

the greater henderson



BICYCLE and PEDESTRIAN master plan



Evansville Metropolitan Planning Organization

March 2014

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Evansville Metropolitan Planning Organization

Civic Center Complex, Room 316
1 NW Martin Luther King, Jr. Blvd.
Evansville, IN 47708

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RESOLUTION

A RESOLUTION OF THE EVANSVILLE METROPOLITAN PLANNING ORGANIZATION ADOPTING THE *GREATER HENDERSON BICYCLE AND PEDESTRIAN MASTER PLAN*

WHEREAS, the Evansville Metropolitan Planning Organization (EMPO) is the organization designated by the Governor as the Metropolitan Planning Organization responsible, together with the State, for carrying out the provisions of 23 U.S.C. 134 (Federal-Aid Highway planning requirements), and capable of meeting the requirements of 49 U.S.C. 1603(a) (Federal Transit planning requirements) in the Evansville-Henderson Urbanized Area; and

WHEREAS, the Evansville Metropolitan Planning Organization has established a region-wide, cooperative, comprehensive, and continuing planning process to develop the unified planning work program, long range transportation plan, and transportation improvement program. The Evansville Metropolitan Planning Organization provides planning support to local public agencies within the region. The Evansville Metropolitan Planning Organization enacts the plans and programs to facilitate federal, state, and local funding for surface transportation improvements carried out by the Indiana Department of Transportation and the Kentucky Transportation Cabinet, the region's communities and counties, and transit operators, and provides technical assistance and expertise to regional transportation interests; and

WHEREAS, the Evansville Metropolitan Planning Organization conducted the planning process for the *Greater Henderson Bicycle and Pedestrian Master Plan* in an open, participatory manner, as required by the Moving Ahead for Progress in the 21st Century Act (MAP-21). The *Greater Henderson Bicycle and Pedestrian Plan* includes future bicycle and pedestrian projects for the City of Henderson and Henderson County; and

NOW, THEREFORE, BE IT RESOLVED that the Evansville Metropolitan Planning Organization Policy Committee at the regular meeting of February 6th, 2014 adopts the *Greater Henderson Bicycle and Pedestrian Master Plan*.

Duly adopted by the Evansville Metropolitan Planning Organization Policy Committee on this sixth day of February, 2014.



Jack Corn, Chairman

ATTEST:


Seyed Shokouhzadeh, Executive Director

The Evansville MPO wishes to acknowledge and thank the Bikeway Advisory Committee for its efforts in guiding the development of the Greater Henderson Bicycle and Pedestrian Plan. The assistance of the Committee, in combination with input from various other organizations, City and County departments, was beneficial in developing a plan to address the needs of bicyclists and pedestrians in the region.

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acknowledgments

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<i>Evansville-Vanderburgh Area Plan Commission</i>	<i>Assistant Henderson City Manager</i>
<i>Bernardin, Lochmueller and Associates</i>	<i>Henderson County Engineer</i>
<i>Carver Community Organization</i>	<i>Henderson County Riverport</i>
<i>Commonwealth Engineering, Inc.</i>	<i>Henderson-Henderson County Chamber of Commerce</i>
<i>CSX Transportation</i>	<i>Henderson-Henderson County Plan Commission</i>
<i>Easter Seals Rehabilitation Center</i>	<i>Henderson Judge Executive</i>
<i>Economic Development Coalition of Southwest Indiana</i>	<i>Indiana Department of Environmental Management (Indianapolis)</i>
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<i>Evansville Bicycle Club</i>	<i>Indiana Southern Railroad</i>
<i>Evansville Board of Public Safety</i>	<i>Kentucky Transportation Cabinet (Frankfort)</i>
<i>Evansville Chamber of Commerce</i>	<i>Kentucky Transportation Cabinet (Madisonville)</i>
<i>Evansville Department of Metropolitan Development</i>	<i>Metropolitan Evansville Transit System</i>
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<i>Federal Highway Administration (Indiana)</i>	<i>Warrick County Economic Development</i>
<i>Federal Highway Administration (Kentucky)</i>	<i>Warrick County Plan Commission</i>
<i>Federal Transit Administration (Region V)</i>	<i>Warrick County School Corporation</i>
<i>Green River Area Development District</i>	<i>Westside Improvement Association</i>
<i>Henderson Area Rapid Transit</i>	

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introduction

PURPOSE

The Greater Henderson Bicycle and Pedestrian Plan is a planning effort to make the Henderson area more bicycle- and pedestrian-friendly. The Plan is designed to improve the safety and viability of bicycling and walking, first for their value as modes of transportation, and second as forms of recreation. The vision was defined early to help guide the development of the plan. The vision for this plan is:

The City of Henderson and Henderson County strive to be a community where residents and visitors alike have safe bicycling and walking transportation and recreation choices. With civic leaders, community organizations, citizens and businesses working together, the City of Henderson and Henderson County aim to improve the safety of those who currently bicycle and/or walk, improve the accessibility for all residents, achieve more efficient use of the existing transportation system and enhance the community, and region's, quality of life.

While vehicles will continue to be the main mode of transportation throughout the region, improving conditions for bicyclists and pedestrians is important to:

- Improve the safety of those who currently bicycle and/or walk. Many residents currently rely on bicycling and/or walking to get to their job, the store, bus stops or wherever else they need to go.
- Improve accessibility for all residents. In particular, older residents, children, citizens with low incomes, and citizens with functional disabilities need safe and affordable alternatives to driving.
- Achieve more efficient use of the existing transportation system. Bicyclists and pedestrians require less space than vehicles require, meaning that more travelers can be accommodated in less space, with less auto congestion. In addition, bicycling and walking reduce the amount of wear and tear on roads. Greater use of these modes of travel can help delay the need for major roadway repair and new construction.

- Enhance the region's quality of life. Bicycling and walking encourage interaction between residents, promote a sense of community, and add recreational value.
- Encourage more active and healthier residents. Walking and bicycling are excellent physical activities, and their use helps improve public health.
- Help address the local air quality problem. Unlike auto travel, bicycling and walking do not produce greenhouse gases and other harmful emissions.

PLANNING PROCESS OVERVIEW

In February 2013, the Henderson Bikeway Advisory Committee met to organize the Bike and Pedestrian Plan update. The Plan update was a seven-month process that included participation from both the Henderson Bikeway Advisory Committee and the public. The process involved five major steps:

- 1) A SWOT (strengths, weaknesses, opportunities, and threats) analysis workshop was conducted to gather the public's thoughts and concerns about the existing bikeways and walkways network;
- 2) Establishing the vision, goals and objectives of the plan;
- 3) Identifying major destination points throughout Henderson and Henderson County that can be potential bicycle and walking trip generators, as well as potential routes connecting the destination points;
- 4) Reviewing proposed routes and alternative treatment types; and
- 5) Finalizing the proposed route network and determining a phasing and implementation schedule.

The Henderson Bikeway Advisory Committee met monthly throughout the planning process to guide the development of the plan. Public input was received at two major project milestones – during the initial visioning workshop at the beginning of the planning process and after the draft routes were identified.

STUDY AREA

The Evansville MPO Study Area includes the City of Evansville, Vanderburgh County, Warrick County, the towns of Newburgh, Chandler and Boonville, as well as the City of Henderson and Henderson County in Kentucky. Figure 1 illustrates the Study Area boundary. This Bicycle and Pedestrian Plan is developed specifically for the City of Henderson and Henderson County.

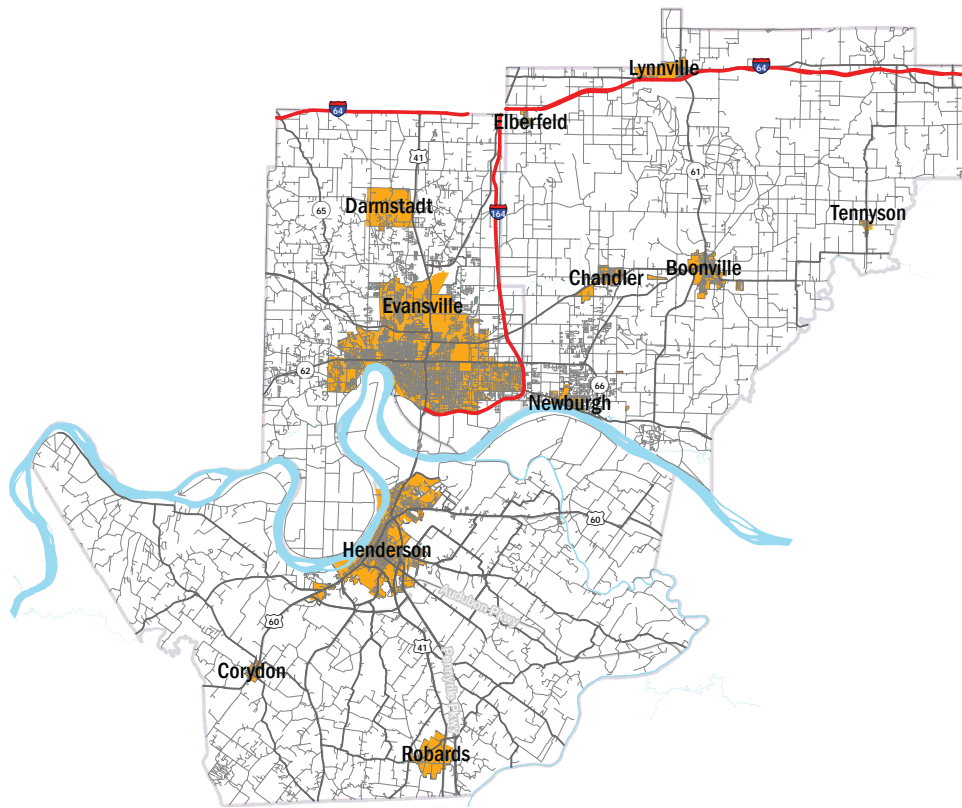
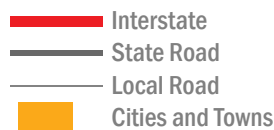


Figure 1: EMPO METROPOLITAN PLANNING AREA



HISTORY OF LOCAL BICYCLE PLANNING

Within the last decade or so, the perception of bicycling and walking has changed. Before, it was common for people without access to a personal vehicle to walk or bike more often than those that do have access to a personal vehicle. Today, more and more people are turning to an active lifestyle and are in search of safe, accessible ways to walk and bike to more destinations. Walking and biking is no longer thought of as just a recreational option, but is now being considered as a viable transportation option.

Planning for bicyclists and pedestrians is not a new concept for Henderson. In 1975, the Henderson Parks and Recreation Department produced the first preliminary bike plan. The plan consisted primarily of on-street bike facility linkages to park and recreation areas within the city. The plan classified routes as proposed and alternate routes (which presumably could be implemented without roadway improvements), and proposed and alternate routes with improvements. No design standards or cost estimates were developed for the plan, and it appears that the plan proceeded no further than the preliminary preparation.

A second bicycle facility plan, the Henderson Bicycle Facility Plan, was produced by the Green River Area Development District in 1977. This plan was more fully developed and included an inventory of trip generators, existing roadway conditions, and traffic volumes. A substantial amount of design criteria, including location guidance, facility warrants, design standards and cost estimates, was presented within this plan. This plan included short-term and long-term projects, and the short-term projects were termed as being “very implementable”. The long-range projects were more comprehensive and would have required more support and planning to be implemented. Even though this plan was deemed ready for implementation, no improvements were realized at that time.

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In 2003, the Evansville MPO assisted the City of Henderson and Henderson County in updating the 1977 plan as part of the TEA-21 transportation planning requirements. A Bicycle/Pedestrian Advisory Committee was also organized to assist in developing the Bicycle and Pedestrian Plan, and included bicycle and pedestrian advocates, representatives from the City of Henderson, Henderson Police Department, the Henderson-Henderson County Area Planning Commission, Methodist Hospital representatives, as well as from other City and County departments. The 2003 plan included recommended physical improvements, policy changes, and education, enforcement, and encouragement activities to promote safe bicycle and walking.



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planning process

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The Greater Henderson Bicycle and Pedestrian Plan includes recommended bicycle routes and trail expansions that will help make the community more accessible by bicycle or foot. To determine potential bicycling routes and improvements, the Henderson Bikeway Advisory Committee, along with public input sessions throughout the process, worked closely with EMPO staff. The five major steps within the plan update process included:

- 1) A SWOT (strengths, weaknesses, opportunities, and threats) analysis workshop was conducted to gather the public's thoughts and concerns about the existing bikeways and walkways network;
- 2) Establishing the vision, goals and objectives of the plan;
- 3) Identifying major destination points throughout Henderson and Henderson County that can be potential bicycle and walking trip generators, as well as potential routes connecting the destination points;
- 4) Reviewing proposed routes and alternative facility types; and
- 5) Finalizing the proposed route network and determining a phasing and implementation schedule.

