red signals (applies to motorists, as well)
- When making turns, yield to road users that have the right-of-way (applies to motorists, as well)
- Use proper lane position
- Signal turns in advance and show clear intent (applies to motorists, as well)
- Use lights and reflectors at night

Pedestrians

- Use sidewalks and trails when available
- Walk facing traffic
- Cross the street at intersections in crosswalks (show clear intent to cross and pay attention when crossing)
- Yield the right-of-way when crossing mid-block
- Be aware of dangerous situations and poor motorist visibility, especially at night and during inclement weather.

Motorists

- Share the road with bicyclists
- Yield the right-of-way when entering the road (applies to bicyclists, as well)
- Stop, and then yield the right-of-way, at stop signs and red signals (applies to bicyclists, as well)
- When making turns, yield to road users that have the right-of-way (applies to bicyclists, as well)
- Pass bicycles with a minimum of 3 feet
- Signal turns in advance and show clear intent (applies to bicyclists, as well)
- Yield to pedestrians in crosswalks

Recommendations for Developing an Education Program

This Plan recommends education efforts focus on the core set of messages for motorists, bicyclists, and pedestrians as outlined above. This will help raise awareness of the educational messages and develop broad based support for changing the culture and creating a more positive bicycle and pedestrian environment. The education program should include the following elements:

1. Create and adopt a set of core educational messages (see above)
2. Develop an education marketing plan and identify who is responsible for key elements of the plan
3. Identify and review existing bicycle and pedestrian safety materials; modify as needed

4. Support Safe Routes to School Programs
5. Identify community events where bicycle and pedestrian safety can be promoted
6. Offer bicycle and pedestrian programs and activities (e.g. bicycle rodeos, Safe Cycling course, community bicycle rides)
7. Require bicycle and pedestrian training for area planners and engineers
8. Require bicycle and pedestrian safety training for law enforcement officers

Model Education Program

Arthur Ross, the former Bicycle/Pedestrian Coordinator for the City of Madison, Wisconsin, developed a table which sets forth an ongoing program of traffic safety starting at the youngest ages and progressing through driver's education. This table identifies developmental ability groups and what each needs to hear, see, and practice.

Target Audience	Secondary Audience	Educational Goals
Kids 0-4 (preschool)	Parents Day Care Providers Preschool Teachers Motorists Police Officers	Directed at parents: How to safely bike with children in a child seat or bike trailer. Riding toy safety (big wheels, etc.); driveway and sidewalk issues; stay out of street (boundaries); helmets.
Kids 5-7 (Grades K-2)	Parents Preschool Teachers Teachers Motorists Police Officers	General focus on pedestrian safety. How to cross a street safely; mid-block crossing; curb/edge of road as boundary. Look left-right-left for traffic. Visibility issues (e.g., parked car as a visual screen); make own decision when it is safe to cross, do not just follow the leader. Note: These lessons apply to bicycle safety as well.
Kids 8-10 (Grades 3-5)	Parents Teachers After School Programs Motorists Police Officers	Beginning bicycling on the street; how to enter the street safely (reemphasis of previous age group lessons); which side of the road to ride on; checking for traffic from behind before turning or changing roadway position; stop signs; hazard awareness and avoidance; communicating with other road users; helmets. Learning should take place on-bike as much as possible.
Kids 11-14 (Grades 6-9)	Parents Teachers Motorists Police Officers	Continuation of previous age group skills and move on to more advanced skills: emergency stop; rock dodge; instant turn; lane position in traffic when turning; multi-gear bikes (cadence); route selection; bike and helmet selection, fit, and adjustment; how to fix a flat tire; nutrition for bicycling (eating and drinking); teaching bicycling as a life-long activity.
Kids 15-18 (Grades 10-12)	Parents Teachers Driver's Ed Instructors Motorists Police Officers	There are two tracks to follow at this age group: continuation of advanced bicycling skills (operating a bicycle in traffic as a vehicle) and, in driver's education, teaching how motorists safely interact with bicyclists (and pedestrians) in traffic.
Adult Bicyclists	Motorists Police Officers	Operating a bicycle as a vehicle in traffic; everything listed above.
Motorists	Police Officers	How to safely share the road with pedestrians and bicyclists. Pedestrians', Bicyclists' and motorists' rights and responsibilities vis-à-vis each other.
Parents	Day Care Providers Preschool Teachers After School Programs Youth Group Leaders Police Officers	Proper walking techniques, bike and helmet size, fit, and adjustment; encourage parents to walk and ride with their children, observe their abilities, and grant independence/responsibility as each child is ready. Most parents will need all the information listed above for adult pedestrians and bicyclists as well as the specific information for their children's age groups.
Police Officers		All of the above as well as the importance of enforcement (of pedestrian, bicycle and motorist violations) as part of the overall traffic safety program.

Education Partners

Just as the three E's (engineering, education, enforcement) work together to create a safe and efficient transportation system, education message must come from multiple partners to ultimately be successful.

