



VII BICYCLE *and* PEDESTRIAN PLAN

This chapter presents the long term transportation plan for bicycle and pedestrian infrastructure in McHenry County. It highlights the need for this type of infrastructure investment in order to meet the goals and objectives of the plan. Then, the County's potential role in implementing these types of projects is discussed.

McHenry County is well served at the local level by an extensive municipal bike and pedestrian network, especially in the south-east corner of the County (see Figure 55). There are also three existing regional trails: the Prairie Trail, Huntley-Union-Marengo Trail and Hebron Trail which allow for inter-community travel. While much of the existing mileage of trails are maintained by local municipalities or park districts, the regional trails are maintained by the McHenry County Conservation District (MCCD).

In addition to the trail network described above, a network of sidewalks in urban areas of the County (not shown) allows for the safe movement of pedestrians around town centers. This existing system of bicycle and pedestrian accommodations is vital to providing residents of McHenry County with a high quality of life no matter their age, mobility, or income level.

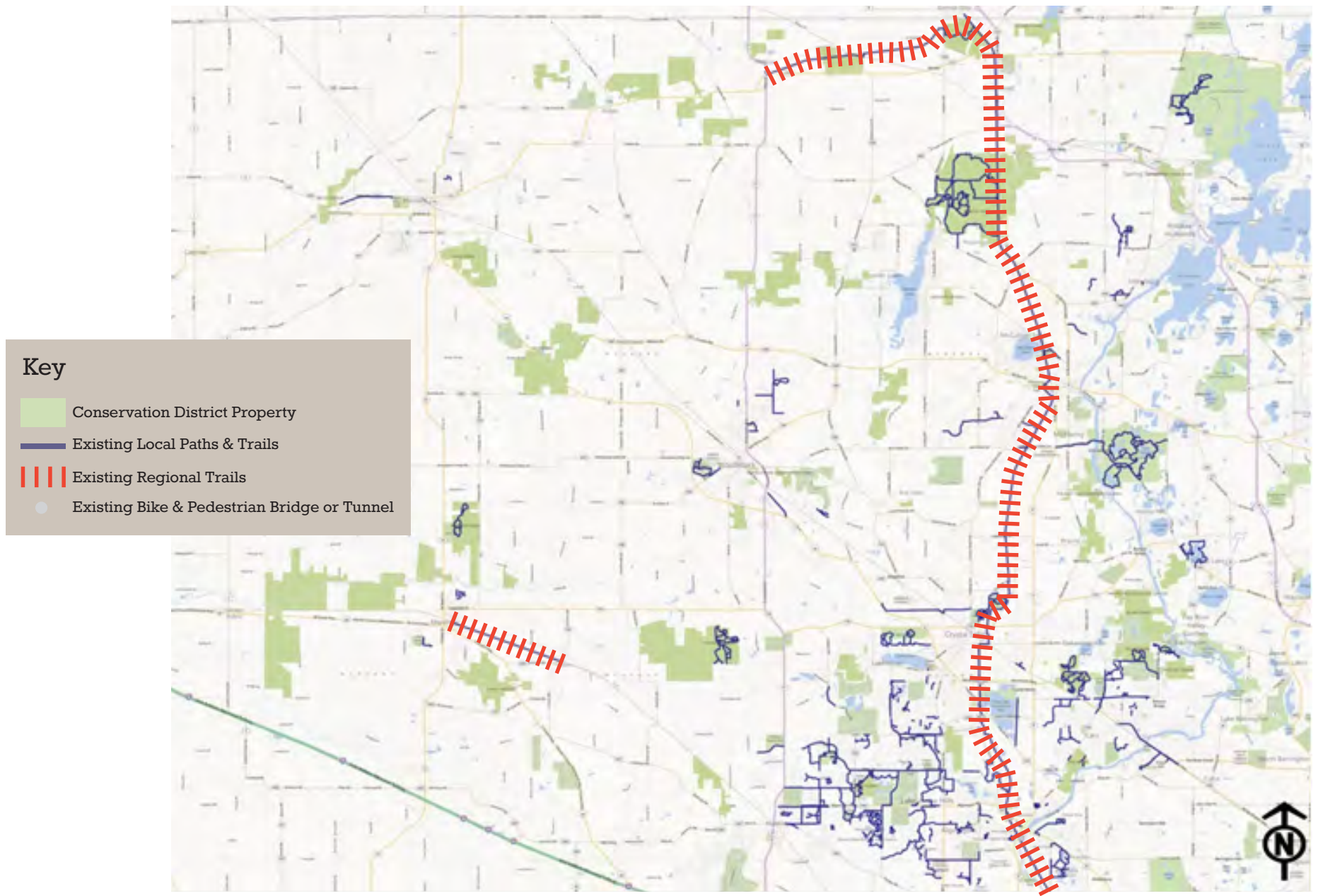


Figure 55: Existing Bicycle Trail Network in McHenry County

Goal 1. Highway Congestion Mitigation

The Transportation Committee of the County Board established 6 goals for the long range transportation plan. All of these goals are directly supported through the general enhancement of bicycle and pedestrian facilities in the County. The following section reviews these goals and documents how bicycle and pedestrian infrastructure is needed to meet these goals. The goal is to have a reliable arterial road network. This goal is to be balanced with the need to preserve the character of McHenry County and the ability to maintain the existing transportation infrastructure.

The transportation benefits associated with providing facilities for non-motorized trips result in a reduction in congestion, lost time and money. Americans spend tens of millions of dollars purchasing, operating, insuring, and maintaining automobiles, along with the cost of road construction, maintenance, oil production, and environmental damage. On average, it costs about \$3,000 per year to own and operate an automobile, not including \$2,000 for gasoline. Improving bike/pedestrian facilities can have a great impact on a large percentage of trips, providing an affordable and efficient transportation option.

A network of bikeways and sidewalks throughout McHenry County will connect communities, which increases the mobility of residents and maximizes access to housing, community centers, transit stops, commercial areas, parks, schools, and places of work. Bicycle and pedestrian facilities encourage merging exercise with daily routine, making it easier to stay healthy and fit, and reduce automobile demand on roads. When safe facilities are provided, more people are willing to bike or walk for many daily trips that would otherwise be made by car.