SWOT (STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS)

The kick-off visioning meeting for the plan included both members of the Henderson Bikeway Advisory Committee and interested residents. At this meeting, a SWOT analysis was conducted to get attendees talking about Henderson's strengths, weaknesses, opportunities, and threats related to the bicycling and walking environment. Some of the most discussed topics include:

STRENGTHS

- Henderson has a good start with existing trails and on-street routes.
- Already has good community involvement and support.

WEAKNESSES

- Lack of north/south connections.
- Not enough "SHARE THE ROAD" signs along heavily-traveled roads.

OPPORTUNITIES

- North/south connections.
- Trail along Canoe Creek.
- Create connections across the city and county by identifying destinations and trip generators.



THREATS

- Funding.
- No formal Bike Club to take ownership of rides or events.

These strengths, weaknesses, opportunities and threats, along with other comments voiced by the Bikeway Advisory Committee and the public, were used as the basis of the Greater Henderson Bicycle and Pedestrian Plan. This information is helpful in seeing what residents consider Henderson to be doing a good job with, what could be improved, suggested improvements, and potential setbacks. The strengths, weaknesses, opportunities, and threats identified were used to create the Goals and Objectives (found in Chapter 4) for this plan.

PUBLIC OPEN HOUSE

On November 18, 2013, the Bikeway Advisory Committee held a public open house in order to solicit feedback on the proposed routes. Several comments and suggestions were received. The Bicycle Advisory Committee then reviewed these comments and suggestions at the next committee meeting. All changes needing to be made were addressed.

DESTINATIONS

In order to determine potential bicycle route locations, points of interest where people travel to and from were identified. While looking at potential bike routes, trails, and walking paths, the Henderson Bikeway Advisory Committee first identified these places that generate activity. Places such as shopping centers, parks, civic buildings, schools, and major employers were identified. An overview of identified destinations can be found in Figure 2.

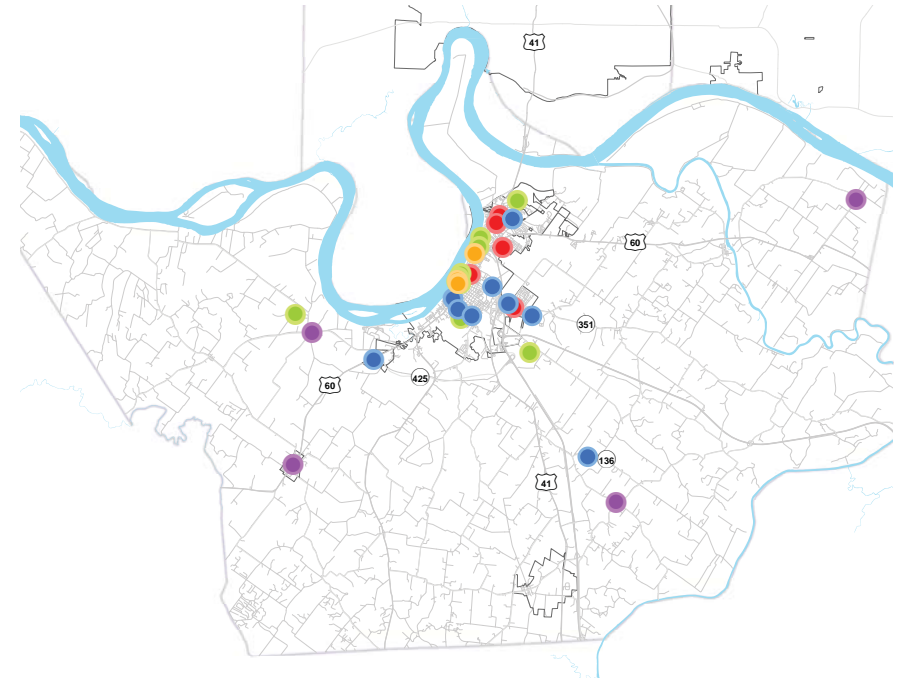


Figure 2: DESTINATIONS

- Community
- Shopping Districts
- Parks and Recreation Areas
- Schools
- Regional Connections

ALTERNATIVES

Two alternative networks were presented to the Bikeway Advisory Committee – Alternative 1 “Safe Improvements” and Alternative 2 “Aggressive Improvements”. These alternatives explored different facility options along the same corridors, taking factors such as roadway width, on-street parking, and speeds, into consideration.

Alternative 1 included bicycle and pedestrian improvements that could be integrated with little or no modification to existing roadway configurations. Alternative 2 took a more aggressive approach, where options to remove on-street parking to accommodate bicycle lanes were explored. After reviewing these alternatives, the Bikeway Advisory Committee combined ideas from both alternatives to create the Preferred Alternative. More information on Alternatives 1 and 2 can be found in Chapter 5: Recommended Bike and Pedestrian Network.

PHASING AND IMPLEMENTATION

The Bikeway Advisory Committee assessed the cost and materials needed for each recommended route and determined a phasing and implementation schedule. The detailed phasing and implementation schedule can be found in Chapter 6: Implementation.



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existing conditions

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The City of Henderson and Henderson County have several bikeways and walkways that have been constructed within recent years as demands for these facilities have increased.

BIKEWAYS

In 2009, Henderson reconstructed a portion of US 60 southwest of the downtown core. During the reconstruction process, a dedicated bike lane and sidewalks were installed on both sides of US 60. The bike lanes and sidewalks are slightly over 1.5 miles in length and stretch from just west of Drury Lane to the Henderson Bypass (SR 425). Water Street in downtown Henderson is also marked as a bike route (shared lane markings as opposed to a dedicated lane). This route is marked from 7th Street to Powell Street, and connects the Henderson Riverwalk with downtown.

Sandy Lee Watkins Park in Henderson County is located on KY 351 just west of Hebbardsville. Currently, there are 1.75 miles of recreational trails. The county has received funding to add another 1.1 miles of trail in 2014.

WALKWAYS

The Riverwalk in Henderson is a separated, multi-use trail that overlooks the Ohio River. The Riverwalk is just over 1.5 miles long and winds through Atkinson Park before running parallel to Merritt Drive. Currently, the Riverwalk stops at 7th Street where the bike route begins. Sidewalks are present on Water Street where the Riverwalk terminates.

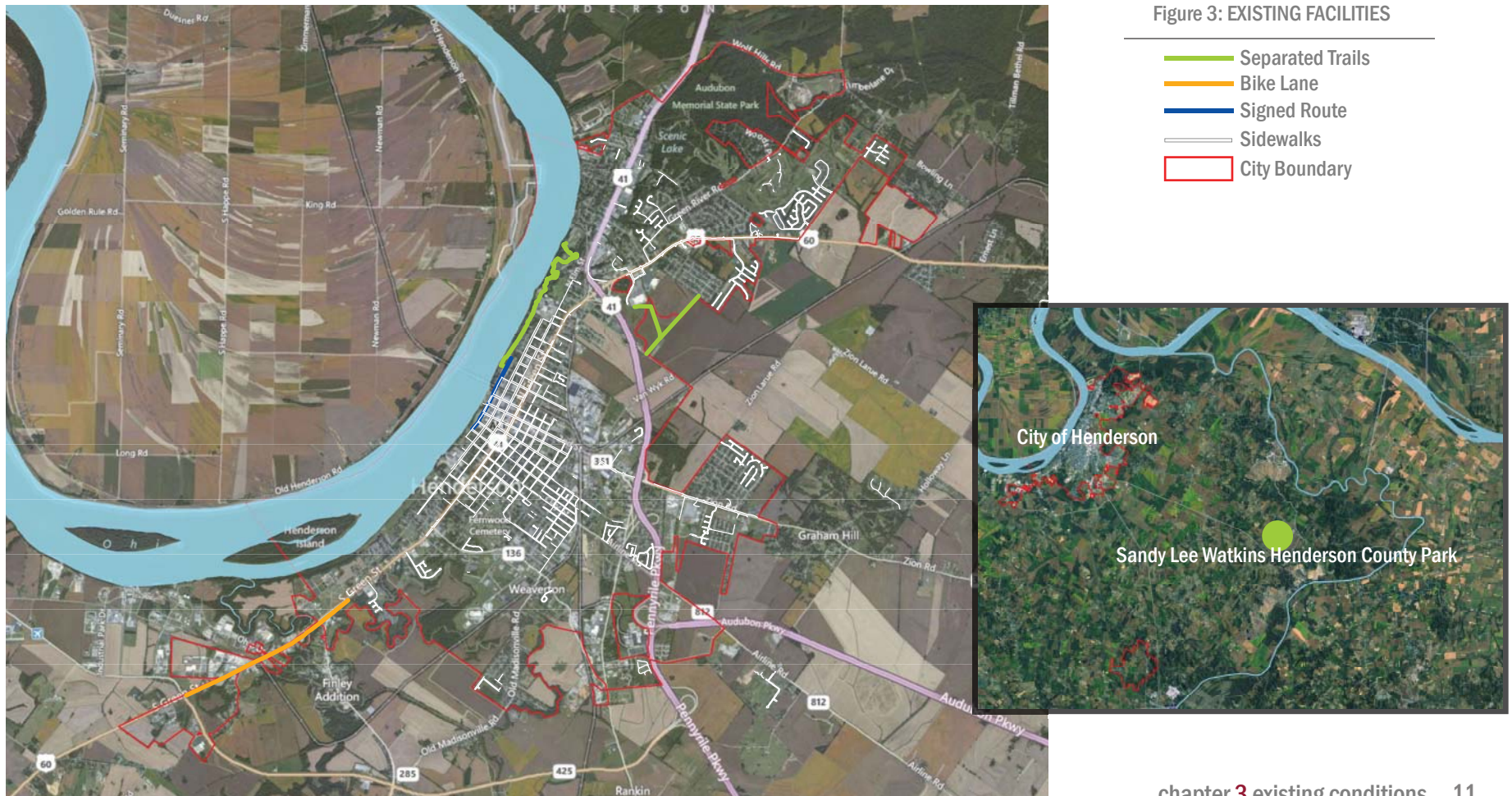
Recently, a separated path was constructed along a drainage ditch to connect Kimsey Lane to Barret Boulevard and Hoffman Plaza (the Walmart shopping complex). It is approximately .75 miles long, and provides an accessible way for residents west of the US 41 and US 60 interchange to travel to this shopping complex by bicycle or foot. Kimsey Lane crosses over US 41 as an overpass, so residents do not have to cross US 41 at-grade or use the interchange ramps.



SIDEWALKS

Henderson County has approximately 100 miles of sidewalks. Nearly 90% of the county's sidewalks are located within Henderson's city boundary, most of which are in the downtown area. Several residential subdivisions located within the city also have sidewalks. In the county, a majority of the neighborhoods surrounding the Henderson Country Club have sidewalks.

Figure 3 shows existing facilities locations.





POINTS OF INTEREST

In order to determine where improvements should be made to incorporate more bicycle and walking throughout the community, the Bikeway Advisory Committee participated in a Points of Interest exercise. During this exercise, points of interest and destinations were identified, including civic places, parks and recreational facilities, other communities/regional connections, schools, and shopping centers.