Program partners come in many shapes and sizes and include:

- Active supporters (e.g., individuals, organizations, businesses)
- Workers, volunteers, promoters, contributors
- Anyone providing work, facilities, promotions, endorsements, time or money

Typical partners for improving pedestrian and bicycle safety include:

- Law enforcement
- Bicycle and running clubs
- Emergency medical services
- Local, state and federal advocacy groups
- Public and private schools
- Insurance companies
- Planners and engineers
- Architects
- Public works departments
- Municipal staff
- Elected/appointed officials
- Bicycle retailers
- Wisconsin Department of Transportation
- Public Health

Opportunities to involve these partners in education efforts should be sought in order to broaden education outreach to more people and groups.

Enforcement

As previously discussed, the most promising ways to reduce deaths and injuries to pedestrians and bicyclists is through a combined approach of engineering, education and enforcement. Suppose for a moment that a perfectly safe transportation system for pedestrian and bicyclists could be designed. Also suppose that everyone could be provided with education—which would give them the ability to avoid crashes. Wouldn't there then be a crash-free pedestrian and bicycling environment? NO!

There will always be individuals who choose to operate outside of the law, and these people are dangerous to the rest of society. Most people who were involved in a crash and had broken a law were aware that they had done so. Why, then, did they break the law? People obey laws primarily because they fear the consequences of violations—tickets, fines, insurance increase, parental discipline, etc.

Goals of Enforcement

- Improve voluntary compliance with the laws
- Identify and correct violator behavior
- Affect a behavioral change in the community
- Reinforce educational efforts
- Reduce the number of crashes
- Reduce the consequences resulting from these crashes

Obstacles to enforcement include:

- Social pressure
- Lack of training
- Police administration
- Competing priorities

Why don't police always enforce pedestrian or bicycle laws? As obvious as it sounds, law enforcement officers cannot enforce laws they don't know, and they won't enforce laws they cannot justify.

Enforcement Strategies

There are two basic types of enforcement strategies: the shotgun approach and targeted enforcement. The shotgun approach attempts to enforce all pedestrian and bicycle violations in hopes of improving safety. Unfortunately, this approach has been found to waste resources while not focusing on the leading causes of crashes. Targeted enforcement is recommended as it focuses on violations which are most likely to cause a crash. By targeting these violations, officers are essentially stopping crashes before they can happen.

Advantages of targeted enforcement:

Prevents crashes: Focuses on those violations which most often result in crashes.

Budgets time: Officers are being most effective on their shift by targeting high-risk violations.

Promotes public support: Answers the question, "Why am I being stopped?" Officers can say with unquestionable validity that the violation is the type that is likely to result in a crash if it is not corrected. The public is less likely to see pedestrians and bicyclists, especially children, as being picked on.

Encourages officers to learn laws: It is important for them to know what they are talking about. The "serious" bicyclist or pedestrian is much better informed than the average street cop on pedestrian and bicycle laws. Officers gain respect when well informed.

Applies effective, identified countermeasures to a specific traffic problem or area: Targeted enforcement is an accepted law enforcement practice.

What Violations to Target

Information from crash report studies indicates that, generally speaking, there are a handful of law violations which should be targeted to have the greatest effect on pedestrian and bicyclist safety. These violations contribute to the greatest number of deaths and injuries. If they are curtailed, it would be expected that a significant decrease would be seen in the number of deaths and injuries over time. Note that the target violations include pedestrian, bicyclist and motorist. (Corresponding state statutes are in *italics*.)

Target motorist violations

- Failure to yield right-of-way to pedestrian/bicyclist (in crosswalk) – controlled/uncontrolled intersection or crosswalk (346.23(1)/346.24(1))
- Failure to obey stop sign/signal (346.46(1)/346.37)
- Improper turn (346.34)
- Passing bicycles (346.075)
- Speed (346.57)
- OWI (346.63)

Target bicyclist violations

- Riding facing traffic (346.05)
- Failure to obeying stop signs/signal (346.46(1)/346.37)
- Improper turn (346.34)
- Failure to yield right-of-way to vehicle (non-crosswalk) (346.25)
- Required headlight/reflector requirements (347.489(1))

Target pedestrian violations

- Failure to yield right-of-way to vehicle – controlled/uncontrolled intersection or crosswalk (346.23(1)/346.24(2))
- Failure to yield right-of-way to vehicle (non-crosswalk) (346.25)
- Failure to obey pedestrian control signal (346.38)
- Unsafe crossing against red light/arrow (346.37)
- Pedestrian to walk (on highway) facing traffic (346.28(1))

Every contact that a law enforcement officer has with a pedestrian, bicyclist or motorist sends some kind of message. When an officer sees a violation but fails to act, the message sent to the offender is that the police do not care and that the violator is not doing anything wrong. This one action, or more precisely, inaction, can defeat hours of good education.

Enforcement Options

Enforcement of pedestrian and bicycle laws, and rights, by police, be it a quick verbal warning or a written citation, can very effectively reinforce the formal safety messages that children and adults are getting.