Figure 56: Bicycle Accommodations can Reduce the Number of Cars on the Road

Bicycle and pedestrian accommodations are also necessary for the success of public transit. Transit stops need to be fully integrated into the surroundings and accessible to as many people as possible. This can be done by using bicycle and pedestrian facilities as “feeder systems” for transit, leading people safely to the stops. Doing this can potentially divert long automobile trips to walking-plus-transit trips.

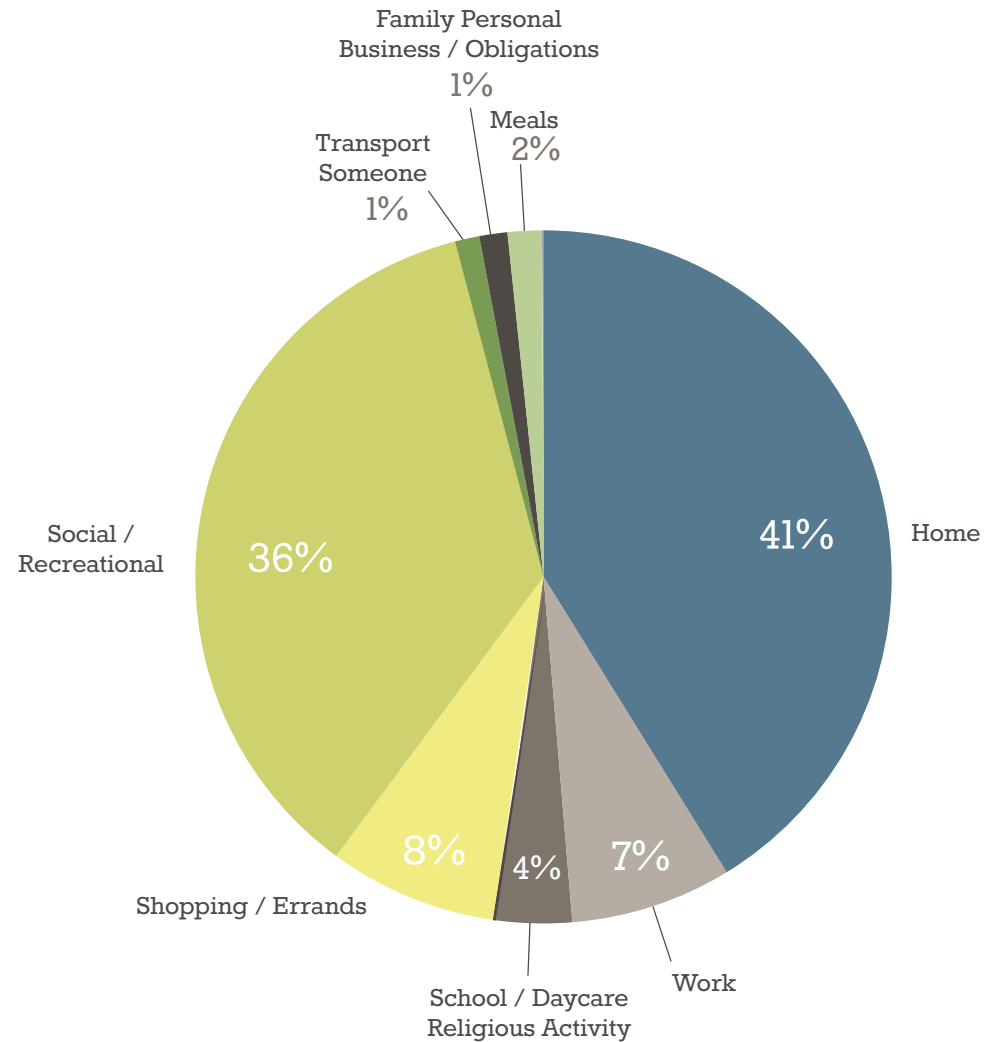


Figure 57: National Survey of Bike Trips by Purpose

Source: 2009 National Household Travel Survey (NHTS)

Goal 2. Safety

The goal is to have zero fatal collisions in the County. One objective of the plan is to identify projects and initiatives needed to improve transportation safety in the County.

In the last six years, the total number of crash fatalities has been reduced by 50%. As seen in Figure 59, the annual number of fatalities has dropped from approximately 30 each year to approximately 14 each year. However, the annual number of bicycle and pedestrian fatalities has remained constant and trending higher from 2 to 3 each year.

As a result, the percentage of fatalities in the County resulting from pedestrian and bicycle crashes with automobiles is on the rise. Since 2005, the percentage of traffic fatalities involving bicyclists and pedestrians has increased from 7% (0% bicyclist plus 7% pedestrian) to 21% (7% bicyclist plus 14% pedestrian). In order to meet the goal of zero fatal collisions in the County, it is important to provide safe places to walk or ride a bike physically separated from motorized vehicles.