CIVIC PLACES

Civic places include publicly owned land, as well as institutional uses. These designations can include churches/cemeteries, governmental buildings or property, medical campuses, and utilities. These facilities include, but are not limited to:

- Methodist Hospital
- Henderson Depot Visitor Center
- Public Library
- Henderson Farmers Market



PARKS AND RECREATION FACILITIES

Parks and recreational facilities include public and private parks, golf courses, boat ramps, and sports complexes. In Henderson and Henderson County, these facilities include, but are not limited to:

- Audubon State Park
- Atkinson Park
- Henderson Riverwalk
- Henderson Municipal Golf Course
- Sunset Park
- Water Street Boat Ramps
- Community Park
- Central Park
- Audubon Mill Park
- Doc Hosbach Tennis Complex
- W.E. Newman Rec. Complex
- Bent Creek Golf Course
- Henderson County 4-H Fair Grounds
- Sandy Lee Watkins Park (not on map, see page 11)

SCHOOLS

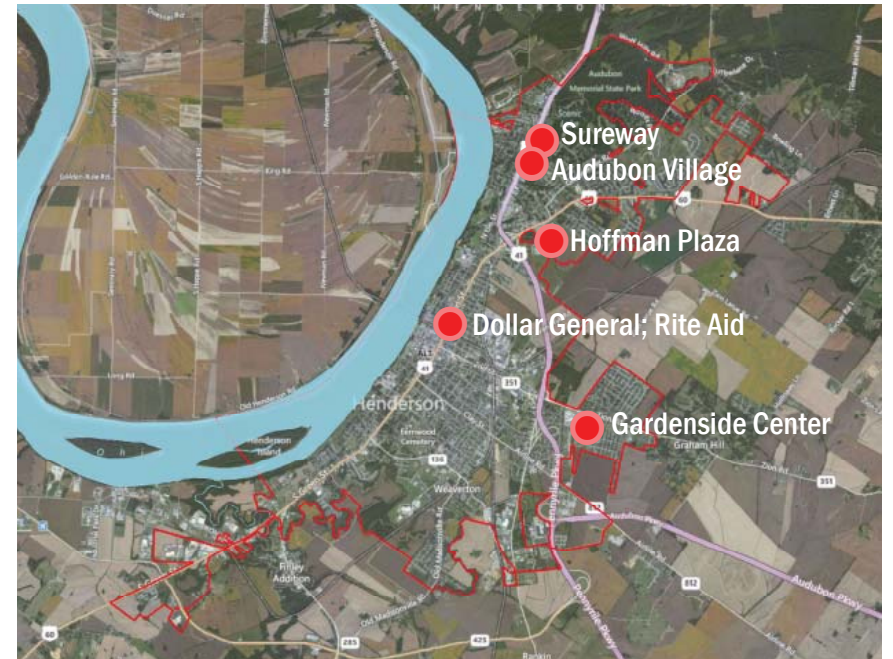
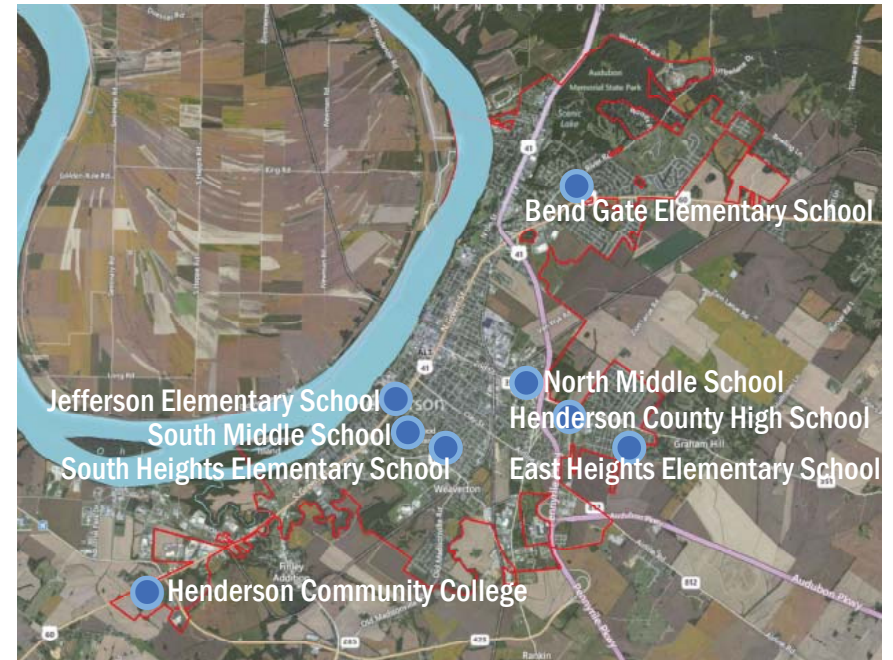
It is important to consider school locations and their potential connections with neighborhoods while planning for bicycle and pedestrian improvements. Ensuring children have safe access to schools by bike or foot is a benefit for the community. Schools that were identified include, but are not limited to:

- Jefferson Elementary School
- Bend Gate Elementary School
- South Heights Elementary School
- East Heights Elementary School
- North Middle School
- South Middle School
- Henderson County High School
- Henderson Community College

COMMERCIAL CENTERS

Much like schools, it is important to provide safe bicycling and walking connections between neighborhoods and shopping centers. This can allow residents the option of biking or walking to a trip to the store as opposed to driving. Some major shopping centers identified include, but are not limited to:

- Sureway on US 41
- Audubon Village
- Hoffman Plaza
- Dollar General and Rite Aid Pharmacy; Green Street and 5th Street
- Gardenside Center





REGIONAL CONNECTIONS

Creating a regional network for alternative transportation modes will not only improve Henderson but will unite the entire county and beyond. Other communities that have been identified for potential connections include:

- Geneva
- Corydon
- Niagara

Owensboro has been included as a regional connection, as it can be accessed via Lake Town Road, French Island Road, and Lower River Road.

BICYCLE AND PEDESTRIAN SAFETY

Safety is always a major concern for a community when designating bicycle and pedestrian ways. Ensuring the safety of bicyclists and pedestrians is a difficult task, because doing so requires all roadway users to make sound judgments. Facilities should be designed in a way that will encourage users to make safe decisions, but sometimes, accidents are not avoidable.

The Evansville MPO receives crash statistics from the Kentucky State Police. Some states, including Indiana, consider a bicyclist as an automobile due to the fact that they are using the roadway and following the same traffic laws as motor vehicles, so crash numbers for bicyclists do not exist. Kentucky, however, does separate bicyclists from motor vehicles on crash reports.

Table 1: Henderson Bicycle Crashes by year

	2009	2010	2011	2012
Bicycle Crashes	7	7	5	8

Kentucky also keeps record of when pedestrians are involved in a crash.

Table 2: Henderson Pedestrian Crashes by year

	2009	2010	2011	2012
Pedestrian Crashes	6	11	11	14



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goals and objectives

An achievable set of goals and objects are crucial for a plan to be valuable to a community. Public input, as well as input from the Bikeway Advisory Committee, was gathered and used to create the Goals and Objectives for this plan. These Goals and Objectives reflect the community's ideas and aspirations about the future of walking and biking in the City of Henderson and Henderson County.

To receive input from the public, a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis was conducted at the first public visioning workshop. The information, ideas, and concerns became the primary focus for creating the Goals and Objectives.

Once the Goals and Objectives were created, the Bikeway Advisory Committee was given an opportunity to review and make any changes they felt were necessary. The final Goals and Objectives of the Greater Henderson Bicycle and Pedestrian Plan are listed within this chapter and are broken down into six main categories: Community, Connectivity, Education, Tourism, Funding, and Maintenance.

VISION STATEMENT

The City of Henderson and Henderson County strive to be a community where residents and visitors alike have safe bicycling and walking transportation and recreation choices. With civic leaders, community organizations, citizens and businesses working together, the City of Henderson and Henderson County aim to improve the safety of those who currently bicycle and/or walk, improve the accessibility for all residents, achieve more efficient use of the existing transportation system and enhance the community, and region's, quality of life.

GOALS AND OBJECTIVES

1. COMMUNITY

The community already has a strong presence of bicyclists, walkers, and runners. While there are many people aware of the existing bicycling and recreation opportunities within the community, many still do not realize what the community has to offer, or what is being planned for the future. Many communities with successful bicycle and pedestrian networks are able to achieve them by bringing together many entities, such as local government groups, local organizations, citizens, and businesses, to work as one group.

COMMUNITY GOAL

Ensure that residents of the community are provided with information on how to be involved and are aware of events, meetings, trainings, etc.

COMMUNITY OBJECTIVES

- 1) Build upon the existing efforts of the community by expanding community involvement in bicycle and pedestrian planning activities.
- 2) Promote weekly night rides and organized road rides that are held each year.
- 3) Build upon the current efforts and create more organized rides and events to give residents more options.
- 4) Promote and target youth involvement on the trails.
- 5) Retain younger populations, and attract younger populations from other areas, by providing more alternative transportation options.
- 6) Encourage more citizens to be involved on the Bikeway Advisory Committee.

- 7) Encourage the creation of a Henderson Bike Club that can organize more community events.
- 8) Encourage local businesses and organizations to sponsor rides and events.

2. CONNECTIVITY

To create the optimum bicycle and pedestrian network, connectivity is one of the most important factors. Creating connections between places people travel several times a day, including their neighborhoods, shopping areas, schools, parks, and work places, will make bicycling or walking to their destination a more inviting and realistic option. By providing alternative options, the number and frequency of vehicular trips can be reduced.

CONNECTIVITY GOAL

Create a network of bicycle facilities and walking routes that is accessible for people of all ages that will connect major destinations within the community.

CONNECTIVITY OBJECTIVES

- 1) Identify and create connections across Henderson by identifying destination points.
- 2) Identify and create regional connections throughout Henderson County and beyond.
- 3) Consider and create a network of north/south routes.
- 4) Consider designating a bike lane to KY 425 (along the Henderson Bypass).
- 5) Consider connectivity options to the East End District.

- 6) Consider a connection between Walmart and Atkinson Park.
- 7) Consider a bike path to connect to Audubon State Park.
- 8) Consider paving Van Wyk Road to accommodate a bike route, if not feasible, consider paving a separated path along Van Wyk Road.
- 9) Consider providing trails along Canoe Creek.
- 10) Consider a connection between Henderson Community College and Geneva via Highway 136 to the Kentucky State Fish and Wildlife Refuge.

3. EDUCATION

Education and encouragement efforts will be critical in improving the safety of bicycling and walking in the region, as well as to promote bicycling and walking as a means of transportation, recreation, and exercise.

EDUCATION GOAL

Promote bicycle and pedestrian safety by working with many resources in the community.

EDUCATION OBJECTIVES

- 1) Work with local groups, such as the Henderson Police Department and/or the Henderson County School System, to organize and host bike rodeos and education classes for students.
- 2) Coordinate with the Henderson County School System to include bicycle education and street safety courses within their curriculum.

- 3) Organize and promote an annual “Walk Your Children to School” event to coincide with other state and national promotions.
- 4) Create maps/brochures for residents and visitors that promote the existing routes (and planned future routes) in the community.
- 5) Encourage the Kentucky Department of Motor Vehicles to update the driver’s manual to incorporate pedestrian-related information, and to include related questions on the written drivers’ license exam.
- 6) Develop and promote a program that publicly recognizes employers that encourage their employees and/or customers to bicycle or walk.
- 7) Organize and promote events to coincide with other state and national promotional events, such as “Bike to Work Week”.

4. TOURISM

For many regions, bicycle and/or running races have become a tourist attraction. Having a convenient, safe, and well-designed network of bicycle and pedestrian facilities will make the Henderson region more attractive for these events that will boost tourism. Safe and convenient connections to key attractions for both residents and tourists, such as parks, hotels, shopping, and restaurants, will also give the community a greater chance of increasing bicycle and pedestrian tourism.

TOURISM GOAL

Boost tourism, both locally and regionally, by hosting and promoting events, and by creating a connected network of routes.

TOURISM OBJECTIVES

- 1) Create new organizations (such as a Henderson Bike Club) and work with existing organizations that could help sponsor/host more cycling events.
- 2) Create/host events that will raise money that can be used to fund educational programs, new trail construction and maintenance, additional events, etc.
- 3) Promote the community as a friendly community with bicycling and walking opportunities for everyone.
- 4) Create/host bicycling and walking/running events that the entire community can participate in together.
- 5) Promote Audubon State Park’s walking and bicycling trails.

5. FUNDING

Funding a bicycle and pedestrian network can be an expensive task. There are many steps that may be required that can make the process costly and overwhelming, including land acquisition, design, construction and maintenance. Funding resources can be found with collaboration and cooperation of public funds, as well as private donations. Potential funding resources can include:

- Federal programs for transportation, community development, and conservation.
- State programs for recreation, transportation, conservation and water quality.
- Local taxes, impact fees, bond referendums, capital improvement programs.
- Private participation through land trusts, foundations, local businesses, and volunteers.

Creative ways that other communities are raising funds for their bicycle and pedestrian networks include:

- Money from equipment rental for bicycle and pedestrian facility users (bicycles, roller blades, etc.).

- Sell sponsorship for popular, well-travelled stretches of the bicycle and pedestrian facilities.
- Host events and races on the bicycle and pedestrian network and charge an entry fee.

FUNDING GOAL

Utilize various funding sources to build a network of bicycle and pedestrian facilities in a timely manner.

FUNDING OBJECTIVES

- 1) Create a database of potential funding sources.
- 2) Identify high-priority projects.
- 3) Coordinate with City/County departments to include annual contributions from their budgets to develop bicycle and pedestrian routes.
- 4) Incorporate bicycle and pedestrian facilities in all applicable roadway projects from the beginning planning phases.