Positive reinforcement programs

These programs may range from giving away stickers and sports cards to ice cream and meals to drawings for walking and bicycle gear. (These activities have traditionally been targeted towards children; however, positive reinforcement for adults may work as well.)

- Create positive peer pressure
- Great PR for the police department
- Reinforces other enforcement efforts

Verbal warning

- Education, not punishment
- Can be done quickly
- May be done without leaving the car
- Good positive contact between police and violator
- Reinforces other enforcement efforts

Written warning

- May simply be a warning or require some sort of follow-up action
- Juvenile warnings should include a letter to parents
- Written warnings records/follow-up
- Multiple written warnings may result in a citation
- Reinforces other enforcement efforts

Citation

- Issued just like any other type of citation
- Reinforces other enforcement efforts
- Fines/penalty (fine, pedestrian/bicycle class, community service, peer court for juveniles)

The Brown County Sheriff's Department currently provides law enforcement service to the Town of Ledgeview. The Town does not contract for this service, therefore are limited in the amount of direction they may provide to the officers. As the need for law enforcement increases, the Town may decide to contract for services or form their own department. Among other things, this will allow the Town to prioritize bicycle and pedestrian safety in their law enforcement efforts.

The Wisconsin Department of Transportation's two-day Pedestrian and Bicycle Law Enforcement Training Course is the state standard for this type of training.

Law enforcement officers are in the enviable position of being able to enforce laws, as well as educate, to improve pedestrian and bicycle safety. Yet, while pedestrian and bicycle education are certainly appropriate activities for police to be involved in, it should not replace their primary responsibility for enforcement of laws. Police are the only ones who can enforce laws to improve pedestrian and bicycle safety, others can educate.

Encouragement

The three E's (engineering, education, enforcement) form the base of the Highway Safety Triangle however, the three E's alone may not be enough to accomplish the goals of a robust multi-modal transportation system. For example, if the Town improves a road for pedestrians and bicyclists (adds sidewalks and bicycle lanes) but after the improvement there is no significant increase in the number of pedestrians. What happened? People are creatures of habit and as such tend to do things the same way over and over, sometimes even when a new and better way is available. Unless something is done to introduce the new way of doing things, very little will change. Even people who are interested in starting to walk and bicycle more may be hesitant to give it a try if there is nothing special to encourage them.



People may need to be encouraged to change their bicycling and walking habits. Encouragement can be simple; supporting a Safe Routes to School activity, to more difficult; development of municipal ordinances that support mixing of compatible land uses to allow access by foot and bicycle.

Providing people with the opportunity to ride a bike and walk is a key component of improving public health, enhancing quality of life, and providing equitable transportation choices. Some activities that are part of the encouragement “E” include:

- Activation of the Bicycle and Pedestrian Committee
- Involving key staff and leaders in walking and bicycling (i.e. Bike to Work Day, Bike to School Day)
- Creating bicycle and pedestrian maps
- Creation of mapped and signed Bicycle Loops
- Development of Town bicycling and walking groups
- Holding community events and activities highlighting walking and bicycling facilities

Walking and bicycling can also be encouraged through the development of municipal ordinances that enhance bicycle and pedestrian travel:

- Require bicycle and pedestrian-friendly development/site design
- Ensure convenient bicycle parking is available at all municipal facilities
- The Town has a bicycle parking ordinance - Zoning 135, Minimum and Maximum Parking Ratios Table. The table requires bicycle parking for all new development. This code should be updated regularly.
- Revise or develop neighborhood ordinances using “Complete Streets” to ensure access to all

Another way to encourage residents to try walking and bicycling is to promote other Northeast Wisconsin bicycle and pedestrian activities and programs. These programs may spur interest in activities they can do closer to home.

The topography and rural nature of the Town already encourages bicyclists to tackle the “Ledge” and enjoy the quiet rural roads. These bicyclists are spreading the word to others. The Town can build on this by creating local bicycle and pedestrian activities.

The provision of bicycle parking facilities at local destinations is another form of encouragement. Individuals are more likely to bicycle to locations that have quality bicycle parking. Determining the appropriate number of bicycle parking spaces, type, and proper placement can be confusing. Town officials and businesses can find guidance in *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works* (2015), Association of Bicycle and Pedestrian Professionals (APBP).

Municipal ordinances already include bicycle parking requirements in Chapter 135 Zoning (135 Attachment 1 – Minimum and Maximum Parking Ratios). Staff is encouraged to review the *Bicycle Parking Guidelines 2nd Edition* (APBP) for communities with bicycle commute modes less than 5% and considering revising the Minimum and Maximum Parking Ratios Table as appropriate.

Evaluation

Evaluation is important to understanding a problem and determining potential solutions.

Evaluating a perceived pedestrian or bicycle (safety) problem will help confirm, or refute, the existence of a problem. Once a solution to the problem has been developed and implemented, evaluation can help measure any change and determine if the solution is working, or if it needs to be modified. If modifications are needed, the new solution should be reevaluated, and so on, until the problem is fixed.