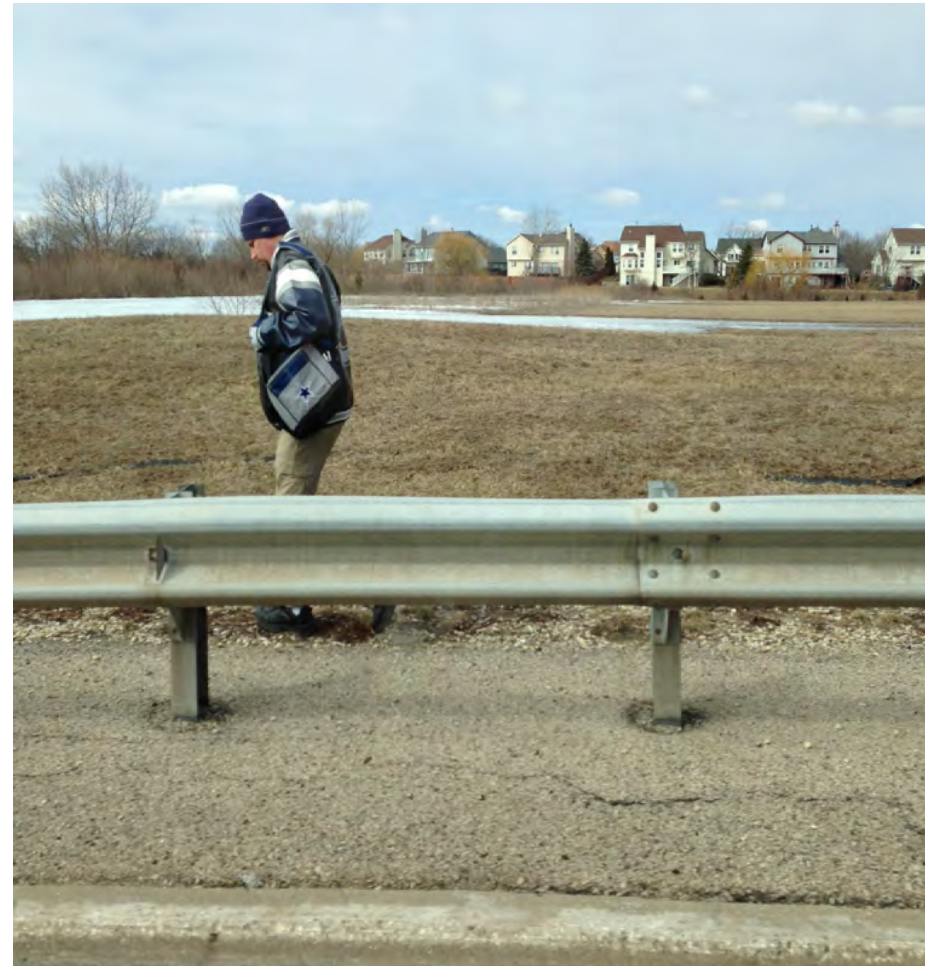


Figure 58: Pedestrian Navigates the Shoulder of Randall Road

Since 2005, the percentage of traffic fatalities involving bicyclists and pedestrians has increased from 7% (0% bicyclist plus 7% pedestrian) to 21% (7% bicyclist plus 14% pedestrian).

Crash Type	2005		2006		2007		2008		2009		2010		2011	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Angle	4	13%	2	6%	10	33%	2	11%	1	7%	1	7%	1	7%
Animal	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Fixed object	8	27%	11	34%	6	20%	4	22%	6	40%	4	29%	3	21%
Head on	9	30%	7	22%	7	23%	4	22%	2	13%	1	7%	1	7%
Other non collision	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Other object	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Overtaken	1	3%	2	6%	0	0%	4	22%	3	20%	1	7%	1	7%
Parked motor vehicle	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Bicyclist	0	0%	0	0%	0	0%	0	0%	0	0%	1	7%	1	7%
Pedestrian	2	7%	1	3%	2	7%	2	11%	2	13%	2	14%	2	14%
Rear end	4	13%	0	0%	0	0%	1	6%	1	7%	1	7%	0	0%
Sideswipe opposite direction	2	7%	3	9%	1	3%	0	0%	0	0%	0	0%	1	7%
Sideswipe same direction	0	0%	2	6%	0	0%	0	0%	0	0%	0	0%	0	0%
Train	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Turning	0	0%	4	13%	4	13%	1	6%	0	0%	3	21%	4	29%
Unknown	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Total	30		32		30		18		15		14		14	

Figure 59: Fatal Crashes in McHenry County by Crash Type from IDOT Crash Data 2005 - 2011

Goal 3. Mobility for All

The goal is to improve the transportation in the County to meet the needs of seniors, children, persons with disabilities, and people without automobiles. The objective is to lower the costs incurred by individuals, families, not-for-profit organizations, and government agencies related to accessing basic services. Throughout one's lifetime, obstacles are overcome to increase mobility as shown in the picture to the right. For most people, gravity is defeated when the first step is taken and mastered upon learning to ride a bicycle. Then, maximum personal mobility is achieved after receiving a driver's license and being able to rent a car. That period of increasing mobility takes 25 years and lasts approximately 45 years (age 25 to 70). With age, poorer sight and slowing reflexes diminish the ability to drive whenever and wherever desired. The rate of this decline in driving ability depends on the person. However, for many, driving was never an option or became impossible at an earlier point in life. For them, mobility in McHenry County remains limited throughout their life. As older adults, this group enjoys slightly greater mobility than drivers because a lifetime of not driving has prepared them to live without a car.

Bicycle and pedestrian infrastructure is critical to increase the mobility of those that cannot drive towards the levels of drivers today. Even for those that cannot walk or ride a bike, this basic infrastructure is necessary to accommodate bus and commuter rail stops. Without this basic infrastructure in place, more people than necessary must rely on family, friends, and a patch-work of groups to make basic trips such as to the grocery store or medical office. Other methods of increasing mobility include rezoning and building more mixed commercial and residential areas, educating children and adults on how to use the transit system and how to safely ride a bicycle, and increase law enforcement of speed, cross-walk, and snow shoveling laws. In McHenry County, many of these methods will also expand transportation choices for those that can drive. An index created by

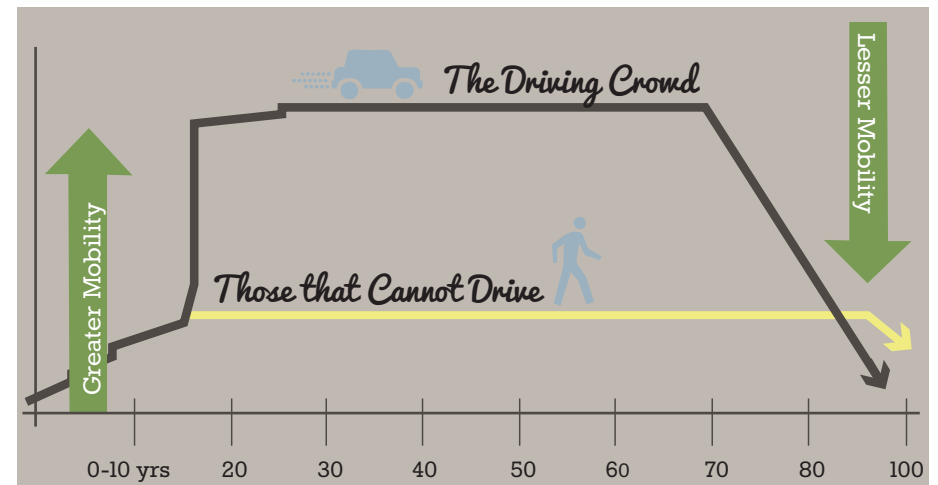


Figure 60: Age and Mobility in McHenry County

a company called Walk Score to help people find walkable places to live has rated every community in Illinois with over 10,000 residents (<http://www.walkscore.com>). McHenry County communities are all towards the bottom of this list with the City of McHenry being the most walkable and the Village of Huntley being the least (See Figure 61). Unlike many neighboring communities, every municipality in McHenry County is rated car-dependent, requiring a car for most or all errands.