6. MAINTENANCE

In order for a bicycle and pedestrian network to be safe for users, proper maintenance is necessary. Regular maintenance may include:

- Inspecting and replacing signs.
- Repairing broken surfaces.
- Ensuring routes are free from garbage, leaves, loose gravel, snow, tree limbs, low hanging tree limbs, etc.
- Performing regular inspections.

MAINTENANCE GOAL

Ensure the bicycling and pedestrian facilities are maintained properly throughout the year to provide the most safe and accessible network possible.

MAINTENANCE OBJECTIVES

- 1) Routinely check roadway markings and bicycle and pedestrian signs to make sure they are clearly visible to pedestrians, bicyclists, and motorists.
- 2) Consider adding “SHARE THE ROAD” signs along routes that are not designated as a bike route if there are a significant number of bicyclists.
- 3) Develop a maintenance plan to ensure bicycle routes and heavily traveled roadways by bicyclists are free from roadway debris, i.e. KY 425.



5

**recommended bike and pedestrian
network**

A network of proposed bicycle and pedestrian routes has been developed by incorporating ideas from the Bikeway Advisory Committee, the public, and other organizations to create linkages between destination points within the community. With these linkages, people will have easier bicycle and pedestrian access across the community and region.

While all streets except limited access highways should be accessible by bicycle, this plan includes a network of selected roadways that are recommended for improvements to better accommodate bicyclists. Streets on the bikeway network were selected because they provide the best connections between residential areas, schools, parks, commercial areas and other popular destinations, and because adequate, parallel facilities are not available.

On-street bikeways can be developed either by reallocating space on existing roadways, or by incorporating bikeways into new construction or reconstruction projects. There are a variety of treatments that are recommended by the American Association of State Highway and Transportation Officials (AASHTO) to accommodate bicyclists, including designated bike routes, wide curb lanes, paved shoulders, bike lanes, and separated trails.

Another possible bikeway treatment would be the installation of “Share the Road” signs (W11-1 with W16-1 in the MUTCD) along corridors where bike use is expected and auto traffic volumes are high, but physical constraints rule out other treatments. The W16-1 sign is intended for use in situations where there is a need to warn motorists to watch for bicyclists traveling along the roadway. As with all traffic control devices, the W16-1 sign should only be used as directed by MUTCD guidance. It is not intended to serve as a replacement for other, more appropriate bikeway treatments. This plan does not designate locations for these signs.

This plan identifies a network of streets/roads which, upon improvements, will serve to provide accommodations for bicyclist mobility throughout Henderson. The Evansville MPO and Henderson Bikeway Advisory Committee drafted the network of proposed routes based on input from public meetings and discussions held within Bicycle Advisory Committee meetings. Specific treatment types are proposed for each street/road within the network, but additional studies may be necessary before implementation.

TREATMENT OPTIONS

There are four types of treatment options proposed within this plan:

- Bike lanes
- Shared lanes (marked with shared lane markings, or “sharrows”)
- Signed routes
- Separated trails

When determining which treatment option would be most applicable to each street/road within the proposed network, factors such as roadway width, traffic volume, traffic speed, and targeted users were considered. Local bicyclists also provided in-depth information about safe bicycling areas within the City of Henderson and Henderson County.

BIKE LANES

Bike lanes provide a dedicated space for bicyclists on the roadway (see Figures 4 and 5). Benefits of bike lanes include:

- Increased bicyclist comfort and confidence on busy streets.
- A created separation between bicyclists and automobiles.
- Increased total capacities of streets carrying mixed bicycle and motor vehicle traffic.
- A visual reminder to motorists of bicyclists' rights to the street.

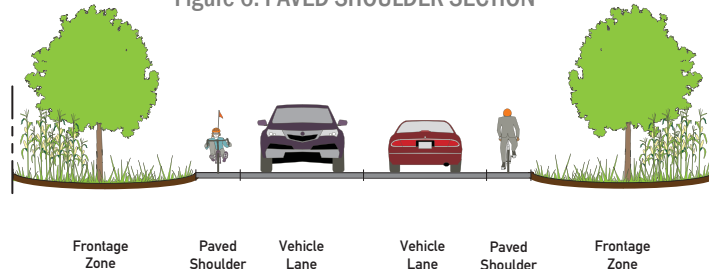
Typically, bike lanes are best suited for streets with the following characteristics:

- Most helpful on streets with $\geq 3,000$ motor vehicle average daily traffic.
- Most helpful on streets with a posted speed ≥ 25 mph.
- On streets with transit vehicle volume.
- On streets with high traffic volume, regular truck traffic, high parking turnover, or speed limit > 35 mph, consider treatments that provide greater separation between bicycles and motor traffic.

The proposed network includes approximately 10 miles of bike lanes.

Roads with adequate shoulder space can be valuable to a bike network, as shoulders may be used as a bike facility (see Figure 6). Certain issues such as pavement quality, rumble strips, and keeping the space free from debris may need to be addressed.

Figure 6: PAVED SHOULDER SECTION

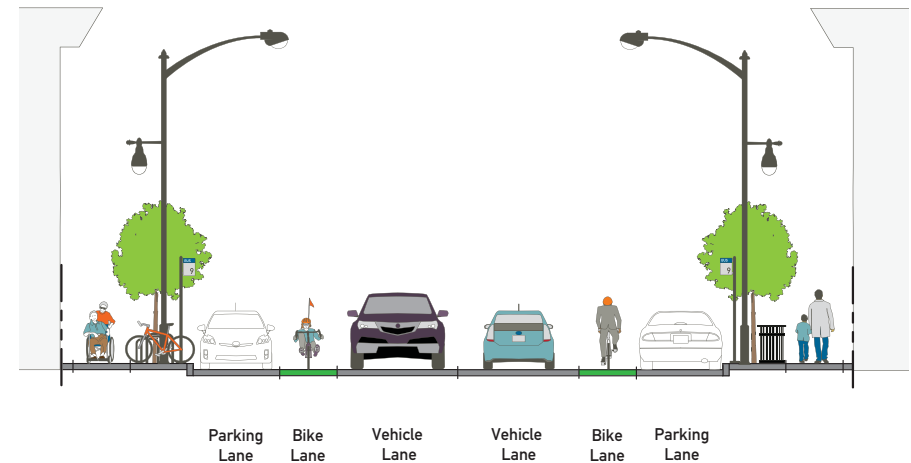


Street Typologies, 2C; <http://activetransportationpolicy.org/chapter-2-typologies-complete-networks-through-places-modes-and-links>

Figure 4: BIKE LANE VIEW



Figure 5: BIKE LANE SECTION



Street Typologies, 2C; <http://activetransportationpolicy.org/chapter-2-typologies-complete-networks-through-places-modes-and-links>

SHARED LANES

While shared lanes do not provide bicyclists with their own dedicated space, they do accommodate bicyclists (see Figures 7 and 8). Shared lanes are typically found on roadways that are suitable for cycling but are not wide enough to allow room for a dedicated lane, and consist of shared lane markings, or “sharrows”, and signs. The sharrows help bicyclists know where they should be riding within the street. Other benefits of shared lanes include:

- Encourages bicyclists to position themselves safely in lanes too narrow for a motor vehicle and a bicycle to comfortably travel side by side within the same traffic lane.
- Alerts motor vehicle drivers to the potential presence of bicyclists.
- Indicates a proper path for bicyclists through difficult or potentially hazardous situations, such as railroad tracks.
- Encourages safe passing by motorists.
- Requires no additional street space.
- Reduces the incidence of wrong-way bicycling.

Shared lanes are typically used in the following situations:

- As a reasonable alternative to a bike lane:
 - Where street width can only accommodate a bicycle lane in one direction,
 - Within single or multi-lane roundabouts,
 - Along front-in angled parking, where a bike lane is undesirable.
- To strengthen connections in a bikeway network:
 - To fill a gap in an otherwise continuous bike path or lane,
 - To transition bicyclists across traffic lanes or from conventional bike lanes,
 - To direct bicyclists along circuitous routes.

There are approximately 11 miles of shared lanes proposed within the Greater Henderson Bicycle and Pedestrian Plan.

Figure 7: SHARED LANE VIEW

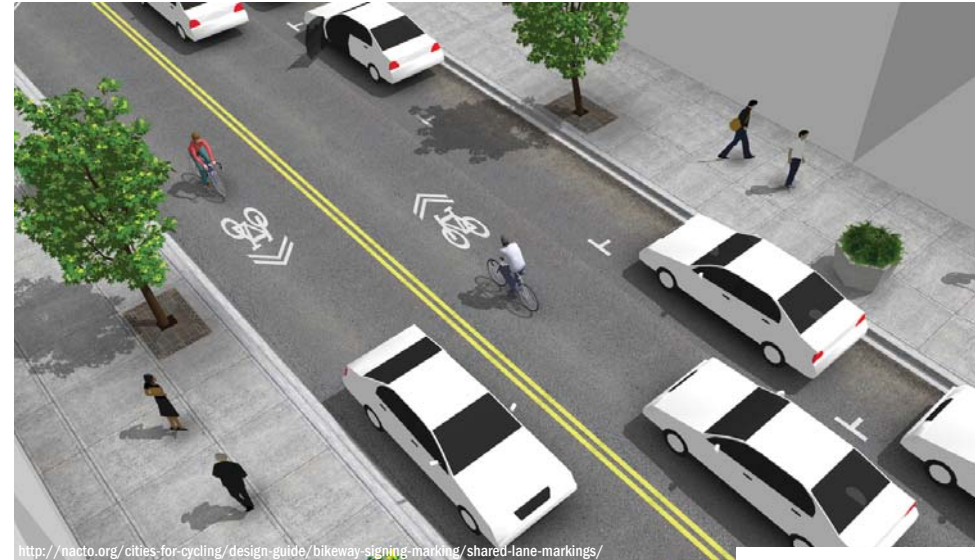
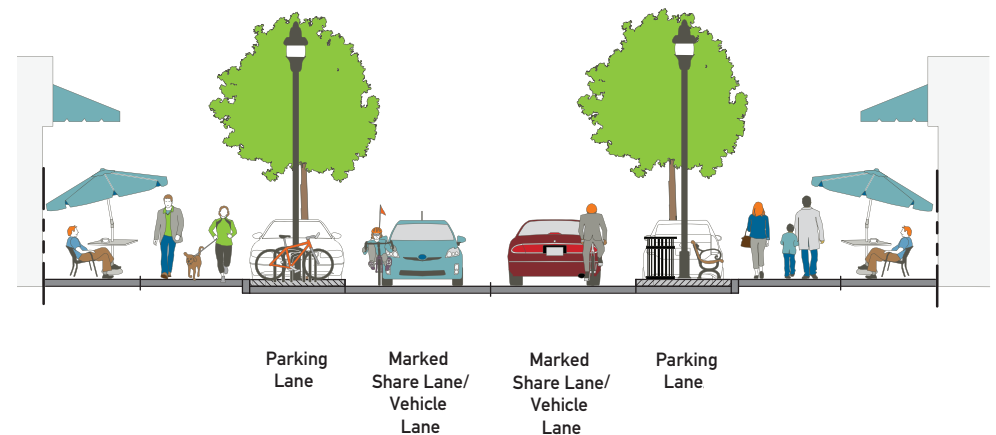


Figure 7: SHARED LANE SECTION



Street Typologies, 2C; <http://activetransportationpolicy.org/chapter-2-typologies-complete-networks-through-places-modes-and-links>

SIGNED ROUTES

Signed routes are similar to shared lanes in that there is not a dedicated space set aside for bicyclists. The major difference between the two is that signed routes do not have sharrow markings, therefore, are typically used in rural areas with lower traffic counts. Signed routes are the easiest and most cost-effective way to establish a baseline bicycle network. Because signed routes do not have roadway markings, the only cost associated with them is signs and installation. Bike routes are signed with a bike route sign, and is typically accompanied with some form of wayfinding signage (see Figure 9).

There are approximately 100 miles of signed routes proposed within this plan.

SEPARATED TRAIL

Separated trails are usually paved paths, but can be constructed out of dirt or other natural materials, and are separated from a roadway. These paths can be used by bicyclists, walkers, runners, and in-line skaters (if trail is paved). Separated paths provide many benefits to a community that includes:

- Transportation links.
- Recreation areas.
- Habitat corridors.
- Economic development attractors.
- Outdoor fitness centers.

A separated trail is proposed along Canoe Creek that, once fully constructed, will provide nearly 13 miles of trail connecting US 60 and Old Madisonville Road.