For example, if there is a pedestrian crossing that is raising safety concerns, how is it possible to know if that crossing is truly unsafe or how to fix the problem? Reviewing records of previous pedestrian crashes at the location is a good place to start, but due to the rarity of crashes in the Town this will likely be of little use. Fortunately, there are other indicators which can help predict the safety of a crossing. The number of traffic lanes, the width of those lanes, the speed and amount of traffic, and the presence, or absence, of certain infrastructure (e.g., sidewalks, raised median refuge islands, Rectangular Rapid Flashing Beacons, signals) are all predictors of pedestrian safety at roadway crossings.

Further, the mere perception that a crossing is dangerous has been shown to correlate to actual crash locations.

Evaluation tools

Site specific

- Crash data
- Traffic counts
- Speed studies
- Number of travel lanes and width
- Infrastructure features
- [PEDBIKESAFE](http://www.pedbikesafe.org/): Pedestrian/Bicycle Safety Guide and Countermeasure Selection System (<http://www.pedbikesafe.org/>)

Community

- Number of miles of pedestrian/bicycle facilities
- Crash data
- [Walk Score](https://www.walkscore.com/cities-and-neighborhoods/) (<https://www.walkscore.com/cities-and-neighborhoods/>)

- [Walkability Checklist](http://www.pedbikeinfo.org/cms/downloads/walkability_checklist.pdf)
(http://www.pedbikeinfo.org/cms/downloads/walkability_checklist.pdf)
- [Bikeability Checklist](https://one.nhtsa.gov/people/injury/pedbimot/bike/bikeability/index.htm)
(<https://one.nhtsa.gov/people/injury/pedbimot/bike/bikeability/index.htm>)

Evaluation is an important, often overlooked, tool to help create and maintain a safe traffic environment.

1. *The New Children in Traffic: Updated and Revised*, Video, AAA Foundation for Traffic Safety, 1999.



Chapter 8

Facility Maintenance Standards and Recommendations

Routine Maintenance

Along with motor vehicles, pedestrians and bicycles are legally considered to be traffic. As such, facilities used for walking and bicycling need to be maintained for their safe and enjoyable use. However, because of their operational characteristics, walkers and bicyclists are susceptible to hazards most motor vehicles are not. These hazards need to be taken into account in order to provide safe and enjoyable travel by people walking and bicycling.

Common Hazards and Possible Remedies

Pedestrians

In addition to street crossing, pedestrians are most often injured by simple falls caused by surface irregularities such as holes, openings, gaps, unexpected rises (uplifted sidewalk slabs), and curbs or slippery surfaces. Every attempt should be made to identify, sign, mark, and repair these hazards before someone is injured. For example, sidewalk irregularities can be ground down or mud jacked. If an injury does occur because of a surface irregularity, again, the hazard should be signed and immediately repaired.

Street crossings are typically the most dangerous for pedestrians. Associated signs, markings, and signals must be placed and maintained with pedestrian safety in mind. For example, pedestrian signal push buttons must be accessible, functional, and provide the pedestrian with the time necessary to cross the street safely.

Pedestrians/Bicyclists

Multi-use Paths

Multi-use paths, off-street facilities intended for the use of pedestrians and bicyclists, must be designed, built and maintained with the safety of the intended users in mind. Considerations include, surface width and type, sight lines, grades, lateral and vertical clearances. For example, paths must be a minimum of 10 ft wide to accommodate two-way travel, but wider widths may be necessary in particularly congested areas.



East River Trail

Bicyclists

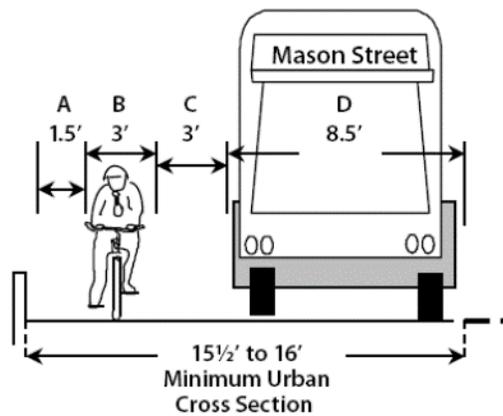
Narrow Lanes

Narrow travel lanes (less than 14 ft) on low-volume/low-speed roads are comfortable and relatively safe for most bicyclists to share with motor vehicles. However, as traffic volumes and/or speeds increase narrow-lane roads become increasingly uncomfortable and less safe

for cycling. These roads are sometimes unavoidable due to a lack of parallel alternative routes, and destinations being located here.

Adding bicycle lanes, paved shoulders or wide curb lanes (over 14 ft) to a narrow-lane road may provide the additional space necessary to improve bicyclist's comfort and safety.

It is important to note that in Wisconsin there is a 3 ft minimum passing law that requires a motor vehicle operator to give at least 3 ft of space when passing a bicyclist. This means, if the lane is narrow (on a two-lane road), the motor vehicle will have to yield to oncoming traffic and cross the yellow center line to pass safely and legally.