Walk Score for Illinois Municipalities

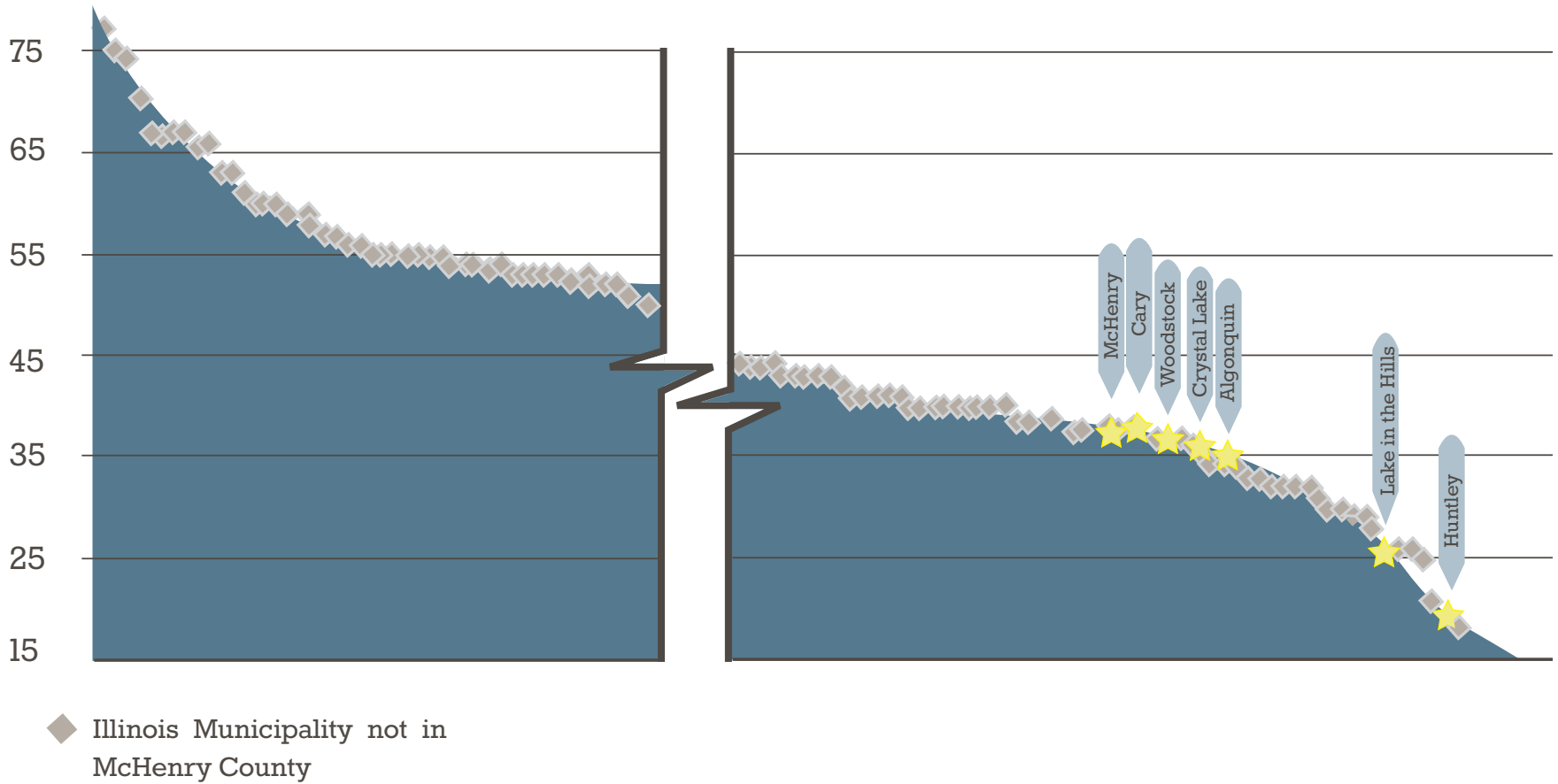


Figure 61: Municipalities in McHenry County (shown in yellow) are less “Walkable” than other Municipalities in Illinois

Goal 4. Transportation Choices

The goal is to become a bicycle and pedestrian friendly County with improved commuter rail and local bus services. One objective of this plan is to identify where missing links to the sidewalks and bikeways are needed. Another objective of the plan is to restructure local bus services and add additional commuter rail services.

Sidewalks are typically added as residential and commercial areas are built.

However, older areas, industrial areas, and empty lots lead to many cases of sidewalks simply ending at a developed property line. In many areas, the pedestrian is forced to use poorly graded highway shoulders and must be careful to avoid signs and other obstacles (See Figure 62).

For bicyclists and pedestrians, conditions have grown worse as automobile volumes have increased. Bicyclists were major political powers driving the



Figure 62: Pedestrian walking along McHenry Avenue near Crystal Lake South High School, before the addition of a sidepath

road pavement movement at the beginning of the 20th century. Now, paved roads are dominated by the automobile and most have little to no specific design accommodation for bicyclists and pedestrians. At high rates of speed, bicyclists and pedestrians are barely visible from a car.

During the course of designing the Rakow Road widening project built in 2011, the Transportation Committee of the County Board discussed the value of building a multi-use trail as part of the project. The discussion centered on whether or not it was a County Division of Transportation responsibility to design, build, and maintain a facility for recreational purposes. To investigate these concerns, in 2011, the County Division of Transportation counted the number of bicyclists and pedestrians on the Prairie Trail and conducted a survey on trip purposes.