Figure 9: SIGNED ROUTE SIGN EXAMPLES



Oakland, CA

- Mark the junction of two or more bikeways.
- Inform bicyclists of the designated bike route to access key destinations.



Concept

- Destinations and arrows, distances, and travel times are optional but recommended.



Portland Metro Cities, OR

- Near-side of intersections in advance of a junction with another bicycle route.
- Along a route to indicate a nearby destination.

<http://nacto.org/cities-for-cycling/design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/>



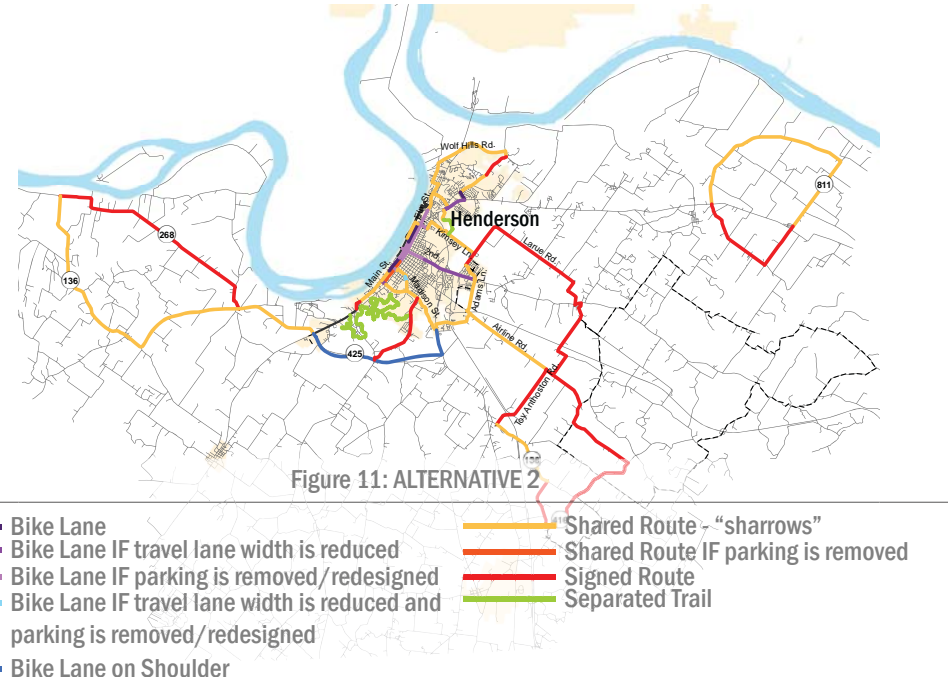
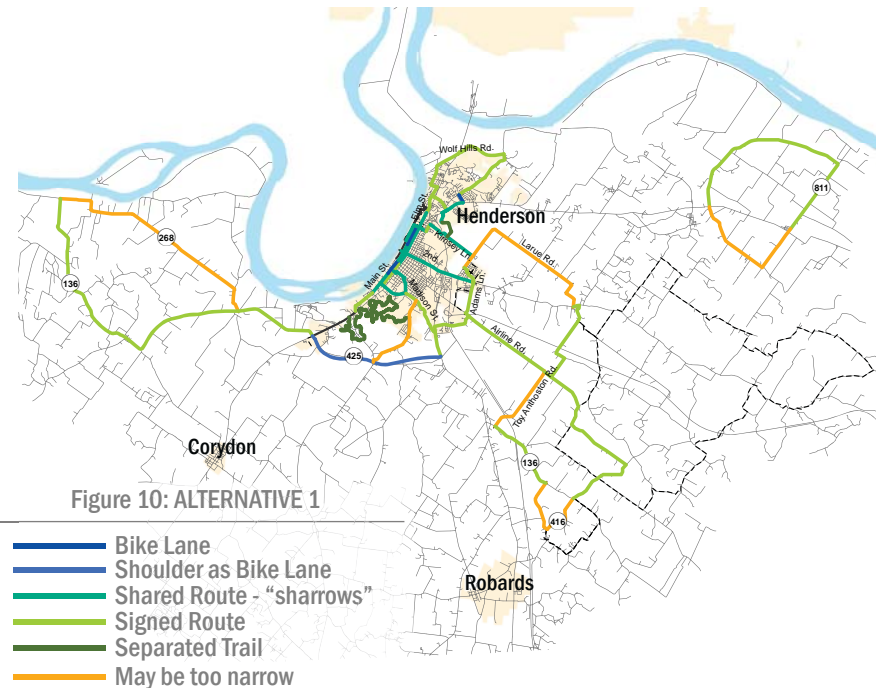
ALTERNATIVES

After receiving initial input from the first public workshop, the Bicycle Advisory Committee began drafting a network of proposed routes. These routes were first based on the connections that would be created to destinations within the community. After a more-detailed look at street width and traffic patterns, a treatment option was recommended for each route.

Two different alternatives were proposed for the same network. Alternative 1 consisted of “safe improvements” that could easily be implemented without major roadway configuration changes, such as removing on-street parking, widening the roadway, or re-striping lanes (see Figure 10). With this alternative, there are less miles of dedicated bike lanes on the roadway for bicyclists because the existing roadway widths do not allow for it. More shared lanes and signed routes are proposed with Alternative 1.

Alternative 2 consists of “aggressive improvements” that would be more costly and difficult to construct because it would require removing on-street parking, widening roadways to allow for dedicated bike lanes, or restriping roadways to narrow travel lanes to make room for dedicated lanes (see Figure 11).

The Bicycle Advisory Committee was presented with both Alternative 1 and Alternative 2. By piecing elements of both alternatives together, the Committee came up with the Preferred Alternative. This alternative consists of mostly “safe improvements” from Alternative 1 with a few “aggressive improvements” from Alternative 2. These routes were chosen as the most cost-effective way for Henderson to construct a safe bicycle network.

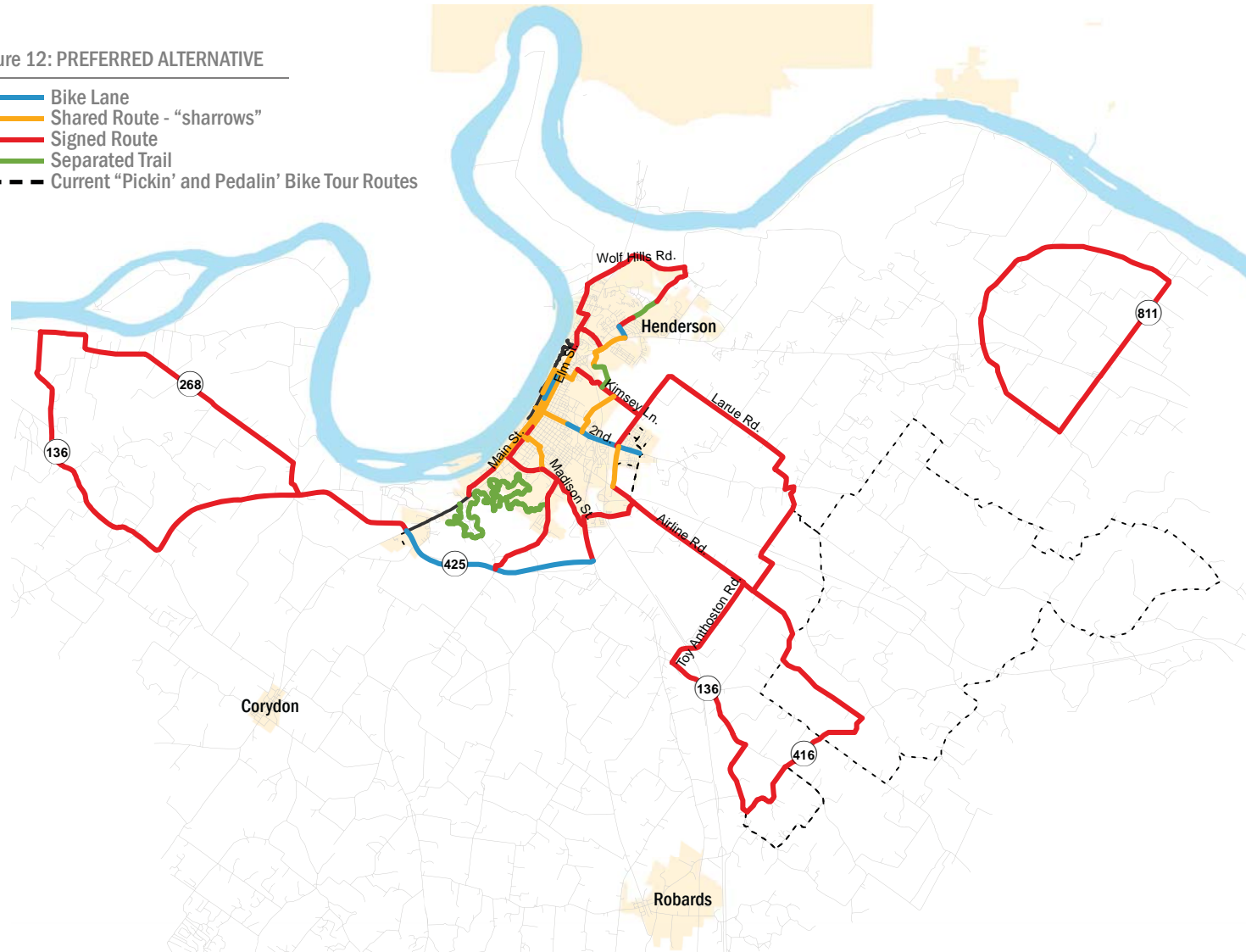


PREFERRED ALTERNATIVE/RECOMMENDATIONS

The proposed routes are intended to help residents connect with nearby amenities in a safe and efficient manner. Figure 12 represents the preferred routes and types.

Figure 12: PREFERRED ALTERNATIVE

- Bike Lane
- Shared Route - "sharrows"
- Signed Route
- Separated Trail
- - - Current "Pickin' and Pedalin' Bike Tour Routes



greater henderson **BICYCLE** and **PEDESTRIAN** plan

The following is a breakdown of each route proposed within the network. The cost is estimated on average cost of the specified treatment type, as well as the estimated mileage.

1. GENEVA LOOP

The Geneva/Smith Mills Loop consists of a signed bike route along KY 268, KY 136, and US 60. This loop provides a rural route for recreational riders, as well as connections to destinations such as Geneva, Smith Mills, Henderson City-County Airport, Henderson Community College, and slough and natural areas. The implementation of this loop would only require the installation of bike route signs.

Treatment: signed route

Miles: 26.5

Phase: 2 (2014-2016)

Estimated Cost: \$2,310.00

2. REED/811 LOOP

The Reed/811 Loop consists of signed bike routes on KY 811, Peters Road, and Reed Bluff City Road. Similar to the Geneva Loop, this loop also provides an ideal riding environment for recreational cyclists. Connections include Spottsville and Reed, with a potential future connection to Owensboro via Lake Town Road, French Island Road, and Lower River Road. Establishing this regional connection would need cooperation from both Henderson and Daviess counties.

Treatment: signed route

Miles: 17 miles

Phase: 2 (2014-2016)

Estimated Cost: \$2,310.00



3. AIRLINE/ZION-LARUE AND NIAGARA LOOPS

These two loops, Airline/Zion-Larue and Niagara, are rural roads that would provide recreational cyclists an ideal place to ride. Together they contribute nearly 40 miles to the overall bike network. Roads within the Airline/Zion-Larue loop include Airline Road, Garden Mile Road, Larue Road, Zion-Larue Road, and Posey Ball Road back into Airline Road.

Roads within the Niagara Loop include Airline Road, Barren Church Road, Griffin Graves Creek Road, KY 416, North Pleasant Valley Road, KY 136, and Toy Anthoston Road back into Airline Road. This loop goes through Niagara, and is broken down into two phases.

The Airline/Zion-Larue Loop provides direct access to the Henderson Farmers Market from all sides of Henderson.

Adams Lane serves as the connecting link between the KY 425, Old Madisonville Road, Madison Street, and 41 South Loop and the Airline/Zion-Larue Loop.

Treatment: signed route, shared lane

Miles: 40 miles

Phase: 1 (2014-2015) for Garden Mile Road, Larue Road (2nd Street to KY 351)

Phase: 2 (2014-2016) for the remaining routes

Estimated Cost: \$4,400.00 for both loops

4. STRATMAN ROAD

Stratman Road, from Sunest Lane to US 41, is included in the bike network as a signed route. This route will serve as a safe connection for residents along Stratman Road to get to Atkinson Park, Audubon State Park, and downtown.