- A. Gutter section with 18" storm sewer inlet grates, no joint line
- B. Bicyclist's width with 10" of maneuvering room
- C. Recommended minimum separation distance
- D. Truck and bus width

Gaps Between Gutter Flag and Road Surface

Through expansion and contraction, longitudinal joints between the gutter flag (the part of the gutter which extends into the road) and the road can open up. It is very easy for the wheels of a bicycle to get caught in this gap causing the bicyclist to swerve and/or crash. To avoid riding in this gap, some bicyclists ride in the gutter. This is never "practicable" due to the hazard presented by drain grates, debris, the joint and the threat of striking the curb with a pedal. Bicyclists should ride at least a foot to the left of the joint.

New road construction should strive to move this joint closer to the curb on asphalt roads or integrate the curb into the road surface, removing the joint altogether, on concrete roads.

Unsafe Drain Grates

Drain grates, especially those with openings running parallel to the road, can be very dangerous for bicyclists. If a bicyclist gets a wheel trapped in a grate, this can cause a serious crash. All drain grates should be bicycle safe, having no large openings running parallel to the bicyclist's direction of travel. Unsafe grates should be replaced immediately.



Poorly Maintained and Repaired Roads

Roadway surface hazards, such as pot holes, broken glass, rough construction patches, etc., may cause a bicyclist to fall or swerve unexpectedly into traffic while trying to avoid these hazards. Roads should be maintained to the following tolerances for bicyclists:

Recommended Bikeway Surface Tolerances		
Direction of travel	Grooves*	Steps**
Parallel to travel	$\leq 1/2$ inch wide	$\leq 3/8$ inch high
Perpendicular to travel		$\leq 1/4$ inch high

*Grooves: A narrow slot in the surface that could catch a bicycle wheel, such as a gap between two concrete slabs.

**Steps: A ridge in the pavement, such as that which might exist between the pavement and a concrete gutter or manhole cover; or that might exist between two pavement blankets when the top level does not extend to the edge of the roadway.

Unpaved Shoulders on Roads Without Curbs and Gutters

Without a paved shoulder, bicyclists are forced to ride in the travel lane even if they would prefer not to. Also, a difference in elevation between the road and the shoulder may be hazardous for a bicyclist. Paved shoulders are generally not necessary on low volume roads because there are sufficient gaps in traffic for motorists to safely overtake bicyclists. Different road conditions (traffic/truck volume, speed) suggest different paved shoulder widths, but 5 to 6 ft is usually adequate.

Paved shoulders also benefit users other than bicyclists. With a paved shoulder, head-on motor vehicle collisions are decreased, pedestrians are safer, the road lasts longer, there is a place for disabled vehicles and, traffic stops by law enforcement are safer.



Traffic Signals

Two dangerous situations can arise for bicyclists at traffic signals. The green phase of the signal may not be long enough to allow a bicycle to clear the intersection before cross traffic enters. Or, traffic sensors (located in the roadway surface or a camera above the intersection), which signal the traffic light to change when vehicles are present, may not detect the presence of a bicycle. Signal timing should be adjusted to allow bicycle traffic to clear the intersection before crossing traffic begins. Bicycle-sensitive sensors should be installed to activate the lights. Lane markings can also be used to show the bicyclist where to sit to activate the signal.

Winter Maintenance

Traditionally, walking and bicycling have been thought of as three-season activities, spring, summer, and fall. Yet, Midwesterners are a hardy bunch. They ice fish, cross country and downhill ski, snowmobile, ice skate, attend late season football games, walk, run and even bicycle in the winter. Madison, Wisconsin is among the “Top U.S. Cities for Winter Bicycle Commuting.”⁽¹⁾ As the population of runners and bicyclists increases, and the push for year-round fitness continues, more and more people will likely take these activities into the winter months. Relatively new technologies like fat bikes (mountain bikes with ultra-wide tires) are also expanding the bicycling season.

Pedestrians and bicyclists should be expected and accommodated at all times of the year. Roadways, sidewalks and multi-use paths should be maintained (clear of snow and ice) to support safe walking and bicycling. Portions of Fox River State Recreational Trail are now plowed and sanded to support safe walking and bicycling during the winter months.

Bicycling Staging Areas

Many bicyclists will start their ride from home. Others will drive or take transit to a starting point. The decision to bicycle or drive may be made by choice or out of necessity. Without an appropriate staging area, some bicyclists may not ride in the Town, or they may gather at inappropriate areas. Providing the right facilities for bicyclists (e.g. motor vehicle and bicycle parking, water, restrooms, places to sit, shade, bicycle repair stations) can help them choose appropriate staging areas for their rides.

Parks and other public facilities (town hall, schools, etc.) are generally good staging areas for bicycle rides as they are public and already provide some, or all, of the desired facilities.

Bicyclists should be made aware of preferred staging areas. Information could be provided through the Town website, Facebook, blog, etc. Identifying staging areas on bicycle and pedestrian maps will also be effective.