On Saturday October 8, 2011, 428 bicyclists and pedestrians were counted on the Prairie Trail near Berkshire Drive in Crystal Lake; 488 were counted the following day on Sunday. On Saturday August 11, 2012, 895 bicyclists and pedestrians were counted crossing the bridge over Rakow Road on the Prairie Trail. On Friday October 23, 2012, 390 bicyclists and pedestrians were counted on the Prairie Trail passing under U.S. 14. For two hours on Friday, October 21, 2011, staff stopped and interviewed 41 users of the trail. As seen in Figure 64, a large majority, 34 (83%), were using the trail as designed for recreational and exercise purposes. However, 4 (10%) were on their way to work and 3 (7%) were on their way to go shopping.

Based on this initial result, additional bicycle and pedestrian counts were made and an online bicycle survey was created to gain a broader measure of why people use bicycles in the County. Between August 2012 and March 2013, 54 individuals completed the on-line survey. When asked in a broader context, bicyclists indicate a wider-range of purposes for using a bicycle. As seen in Figure 63, "Exercise" is the most widely reported purpose followed by "Work/School".

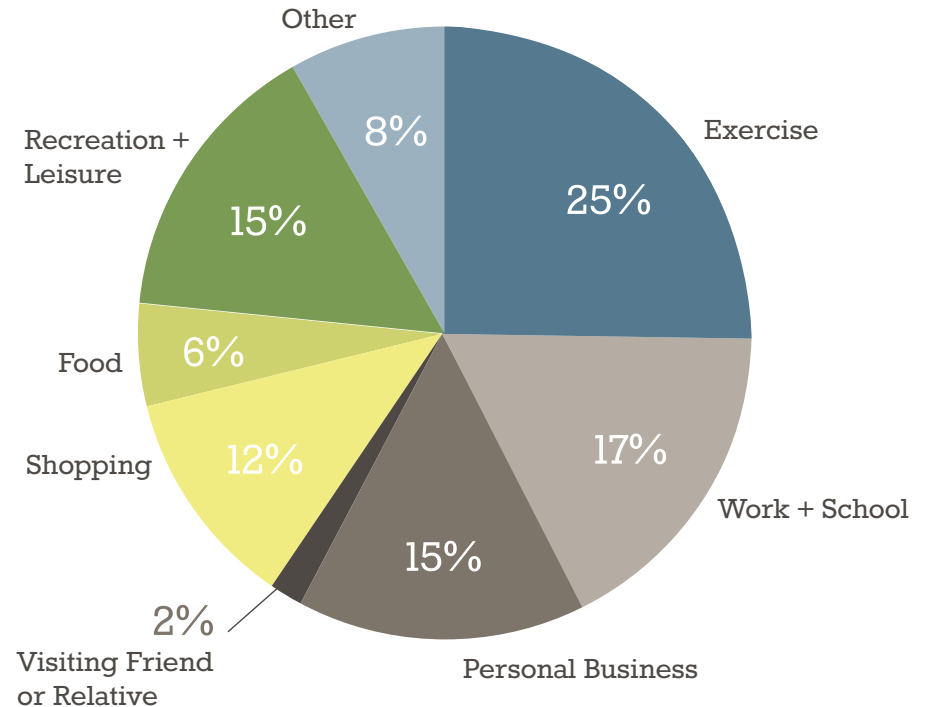


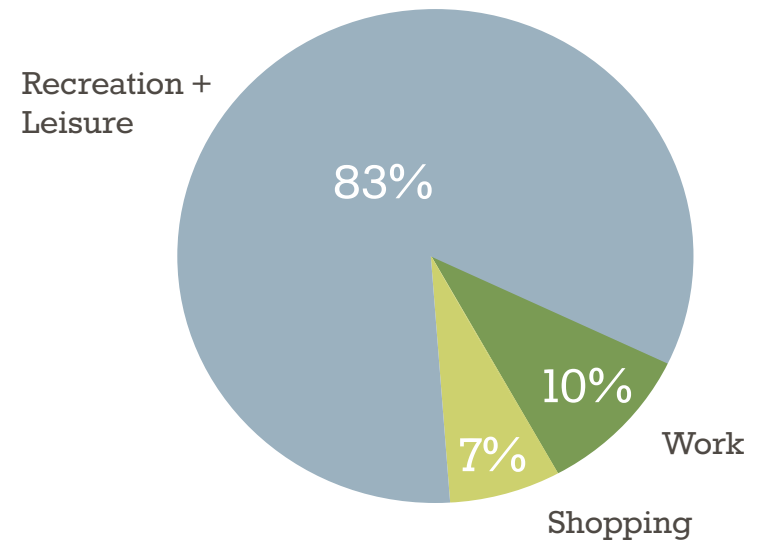
Figure 63: What was the Reason for your Bicycle Trip?

Given the reality of regular bicycle and pedestrian use on the County's streets and highways for broad purposes, adequate accommodations should be included in the design of all new roads as well as future road widening and reconstruction projects. Additionally, consideration of bicycle and pedestrian infrastructure is simply common practice in the United States. Nearly 100 years ago in 1914, the American Association of State and Highway Transportation Officials (AASHTO) was founded. AASHTO is responsible for establishing highway design parameters in the United States. Regarding bicycle infrastructure, AASHTO reminds all transportation officials of the importance of bicycling on our roadways:

"All roads, streets, and highways, except those where bicyclists are legally prohibited, should be designed and constructed under the assumption that they will be used by bicyclists. Therefore, bicyclists' needs should be addressed in all phases of transportation planning, design, construction, maintenance, and operations. All modes of transportation, including bicyclists, should be jointly integrated into plans and projects at an early stage so that they function together effectively."

On September 9, 2013 the United States Federal Highway Administration encouraged engineers to be flexible in bike design. The memorandum asks engineers to use the guidelines of the National Association of City Transportation Officials (NACTO) that had up to this date been rejected. This endorsement of the NACTO guidelines should help engineers working on projects in McHenry County by providing new solutions to difficult problems and by making these ideas mainstream.

Figure 64: Why are You Using the Prairie Trail October 21, 2011?



Goal 5. Environmental Quality

The goal is to promote ecological and human health. One objective of this plan is to balance the other objectives with the need to protect and enhance natural habitats and improve the quality of life in certain neighborhoods. One objective is to adopt innovative best practices in roadway design to limit or mitigate negative impacts to surface and ground water. Another objective of the plan is to identify transportation infrastructure to promote healthy and active living.