Treatment: signed route

Miles: 1.25 miles

Phase: 1 (2014-2015)

Estimated Cost: \$800.00



5. WOLF HILLS ROAD

Wolf Hills Road, between US 41 and Green River Road, is a two-mile segment that circles around the northern portions of Audubon State Park. There are not many homes or neighborhoods along Wolf Hills Road, but this route provides a scenic route in between residential areas. The implementation of this route segment would only require the installation of bike route signs.

Treatment: signed route

Miles: 2.0 miles

Phase: 1 (2014-2015)

Estimated Cost: \$800.00

6. GREEN RIVER ROAD

Green River Road, between Wolf Hills Road and Watson Lane, is an important route segment. This two and a half mile route has many houses and subdivisions along it, as well as the John J. Audubon State Park Golf Course and the Players Club of Henderson Golf Course, and creates connections for residents between US 60 (and ultimately Hoffman Plaza shopping area) and Audubon State Park.

Two treatments have been proposed for Green River Road – a signed route and a separated trail. The separated trail is proposed between Woods Point and Osage Drive. The remainder of Wolf Hills Road is proposed as a signed route.

Treatment: signed route; separated trail

Miles: 2.75 miles

Phase: 1 (2014-2015)

Estimated Cost: \$1,050.00



7. WATSON LANE

Watson Lane, between Green River Road and US 60, is proposed to serve as a connection between the residential areas along Green River Road and US 60. This will provide a safe way to access the Hoffman Plaza shopping area, as well as a safe way for children to access Bend Gate Elementary School. Because Watson Lane is a relatively wide street, a dedicated bike lane is proposed. The implementation of this bike lane would require the installation of bike lane signs, bike lane street markings, and striping.

Treatment: bike lane

Miles: .5 miles

Phase: 2 (2014-2016)

Estimated Cost: \$1,200.00

8. US 60

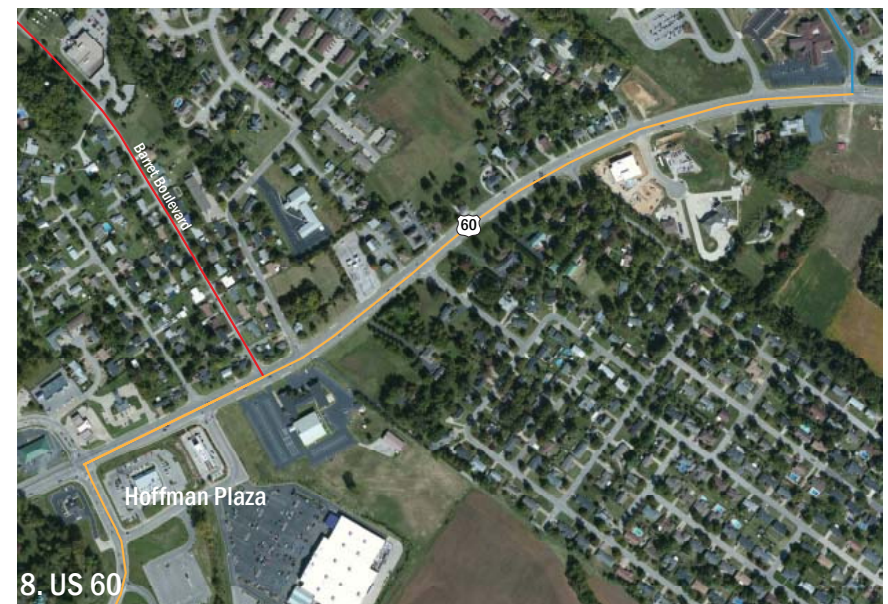
US 60, between Barret Boulevard and Watson Lane, is a 4-lane street with a center turn lane. Because of the amount of businesses and residential streets located along this corridor, US 60 creates an ideal connector between the routes on Barret Boulevard and Watson Lane. Due to the existing roadway and lane width, dedicated bike lanes are not feasible unless the roadway was restriped (see 2nd Street/ Zion Road recommendation). A shared lane with sharrow markings is recommended over a signed route to call more attention to bicyclists by motorists.

Treatment: shared lane

Miles: 1.25 miles

Phase: 2 (2014-2016)

Estimated Cost: \$880.00



9. BARRET BOULEVARD

Barret Boulevard provides a safe route from US 60 into the Hoffman Plaza shopping area. When designating bike facilities, it is important to create connections between residential areas and commercial areas. Designating Barret Boulevard as a bike facility also creates a connection to Kimsey Lane via a separated trail that has been constructed along an easement.

Treatment: shared lane

Miles: 0.5 miles

Phase: 2 (2014-2016)

Estimated Cost: \$440.00



10. MARYWOOD DRIVE

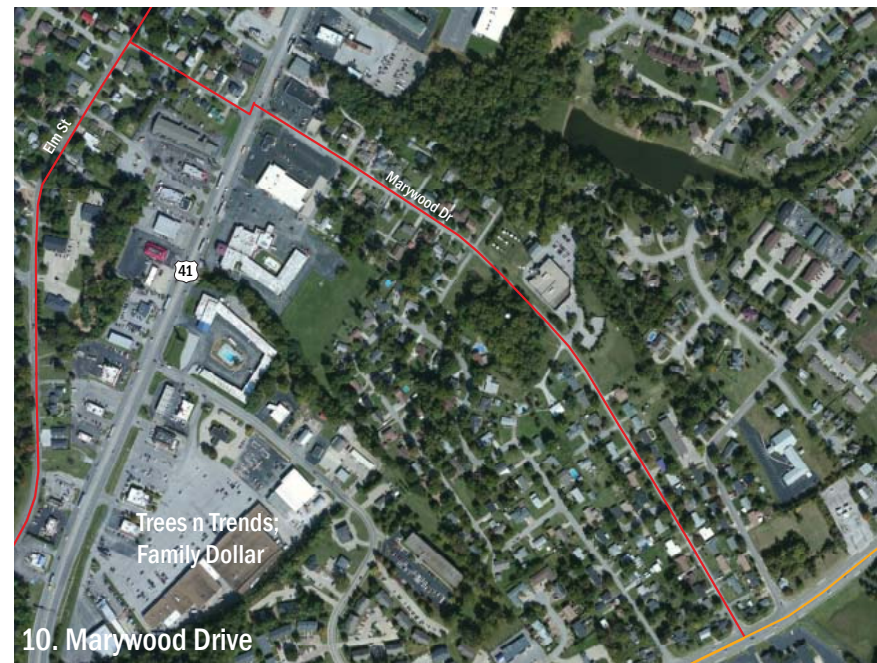
Marywood Drive is primarily a residential street that provides a direct link between Elm Street on the west side of US 41 (via Rettig Road) and US 60 on the east side of US 41. This route will allow residents on the west side of US 41 to easily access Hoffman Plaza and surrounding major shopping destinations without having to maneuver on the US 41/US 60 interchange. With this route, cyclists will have to cross US 41. A stoplight is currently in use at this intersection, but if improvements are to be made to this intersection, bicycle improvements, such as bike boxes, should be considered.

Treatment: signed route

Miles: 1.0 mile

Phase: 2 (2014-2016)

Estimated Cost: \$660.00



11. SUNSET LANE

By designating Sunset Lane as a signed bike route, residents along this street will have a direction connection to Atkinson Park, the Riverwalk, and downtown. This also connects with Stratman Road at US 41.

Treatment: signed route

Miles: 1.0 mile

Phase: 2 (2014-2016)

Estimated Cost: \$495.00

12. BARKER ROAD

Barker Road is designated as a bike facility in order to keep the network continuous. Sunset Lane dead ends near the river, with Barker Road being the southern-most cross-street connecting into Elm Street and US 41.

Treatment: signed route

Miles: 0.25 miles

Phase: 2 (2014-2016)

Estimated Cost: \$330.00

13. ELM STREET

Elm Street is included in the bike network as both a signed route and shared lane, depending on the existing roadway width. The Elm Street route stretches a total of five miles across the downtown starting at Barker Road and ending at Sand Lane. Barker Road to the Atkinson Park Road Connector is designated as a signed route due to the narrower roadway widths. After the Atkinson Park Road Connector, Elm Street widens some, allowing for a shared lane with sharrow markings to be installed. Elm Street narrows again from Clay Street to Sand Lane, making a signed route the preferred treatment.



11. Sunset Lane



12. Barker Road

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Having Elm Street marked as a bike route will encourage more cyclists to ride to their downtown destinations, such as shopping, dining out, or work. Studies have shown that marked bikeways have a positive economic impact for cities. By having designated bicycle facilities in Henderson, and especially downtown, new businesses may be more inclined to relocate along one of these routes.

Treatment: signed route, shared lane

Miles: 5.0 miles

Phase: 2 (2014-2016)

Estimated Cost: \$3,685.00

14. 12TH STREET

After careful consideration, 12th Street was selected as the best east-west street to connect the east and west sides of downtown across the busy Green Street corridor. In comparing 12th Street and 5th Street, 12th Street was ultimately chosen due to a lower crash rate over the last few years at the Green Street intersection.

	5th Street/US 60	12th Street/US 60
2012 Crash Rate	12	5
2011 Crash Rate	16	8
TOTAL	28	13

Source: Kentucky State Police

When future improvements to the 12th Street and Green Street intersection are made, bike improvements, such as a bike box, could be included in with the project.

Treatment: shared lane

Miles: 0.5 miles

Phase: 2 (2014-2016)

Estimated Cost: \$1,540.00



15. KIMSEY LANE

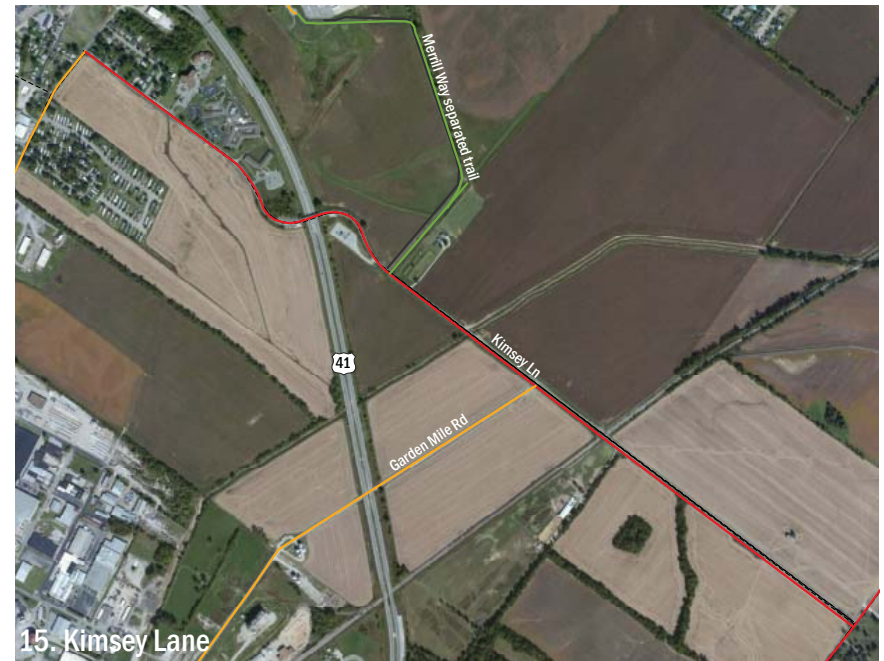
Kimsey Lane provides a safe and accessible way to cross US 41 south of the US 41/US 60 interchange for cyclists traveling between the north side of downtown and the Airline/Zion-Laure and Niagara Loops. Kimsey Lane is one of the few roads that has an overpass over US 41. Passing by the Redbanks Senior Living Center, this route also provides an accessible route to the shopping centers at Hoffman Plaza for residents that live on the west side of US 41 by connecting to the Merrill Way separated trail that has been constructed that leads to the backside of Barret Boulevard.