Mountain Biking Trails

Not all bicycling is done on-road or on paved trails. Mountain biking, riding off-road on unpaved trails, is another very popular activity. Mountain biking opportunities are somewhat limited in Brown County. Both the Baird Creek Parkway and the Brown County Reforestation Camp provide trails for mountain biking; however, they are eight and 20 miles away from Ledgeview respectively. Opportunities for providing mountain biking trails within the Town should be explored. The Town of Ledgeview Parks and Recreation Plan 2019 – 2024 states, “The former landfill site—currently owned by Brown Co—located on CTH X is a potential location for mountain biking facilities. The site totals 130 acres includes considerable undulation, and wooded area. There is even an existing parking lot for users.”

Review of Municipal Ordinances

The Town has proactively incorporated bicycle and pedestrian policy and procedure into municipal ordinances. Numerous planning documents also include general bicycle and pedestrian recommendations. These planning documents and municipal ordinance form the base for a more bicycle and pedestrian friendly environment.

Municipal Ordinances

The following are ordinances extracted from the municipal code that specifically relate to bicycle and pedestrian issues within the jurisdiction. Recommended changes are noted in red italic type.

Chapter 94 – Streets and Sidewalks

94.5 Responsibility of Owner to Clear Sidewalk

The lessee, occupant of the first or ground floor, or persons having charge of a building, or, if there be no lessee, occupant or person having charge, then the owner

of each and every parcel of real estate in the Town abutting or bordering upon any street highway or other public place, shall remove or cause to be removed all snow and ice from the public sidewalk in front of or adjacent to such premises of the full paved width of such sidewalk within 24 hours after such snow or ice shall have fallen or accumulated.

Recommendation:

Require that sidewalks be cleared prior to the next morning rush hour. This better accommodates people who need to get to work, school, or other places of importance by foot or wheelchair.

Chapter 96 – Subdivision and Platting Regulations

96.6 Definitions

Recommendations:

Add Bike Lane Definition “A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.”⁽²⁾

Replace Pedestrian Pathway Definition with *Multi-Use Trail (also referred to as Shared Use Path)* “A Bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users.”⁽³⁾

Replace Sidewalk Definition with “The portion of a street or highway right-of-way designed for preferential or exclusive use by pedestrians.”⁽⁴⁾

96.9 Improvements

Recommendation:

Change Bicycle Circulation 96.9 (I) as follows. Bicycle circulation shall be accommodated on streets and/or on *multi-use trails* ~~dedicated bicycle paths~~. Where feasible, any existing bicycle routes through the site shall be preserved and enhanced. Facilities for bicycle travel may include *multi-use trails off-street bicycle paths (generally shared with pedestrians and other nonmotorized users)*, shared on-street driving/~~bicycle~~ lanes, and striped bicycle lanes on streets. ~~Designated lane signs shall be placed beside the road where bicycle lanes are present, and~~ “Bike Lane” ~~“bike lane”~~ shall be painted within the lanes to ensure that people understand the lanes are to be used only by bicyclists. The Town of Ledgeview Comprehensive Plan and the most recent version of the Brown County Bicycle and Pedestrian Plan shall be consulted for guidance.

96.10 Design Standards

Recommendations:

Replace On-Street Bike Path with *Bike Lanes in Table 1: Urban Cross-Section Street Standards*

Update table to be consistent with ASHATO and Wisconsin Bicycle Facilities Design Handbook for placement of bike lanes. Bike lanes are typically recommended for collector and arterial streets due to higher speeds and traffic volume. *Bike lanes should be recommended for all street types in Table 1 except the Local Streets Category.*

96.10 (k)(3) Sidewalks

Recommendation:

Change ordinance to require all sidewalks to be constructed at the time the first house is built on a street. Alternately, consider requiring all sidewalks to be installed when a specific percentage (i.e. 75%) of lots have houses built on them.

Chapter 135 Zoning

135.205 (b) (4) Bicycle Parking

Recommendation:

Add: *The Zoning and Planning Commission will base approval on submittal adhering to guidelines outlined in the Association for Bicycle and Pedestrian Professionals (APBP), Essentials of Bike Parking: Selecting and Installing Bike Parking that Works (2015).*

The *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works (2015)*, provides a brief overview of APBP's comprehensive Bicycle Parking Guidelines. This free guide covers the following topics: site planning for short- and long-term parking, bicycle rack selection, placement, spacing, and installation. Although, the more comprehensive *Bicycle Parking Guidelines* is the appropriate document for adoption by local agencies as official bicycle parking policy. www.apbp.org/page/Publications

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1. Top U.S. Cities for Winter Bicycle Commuting, Metaefficient, A Guide to Efficient Living. <https://metaefficient.com/bicycles/top-cities-winter-bicycle-commuting.html>. Accessed December 14, 2018.
 2. *Guide for the Development of Bicycle Facilities*, American Association of State Highway and Transportation Officials, 1999. P.2
 3. *Guide for the Development of Bicycle Facilities*, American Association of State Highway and Transportation Officials, 1999. P.3
 4. *Guide for the Development of Bicycle Facilities*, American Association of State Highway and Transportation Officials, 1999. P.3

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Chapter 9

Conclusion

The Town of Ledgeview will continue to grow and develop into the foreseeable future. With this growth comes both risk and opportunity for bicycle and pedestrian recreation and transportation.