Increased levels of bicycling and walking would result in significant benefits in terms of health and physical fitness, the environment, and transportation-related effects. Bicycle and pedestrian facilities are also often an expression of community pride and character, and improve the general livability of the community. HUD, USDOT, and USEPA use 6 livability principles to guide their joint decision making. They stress that quality of life factors should be a central component in determining public investment at all planning levels. Two of these principles are directly related to implementing bike/ped facilities: 1.) Provide more transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.; and 2.) Value communities and neighborhoods by investing in healthy, safe and walkable neighborhoods – rural, urban, or suburban. The following are some benefits resulting from the implementation of bicycle and pedestrian facilities.

DIRECT ENVIRONMENTAL BENEFITS

Replacing automobile trips with non-motorized and non-polluting bicycling or walking trips can lead to significant environmental benefits. Increased use of non-motorized transportation modes can help reduce levels of carbon monoxide and other pollutants. These pollutants from automobile usage are detrimental to ecosystem health, contributing to acid rain, global climate change, and excess nitrogen levels in aquatic and terrestrial systems. The EPA reported that every gallon of gas burned releases 20 pounds of carbon dioxide (CO₂) into the air. By comparison, walking and biking for short trips (less than 1 mile), instead of taking a car, can reduce CO₂ emissions by 12 to 22 million tons per year.

DIRECT HEALTH BENEFITS

Bicycle and pedestrian facilities give residents of all ages the opportunity to integrate moderate exercise with daily trips to shop, work, or school. There is strong scientific evidence that regular physical activity promotes health and reduces risk of many diseases and premature death. Such moderate exercise has been proven to reduce the risk of developing coronary heart disease, diabetes, obesity, depression and several other medical conditions. A recent report by the Centers for Disease Control and Prevention has shown that 38% of US adults fail to even take a ten minute walk in a given week. According to the U.S. Department of Health and Human Services (HHS), "approximately 300,000 U.S. deaths a year are associated with obesity and overweight." Additionally, the U.S. Surgeon General recommends moderate physical activity for 30 minutes a day, five days a week.

Creating safe places for people to bicycle and walk are critical to allowing inactive people to become more active. Even though individuals must choose to exercise, communities can make that choice easier by providing attractive and safe networks of sidewalks, bike lanes and trails. Dr. William Dietz, director of the Division of Nutrition and Physical Activity for the Centers for Disease Control and Prevention in Atlanta, said most communities designed since World War II are unfriendly to pedestrians and cyclists. He noted that, “A quarter of all trips taken by Americans are under a mile, but 75% of those trips are done by car.” And people living in the most sprawling areas are 25-30% less likely to walk, and are likely to weigh about 6 pounds more (Barnett 29-30). Another benefit of bicycling and walking in terms of physical health is a reduction in health care costs. According to a National Parks Service study on the Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors, people who exercise regularly have 14% lower claims against their medical insurance and spend 30% fewer days in the hospital. In one local example, McHenry County’s Wellness Committee encourages County employees to get at least 30 minutes of exercise a day in an effort to reduce health insurance costs. In addition, the McHenry County Health Department has begun advocating for active transportation by awarding “We Choose Health” grants to local school districts and municipalities for “complete streets” projects.

IN-DIRECT HEALTH BENEFITS

Transportation related air pollution also increases public health costs. Air pollution from tailpipe emissions is linked with pulmonary, coronary, and neurological diseases, including asthma, cancer, heart disease, heart attacks, strokes, high blood pressure, birth defects, and brain damage. Any reduction in tailpipe emissions resulting from individuals choosing to walk or bike will indirectly improve the environment and health of the community.



Goal 6. Transportation and Land Use

The goal is to prioritize economic development by supporting development and industry. An objective of the plan is to identify areas of high employment and areas of higher unemployment levels that can positively benefit from new transportation infrastructure investments.

Bicycle and pedestrian facilities enhance the quality-of-life of communities by providing greater opportunities for outdoor recreation. The presence of these facilities helps communities build pride by ensuring that neighborhoods are good places to live and that children can safely walk or bike to a park or school. Safe bicycle and pedestrian facilities promote an increase in social activity. Residents can get out of their cars and connect with their neighbors using paths as a safe and healthy common ground for social interaction.

A well planned system of bicycle and pedestrian facilities is a desirable amenity and can contribute to the economic vitality of McHenry County. Linking paths to commercial areas is crucial to developing, attracting, and retaining a talented workforce since opportunities for walking and biking are increasingly desired by young professionals. By providing commuting options for employees and safe places for physical activity during breaks, bicycle and pedestrian facilities can attract high-quality businesses. Businesses choosing a location that will help attract and retain employees have been cited as the top factor when deciding on office locations. Corporate real estate executives have stated that employee quality of life issues are as important as cost when selecting a new office location.

Many development plans for homes, apartments and townhouses across the United States include pathways to create recreational opportunities along with increasing property values. Real estate agents look at trails as an amenity to attract buyers and to sell property. In a study done by American Lives, walking and biking paths

ranked third out of 39 features identified by homebuyers as important factors in their home buying decisions (NBPC Technical Brief). Having a pathway nearby has also been proven to increase the value of properties by as much as 5-20% (Transportation Outlook 2040).



Source: Woodstock Library

2040 MCHENRY COUNTY BICYCLE AND PEDESTRIAN PROJECTS

Bicycle and pedestrian projects ideas were taken from previous plans, the on-line community map, and library kiosks. Projects were prioritized if they were voted on-line with an average of 3.0 or greater, requested by an agency in writing, and

met four or more goals of the plan (See Figure 65). These are the projects that are included in the Plan Map in Figure 66. A full explanation of this evaluation is included in Appendix A.