Treatment: signed route

Miles: 2.5 miles

Phase: 2 (2014-2016)

Estimated Cost: \$825.00



16. MERRITT DRIVE

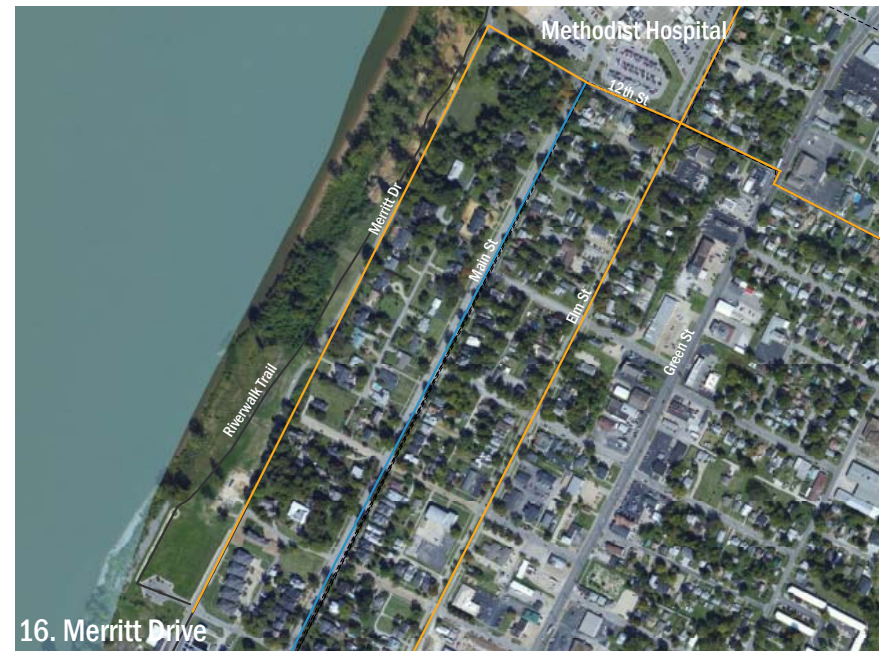
Merritt Drive is included within the bike network due to the existing shared lanes located along Water Street parallel to Merritt Drive. Currently, the Henderson Riverwalk extends along the Ohio River, and then terminates at 6th Street. A shared lane, marked with sharrows, begins on Water Street at 6th Street and extends to the tennis courts at Powell Street. Another network piece is completed by extending the existing shared lane north on Merritt Drive to link into 12th Street.

Treatment: shared lane

Miles: 1.0 mile

Phase: 2 (2014-2016)

Estimated Cost: \$660.00



17. MAIN STREET

Main Street, from 12th Street to Drury Lane, runs parallel to Elm Street and stretches the entire length of downtown. Main Street is an ideal street in downtown for a bike facility due to the amount of residents and business located on Main Street, or just off of Main Street. A “downtown loop” is created with Main Street and Elm Street, giving recreational riders and those riding for transportation purposes more options within downtown.

Because of the roadway width, a dedicated bike lane is proposed from 12th Street to 5th Street and is included in Phase 1 of implementation. Unless on-street parking is removed or reconfigured in downtown, a shared lane is the best treatment option for Main Street heading south from 5th Street to Yeaman Avenue. Yeaman Avenue to Drury Lane becomes slightly narrower, so a signed route is recommended for this segment. The last two segments along Main Street are included in Phase 2 of implementation.

Treatment: bike lane, shared lane, signed route

Miles: 4.5 miles

Phase: 1 (2014-2015); Phase: 2 (2014-2016)

Estimated Cost: \$5,590.00

18. 2ND STREET/ZION ROAD

2nd Street/Zion Road is a prime corridor for an east-west route across town, especially with the amount of residents and businesses located along it, including Henderson County High School. From Water Street downtown to Carlisle Street (just before the railroad overpass), a shared lane with sharrow markings is proposed because of the on-street parking.

From Carlisle Street to Henderson County High School, a dedicated bike lane is recommended on 2nd Street; however, this can only be accomplished by restriping the roadway to make the existing travel lanes slightly narrower. By doing this, extra space is allotted for the dedicated lane.



Historically, wider travel lanes (11-13 feet) have been favored to create a more forgiving buffer to drivers, especially in high-speed environments where narrow lanes may feel uncomfortable or increase potential for sideswipe collisions. By reducing travel lane width, space for bicycle lanes, bus lanes, and on-street parking can be made available. A typical street can be transformed into a multi-modal corridor with the right lane configurations.

Treatment: shared lane, bike lane

Miles: 3.5 miles

Phase: 2 (2014-2016)

Estimated Cost: \$8,580.00

19. VAN WYK ROAD

Van Wyk Road is currently the only gravel road within Henderson's city limits, and is heavily used by farmers with equipment. While inaccessible to cyclists, Van Wyk Road would create an ideal connection between 2nd Street (via Priest Street) and Kimsey Lane. For cyclists, this would also provide a shorter, alternative route, as it cuts the loop created by 2nd Street, Larue Road, Kimsey Lane, and Elm Street nearly in half.

Paving Van Wyk Road is recommended to provide a needed bicycle connection between 2nd Street and Kimsey Lane. If paving is not feasible, a 10-foot wide separated trail similar to the one between Barret Boulevard (behind Walmart) and Kimsey Lane is recommended.

Treatment: shared lane, signed route

Miles: 1.5 miles

Phase: 3 (2014-2019)

Estimated Cost: \$110,300 (for trail and markings)



20. MADISON STREET

Madison Street is one of few east-west streets across Henderson that has been identified on the bike network. Audubon Street, US 60 for one block, Vine Street, and Alvasia Street for half of a block will be signed as part of this route to connect Madison Street to the Downtown Loop on Elm Street. This route will connect to the eastern portion of the W. E. Newman Recreation Complex at the intersection of Sand Lane, as well as pass by Community Park south of KY 285. Audubon Street, US 60, Vine Street, Alvasia Street and Madison Street to Sand Lane are recommended to be shared lanes. These residential streets are wide enough to accommodate roadway markings. Because of roadway width, Madison Street between Sand Land and US 41 South is recommended as a signed route.

Treatment: shared lane, signed route

Miles: 2.25 miles

Phase: 2 (2014-2016)

Estimated Cost: \$2,585.00



21. SAND LANE

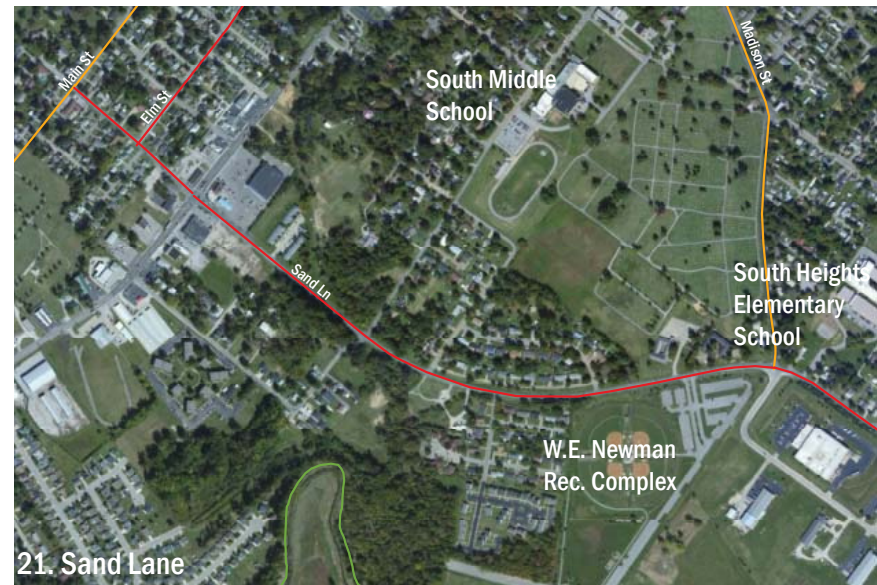
Sand Lane, beginning at Water Street and ending at the intersection at Madison Street, creates a connection between the Downtown Loop and residents towards the south side of Henderson. This route passes by the W. E. Newman Recreational Complex. Once the Canoe Creek trail is completed, a trailhead could be established at the Recreational Complex, allowing users to access the trail via the Sand Lane bike route.

Treatment: signed route

Miles: 1.25 mile

Phase: 2 (2014-2016)

Estimated Cost: \$825.00



22. KY 425 (HENDERSON BYPASS)

Roadways with paved shoulders can greatly improve the bicycle network within a community, especially on roads with higher speeds or traffic volumes. Paved shoulders are typically found on rural roadways, which is the case on KY 425. KY 425 connects the Geneva Loop route at US 60 and the Henderson Community College to KY 136 (US 41 South). By adding bike route signs, six miles of safe facilities are added to the network.

Treatment: using paved shoulder as bike lane

Miles: 6.0 miles

Phase: 2 (2014-2016)

Estimated Cost: \$2,145.00

23. CANOE CREEK

A new separated trail system is being proposed along Canoe Creek between US 60 and KY 285. This would provide the south side of Henderson with 12.5 miles of recreational trail in a natural setting.

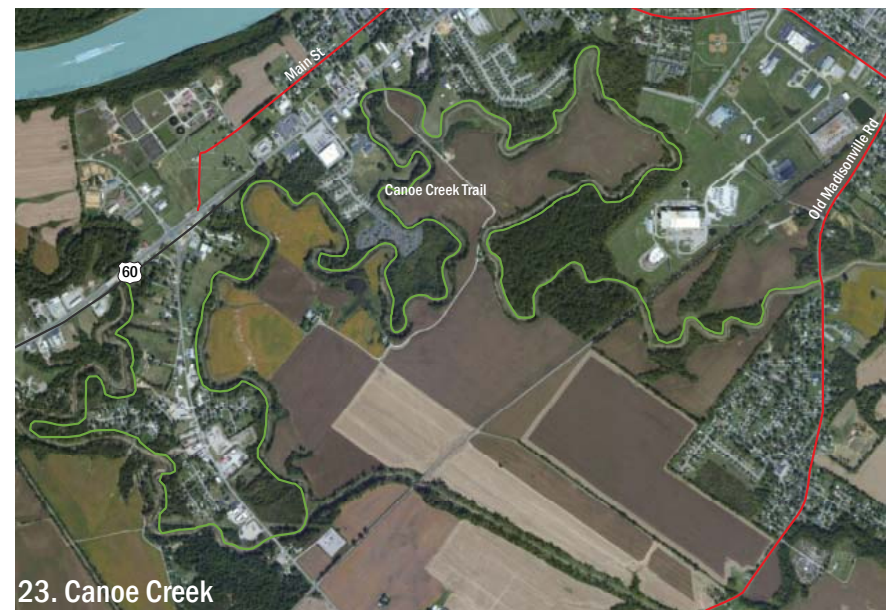
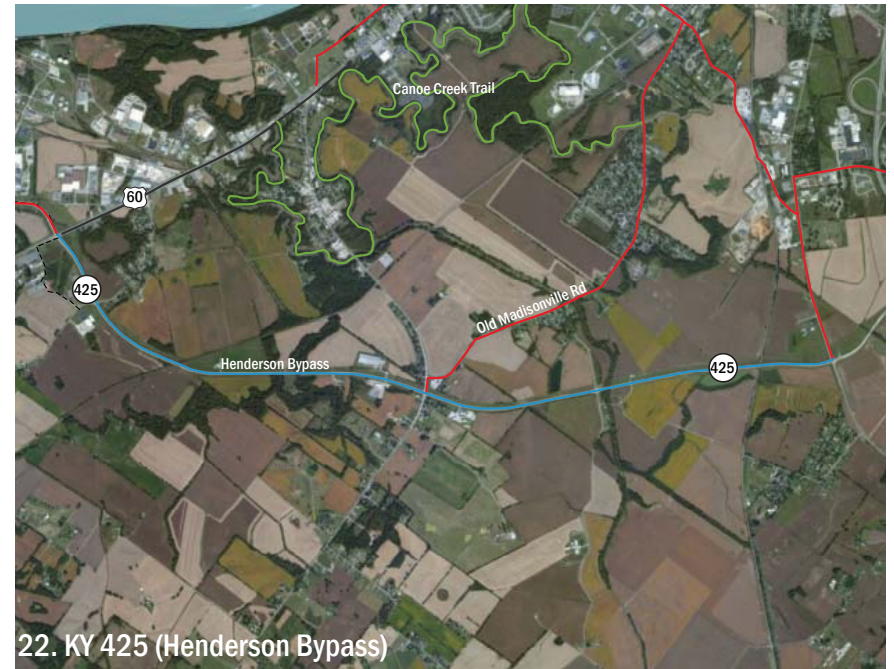
Funding has already been identified to begin construction on Canoe Creek.

Treatment: separated trail

Miles: 12.5 miles

Phase: 3 (2014-2019)

Estimated Cost: \$825.00 (estimated cost is for signs only – not construction)



24. US 41 SOUTH

US 41 South serves as a connector segment between Madison Street and KY 425. There are currently small shoulders on this segment of US 41 South, but they are narrow and have rumble strips. If roadway improvements are to be made to this route in the future, consideration should be given to upgrading the shoulder to provide a facility similar to the one on KY 425. For now, due to the roadway width, a signed route is recommended to alert motorists of the potential for cyclists to be on the road.