As stated in the Introduction, “Bicycling is very popular in the Town of Ledgeview due to its mostly low-trafficked roads, scenic beauty, and topography.” However, as the Town’s population grows, and the community urbanizes, traffic volumes will increase potentially placing the ability to bicycle and walk safely and enjoyable at risk.

This Plan can help the Town’s growth and urbanization transition. Pedestrians, bicyclists and the community as a whole will benefit from its implementation. The Plan can help Town leaders and staff anticipate potential negative consequences of this rapid period of change. It recommends accepted methods of pedestrian and bicycle accommodation which will help the Town meet its goals.

With this plan, the Town has the opportunity to ensure a sustainable transportation future for all.

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Appendix A

Ledgeview Loops Survey Results

Partial Summary

Ledgeview Loops Survey Results

Partial Summary

Compiled by: WE BIKE, etc., LLC
(February 22, 2018)

1) General Results:

- a. **Number of respondents: 503**
- b. **Resident of Ledgeview: 71%**
- c. **Do you currently bicycle in Ledgeview? Yes 82% No 18% (499 of 503)**
- d. **Sex of respondents: Male 53% Female 47%**
- e. **Age of respondents (334 of 503 possible respondents)**
 - i. **Less than 20** 0.5% (2)
 - 20-29** 2.5% (8)
 - 30-39** 27% (90)
 - 40- 49** 39% (130)
 - 50-59** 20% (67)
 - 60-69** 10% (33)
 - 70 plus** 1% (4)
- f. **Do you have children? Yes 85% No 15% (331 of 503)**
- g. **Do you bicycle with your children? Yes 66% No 34% (332 of 503)**

2) Bicycle Experience Results (for bicyclists):

- a. **What level of bicyclists do you consider yourself? (282 of 503)**
 - i. **Beginner** - rider who prefers to stick to the bike path or trail - **18%**
 - ii. **Intermediate** - rider who is not really comfortable riding in most traffic situations – **36%**
 - iii. **Advanced** - confident rider who is comfortable riding in most traffic situations – **46%**
- b. **Why do you bicycle in Ledgeview? (284 of 503) (could select more than one answer)**
 - i. **Recreation** – 243
 - ii. **Transportation** – 61
 - iii. **Fitness** – 232
 - iv. **Other** – 17

- c. **What level of Loop would you use?** (285 of 503)
 - i. **Beginner** -14%
 - ii. **Intermediate** – 42%
 - iii. **Advanced** – 25%
 - iv. **Family** – 19%

- d. **What roads do you typically ride on in Ledgeview?** (top ten responses) (279 of 503) (could give multiple answers)
 - i. **County Highway G** - 141
 - ii. **County Highway GV** – 84
 - iii. **County Highway V** – 68
 - iv. **County Highway X** – 67
 - v. **Scray Hill Road** - 57
 - vi. **Ledgeview Road** – 53
 - vii. **Dollar Road** – 41
 - viii. **Sportsman Drive** – 39
 - ix. **Creamery Road** – 38
 - x. **Oak Ridge Circle** – 34

- e. **What is good about these roads?** (top four responses by category) (267 of 503)
 - i. **Low traffic volumes/low speed** – 66
 - ii. **Hills/scenery** - 47
 - iii. **Nothing or unsafe** - 36
 - iv. **Road condition, smooth etc.** – 22

- f. **What is difficult about these roads?** (top two responses by category) (276 of 503)
 - i. **Traffic/unsafe** - 111
 - ii. **Lack of bicycle facilities (bike lanes/paths, etc.)** – 83

3) **Bicycle Experience Results** (for non-bicyclists):

- a. **Why do you not bicycle in Ledgeview?** (top three responses by category) (55 of 503)
 - i. **Lack of facilities/safety** - 25
 - ii. **No interest or bicycle** – 14
 - iii. **Traffic issues** - 5

- b. **What would it take to get you to bicycle in Ledgeview?** (top response in category) (53 of 503)
 - i. **Better Facilities** - 39

- c. **If you would bicycle in Ledgerview, where would you come from and bicycle to on your ride?** (top three responses by category) (50 of 503)
 - i. **Parks or Trails** – 16
 - ii. **Friends or other neighborhoods** - 11
 - iii. **Commercial Areas** – 5

- d. **What level of Loop would you use? – (51 of 503)**
 - i. **Beginner** -22%
 - ii. **Intermediate** – 31%
 - iii. **Advanced** – 4%
 - iv. **Family** – 43%

- e. **What do you feel is the major benefit to a Bicycle Loop system?** (top three responses by category) (48 of 503)
 - i. **Exercise, health, connections** – 19
 - ii. **Safety** – 13
 - iii. **Economic benefit to community and businesses** – 5

- f. **In what areas of community would you like to see Loops placed?** (top three responses by category) (44 of 503)
 - i. **County Roads** –13
 - ii. **West side of town** – 6
 - iii. **Dollar Lane/ Dollar Road area** –5

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Appendix B

Figure 12, Brown County Bicycle and Pedestrian Plan

Figure 12
Public Comments within the Town of Ledgerview
 2016 Brown County Bicycle and Pedestrian Plan

Public Comments

30 - It would be nice to connect the East River Trail to the Fox River Trail, to give it more of a purpose rather than just a place to walk. On the south end of the East River Trail there is a loop, if it went somewhere I believe more people would walk it.