Label	Project Name	Project Costs (\$2013)	Votes	Agency	Goals	Priority
M4	U.S. 14 Side Path from Community College to Woodstock*	\$0	Yes	Yes	Yes	High
M3	IL 31 Side Path from IL 176 to 120*	\$0	Yes	Yes	Yes	High
M1 & M2	IL 47 Side Path from Reed Road to Charles Road*	\$0	Yes	Yes	Yes	High
M9	Randall Road Side Path*	\$0	Yes	Yes	Yes	High
B1	Community Bicycle and Pedestrian Program*	\$9,600,000	Yes	Yes	Yes	High
B2	U.S. 14 Side Path from Crystal Lake to Cary	\$2,100,000	Yes	Yes	Yes	High
B3	Prairie Trail Extension between Ackman Road and Illinois Route 31 via Rakow Road Side Path	\$1,300,000	Yes	Yes	Yes	High
B4	Prairie Trail Extension to Moraine Hills State Park via Bull Valley Rd. and Charles Miller Rd. Side Path	\$2,800,000	Yes	Yes	Yes	High
B5	Huntley Union Marengo (H.U.M.) Trail Extension	\$2,000,000	Yes	Yes	Yes	High
B6	Lakewood Road and Ackman Road Side Path	\$800,000	Yes	Yes	Yes	High
B7	Prairie Trail Extension to Pleasant Valley via IL 176 Side Path	\$6,200,000	Yes	Yes	Yes	High
B8	U.S. 14 Side Path and IL 120 Side Path from Woodstock to Wonder Lake	\$6,400,000	Yes	No	Yes	Medium
B9	Prairie Trail Extension to Wonder Lake via McCullum Lake Road Side Path	\$1,300,000	Yes	No	Yes	Medium
B10	IL 120 Side Path between Woodstock to Wonder Lake	\$3,900,000	Yes	No	Yes	Medium
B11	IL 173 Side Path between Richmond and Chain O'Lakes Park	\$2,500,000	Yes	No	Yes	Medium
B12	IL 176 Side Path between Prairie Grove and Island Lake	\$1,600,000	Yes	No	Yes	Medium
B13	Prairie Trail Extension from Prairie Grove to Moraine Hills State Park	\$8,000,000	Yes	Yes	No	Medium
B14	Moraine Hills State Park to Lake County Trail	\$5,400,000	Yes	Yes	No	Medium
B15	Huntley Union Marengo (H.U.M) Connector to Pleasant Valley Trail	\$1,400,000	Yes	Yes	No	Medium
B16	IL 120 Side Path between McHenry and Lakemoor Corridor Preservation	\$1,500,000	No	No	Yes	Preservation
B17	IL 173 Side Path between Harvard and Hebron Corridor Preservation	\$2,300,000	Yes	No	No	Preservation
B18	IL 23 Side Path between Harvard and Marengo Corridor Preservation	\$2,200,000	Yes	No	No	Preservation
B19	Greenwood Road Side Path Corridor Preservation	\$500,000	Yes	No	No	Preservation
B20	U.S. 20 Side Path from Marengo to Boone County Line Corridor Preservation	\$600,000	Yes	No	No	Preservation
M8	Ringwood Road and Spring Grove Road Corridor Preservation	\$300,000	Yes	No	No	Preservation
B22	IL 173 Side Path between Chemung and Boone County Line Corridor Preservation	\$300,000	Yes	No	No	Preservation
*Note: Costs for these are included as part of the motorized vehicle plan.		\$63,000,000				