61 - Hwy X needs bike lanes

62 - Hwy G needs bike lanes

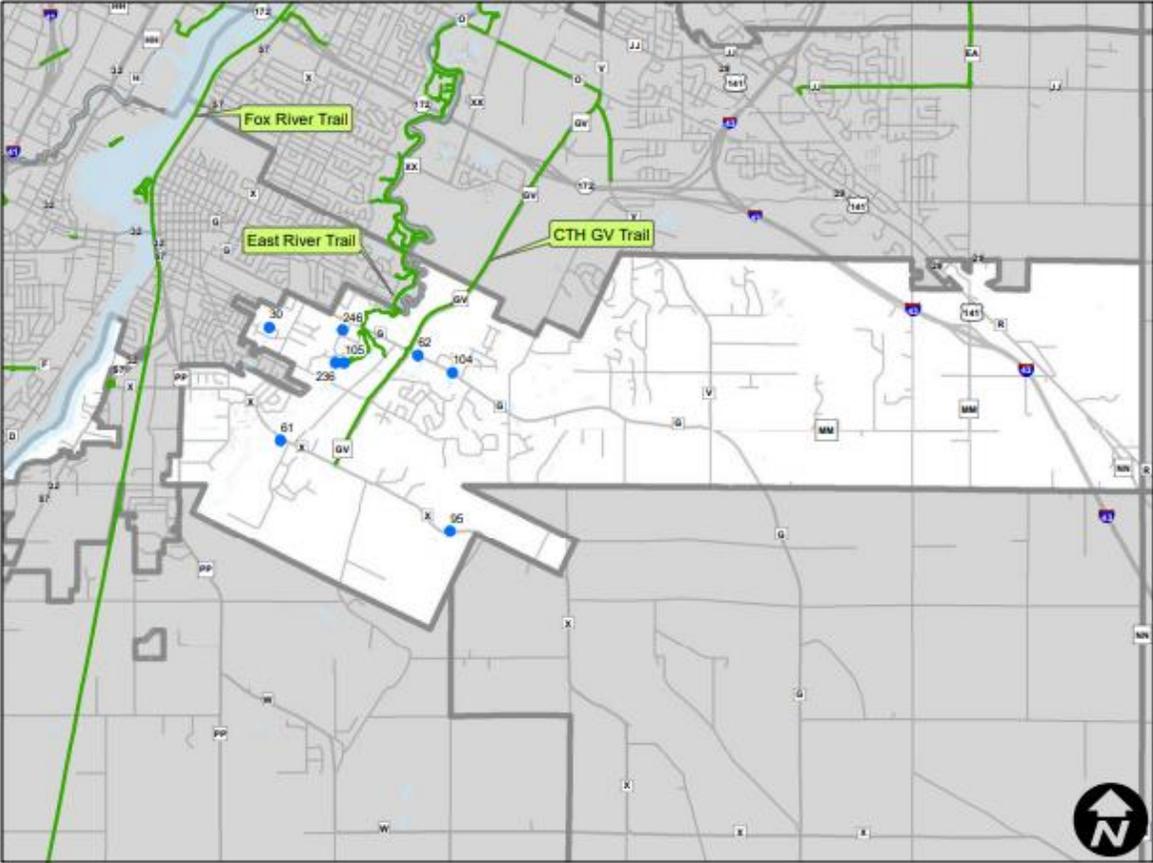
95 - this road is a very popular road with cyclists. It should have paved shoulders in the future.

104 - Bicycle and pedestrian facilities should be extended east on Dickinson Road, at a minimum to Scray Hill (then continuing to Scray Hill Park). The expanding neighborhoods in this area will then have access to the neighborhood commercial node (Shopko Express etc.)

105 - Extend the East River Trail and provide an ultimate connection to the Fox River Trail.

236 - This trail should have a better connection path(s) to the Fox River Trail at both ends for cyclists. Having this would create a "loop" thus increasing its usability as transportation and recreation.

246 - I would like a trail that connects the East River and Fox River Trails on the south end to make a large loop.



Legend

- Public Comment Points
- Existing Multi-use Trail
- Brown County Communities
- Town of Ledgerview



0 0.5 1
Miles

Source: Brown County
Land Information Office

Created: 12/12/2016

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WE BIKE, etc.