Figure 65: Project Evaluation of Goals Met

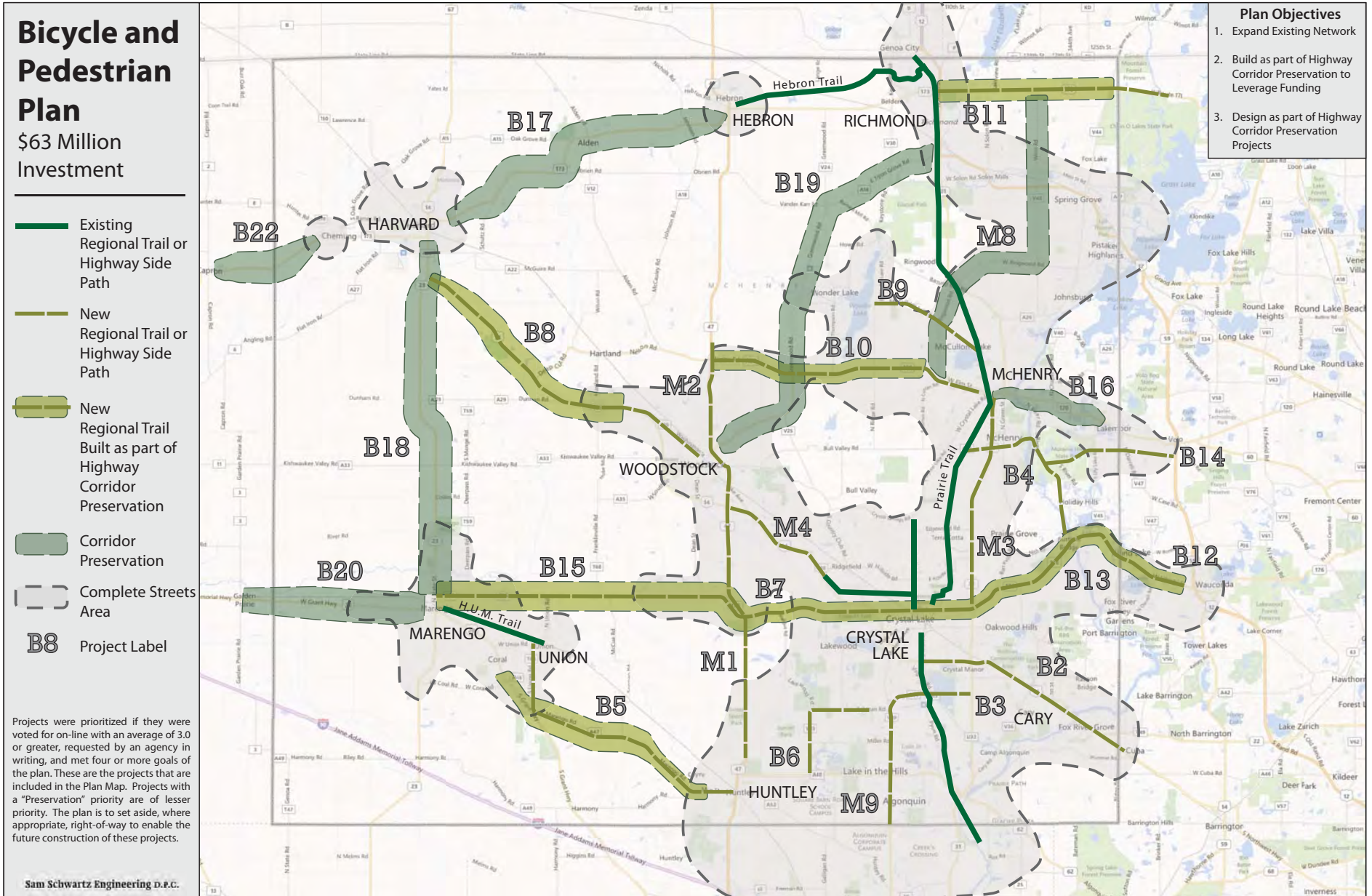


Figure 66: Bicycle and Pedestrian Plan

A multi-use greenways trail is a facility designed to accommodate longer distance travel and includes amenities such as paved surface, directional signage, and heavy native vegetation for shade. Complete streets area encompasses existing and future urbanized areas of the County where bicycles and pedestrians should be expected users of the streets and highways. Complete Streets is an initiative to provide pedestrians a comfortable walking environment and easy access to walkable

destinations, bicyclists with clearly marked bike lanes and adequate bicycle parking and transit users with connections to bicycle and pedestrian facilities. Complete Streets aims at providing communities a greater ability to gather, exercise, and relax in the town center, as well as improving property values by facilitating sidewalk dining and street sales. A full detailed description of each project and associated public comments are included in Appendix B.

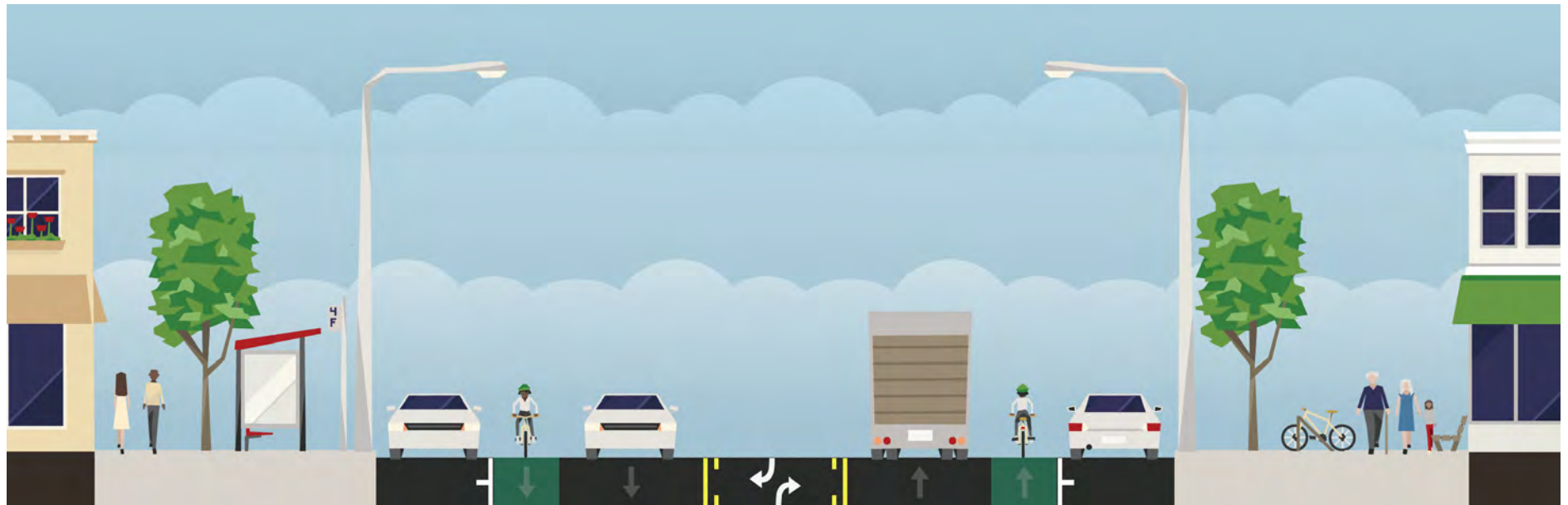


Figure 67: Cross-section of a Street Built to Accommodate All Users (Project B1)

Image Credit: Streetmix.net

Funding for bicycle and pedestrian accommodations depends heavily on the allocation of funding for highways. Many grants are available and the projects tend to be much smaller than highway projects in terms of engineering requirements, costs, and implementation time-lines.

Between 2015 and 2040, \$63 million (\$2.5 million each year), is estimated for new bicycle and pedestrian facilities in the County. Of this, \$11 million could be available from County funds. An additional \$36 million is likely to be available from state and federal grants. The plan estimates the municipalities will be able to contribute approximately \$16 million in local public works funding for projects based on historic financial efforts of the local municipalities.

County MFT	County RTA	RTA	IDOT ISTHA	USDOT	Local	Total	Per Year	
\$0	\$11	\$0	\$16	\$20	\$16	\$63	\$2.5	New

Figure 68: Estimated Bicycle and Pedestrian Funding by Source

One manner to maximize the effectiveness of local tax revenues is to leverage the Illinois Department of Transportation's Complete Streets policy which requires the Department to design and construct sidewalks and sidepaths (shared use paths adjacent to roadways) as part of any major State Highway project. IDOT will design, purchase right-of-way to accommodate, and build sidewalks and sidepaths if local funding to match 20% of the construction costs is identified and a local agency(ies) takes responsibility for facility maintenance. At this time, IDOT is designing sidepaths, sidewalks, and adequate crossings as part of the Illinois Route 47 between Reed Road and U.S. 14 project, the Illinois Route 47 between U.S. 14 and Charles Road project, and the Illinois Route 31 from Illinois Route 176 to Illinois Route 120 project. Should a local funding source be identified

to match the construction costs and assume future maintenance responsibilities, the state will then include the designed bicycle and pedestrian infrastructure as part of the highway construction. If no local match is identified, the designed facilities will not be built.

A second way to maximize the effectiveness of local tax revenues is to not make existing conditions for bicyclists and pedestrians worse. For example, conditions can be made more difficult through the elimination of usable shoulders or construction of impassable highways.