Treatment: signed route

Miles: 1.0 mile

Phase: 2 (2014-2016)

Estimated Cost: \$750.00



24. US 41 South/Adams Lane

25. OLD MADISONVILLE ROAD (KY 285)

Old Madisonville Road serves as a connection between the KY 425 Bypass and the south side of downtown at Madison Street. There are many residential units located along Old Madisonville Road, as well as a large, single-family neighborhood just south of Canoe Creek. This route designation would provide access to the proposed Canoe Creek trail and into downtown Henderson.

Treatment: signed route

Miles: 3.5 miles

Phase: 2 (2014-2016)

Estimated Cost: \$1,485.00



25. Old Madisonville Road (KY 285)

OTHER RECOMMENDATIONS

Sidewalks should not be considered an acceptable bicycle facility, except possibly for children. The use of sidewalks by cyclists introduces many safety problems, such as the speed differences between cyclists and pedestrians, conflict at driveways where drivers don't expect fast-moving cyclists on the sidewalk, and the presence of obstructions such as light poles, signposts, fire hydrants, etc.

In addition to providing adequate roadway space for cyclists, attention needs to be given to the condition of that portion of the roadway used by bicyclists – typically the outer 4 feet of travel lane, or paved shoulder where present. The pavement should be kept smooth and clear of side cracks, joints, drop-offs, as well as gravel, glass, leaves, trash, and other debris that can cause a bicyclist to lose control. Poor patching jobs and potholes will force a cyclist to ride further into the travel lane.

According to the Kentucky Transportation Cabinet's (KYTC) Guidelines for Bicycle and Pedestrian Accommodations in Kentucky, special consideration of cyclists should be given when considering whether to incorporate rumble strips on a project. The KYTC standard specification (403.03.08) states, "Unless specified in the plans, do not construct rumble strips on facilities with posted speed limits of 45 mph or less."¹

For suburban highways with speed limits higher than 45 mph, the context should be considered on whether rumble strips are truly justified to improve safety. Rumble strips may not be appropriate in locations where driveway density is high, actual travel speeds are low, or high levels of bicycle traffic exist. In cases where rumble strips are necessary, it is recommended to place the rumble strip as close to the edge of travel lane as possible.

The type and location of drainage inlet grates and utility covers also needs to be considered. In particular, parallel bar drainage grates can catch a bicycle tire, creating the likelihood of a crash. Drainage grates should be a bicycle-friendly design that is flush with the pavement. Retrofitting parallel bar grates with welded cross bars is less desirable, but acceptable. Utility covers are best located outside of the area that cyclists will use. They are particularly dangerous when the roadway is wet.

Lastly, diagonal railroad crossings present a serious safety problem for cyclists. These crossings, if not approached by the cyclist at a right angle, can divert the front wheel of the bicycle and cause a crash. The problem is greatest on roadways where there is no room for the cyclist to maneuver in order to approach the crossing at a right angle. The installation of smooth rubberized crossings is the preferred solution, but is often cost-prohibitive. Paving a tapered approach on either side of the crossing is an acceptable substitute.

¹ Kentucky Transportation Cabinet Guidelines for Pedestrian and Bicycle Accommodations in Kentucky



6

implementation

greater henderson **BICYCLE** and **PEDESTRIAN** plan

The Greater Henderson Bicycle and Pedestrian Plan outlines a comprehensive approach for addressing bicycle and pedestrian issues. Because the plan recommendations are too numerous and costly to implement all at once, the recommendations have been divided into three suggested phases of implementation.

PHASING

The proposed bicycle and pedestrian network is broken into three phases that have been spread over five years for implementation. These phases include:

Table 3: PHASING

Phase	Mileage	Cost
1 - 2014-2015	18	\$2,675.00
2 - 2014-2016	118.25	\$41,770
3 - 2014-2019	1.5	\$110,300
TOTAL	137.75	\$154,745.00

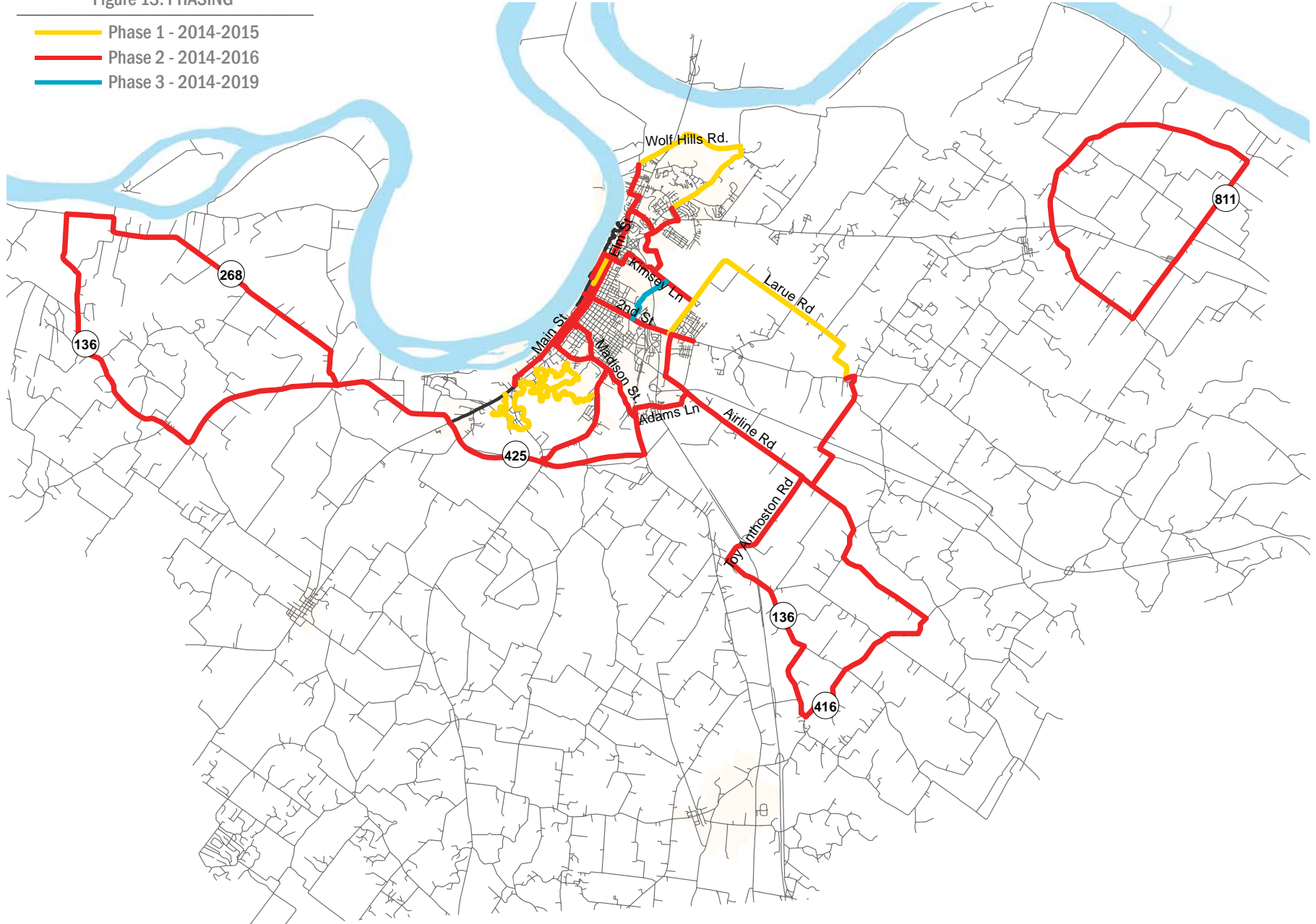
Table 4: PHASING BY ROUTE

Phase		Route	Type	Milegae	Cost*
1	5	Wolf Hills Road	Signed Route	2.00	\$ 800.00
1	6	Green River Road	Signed Route, Separated Trail	2.75	\$ 1,050.00
1	23	Canoe Creek Trail	Separated Trail	12.50	\$825.00
1,2	17	Main Street	Bike Lane, Shared Lane, Signed Route	4.50	\$ 5,590.00
2	1	Geneva Loop	Signed Route	26.50	\$ 2,310.00
2	2	Reed/811 Loop	Signed Route	17.00	\$ 2,310.00
2	3	Airline/Zion-Larue and Niagara Loops	Signed Route	40.00	\$ 4,400.00
2	7	Watson Lane	Bike Lane	0.50	\$ 1,200.00
2	8	US 60	Shared Lane	1.25	\$ 880.00
2	9	Barret Boulevard	Shared Lane	0.50	\$ 440.00
2	10	Marywood Drive	Signed Route	1.00	\$ 660.00
2	11	Sunset Lane	Signed Route	1.00	\$ 495.00
2	12	Barker Road	Signed Route	0.25	\$ 330.00
2	13	Elm Street	Signed Route, Shared Lane	5.00	\$ 3,685.00
2	14	12th Street	Shared Lane	0.50	\$ 1,540.00
2	15	Kimsey Lane	Signed Route	2.50	\$ 825.00
2	16	Merritt Drive	Shared Lane	1.00	\$ 660.00
2	18	2nd Street/Zion Road	Shared Lane, Bike Lane	3.50	\$ 8,580.00
2	20	Madison Street	Shared Lane, Signed Route	2.25	\$ 2,585.00
2	21	Sand Lane	Signed Route	1.25	\$ 825.00
2	22	KY 425 (Henderson Bypass)	Shoulders	6.00	\$ 2,145.00
2	24	US 41 South/Adams Lane	Signed Route	1.00	\$ 825.00
2	25	Old Madisonville Road (KY285)	Signed Route	3.50	\$ 1,485.00
3	19	Van Wyk Road	Pave Road, Shared Lane	1.50	\$ 110,300.00
				137.75	\$154,745.00

* estimated cost for materials

Figure 13: PHASING

- Phase 1 - 2014-2015
- Phase 2 - 2014-2016
- Phase 3 - 2014-2019



FUNDING

Although funds for infrastructure improvements are currently limited, it is possible to make real progress in improving conditions for bicyclists and pedestrians. Local jurisdictions should focus on including bikeway projects in the course of routine maintenance projects (i.e. striping bike lanes or wide curb lanes when roads are resurfaced) and road maintenance projects (i.e. adding wide curb lanes or paved shoulders in new roadway or reconstruction projects). In this way, bicycle and pedestrian improvements can be made in the course of regular development and maintenance, and funds can be used more effectively.

A range of local funding sources can be utilized for bicycle- and pedestrian-related improvements, including:

- General revenues.
- General transportation funds.
- Annual street and highway improvements.
- Capital improvement projects budget requests.
- Developer/organizational (e.g. bike club) contributions.
- Designated bond funds.

The Moving Ahead for Progress in the 21st Century (MAP-21) transportation bill provides a major opportunity for the region to fund strategic parts of its proposed bicycle and pedestrian plan. All of these funds require some contribution of local funds, typically 20 percent of the total project cost.

NATIONAL HIGHWAY SYSTEM (NHS)

NHS funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway System, including interstate highways.

NHS roadways in Henderson County are:

- US 41 (from the state line to the Breathitt Parkway/I-69)
- US 41A/60 (from US 41 to KY 425)
- KY 425 (from US 41A/60 to the Breathitt Parkway/I-69)
- Breathitt Parkway/I-69
- Audubon Parkway

SURFACE TRANSPORTATION PROGRAM (STP)

STP funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects (such as brochures, public service announcements, and route maps) related to safe bicycling and walking.

TRANSPORTATION ALTERNATIVES PROGRAM (TAP)

TAP funds (formerly Transportation Enhancements (TE) funds) can be used for the provision of facilities, safety programs, and educational activities for bicyclists and pedestrians. The Safe Route to School funds are now included with TAP funds under MAP-21.

CONGESTION MITIGATION AND AIR QUALITY (CMAQ)

CMAQ funds are only available in those areas designated as being in non-attainment of federal air quality standards. Henderson County is currently in attainment and is therefore not eligible for CMAQ funds. CMAQ funds may be used for the construction of bicycle transportation facilities and pedestrian walkways, bicycle racks, and non-construction projects (such as brochures, public service announcements, and route maps) related to safe bicycling and walking.

HAZARD ELIMINATION AND RAILWAY-HIGHWAY CROSSING PROGRAMS

Ten percent of the STP allocations are set aside for the Hazard Elimination program. These funds can be used for activities including surveying hazardous locations, projects on any publicly owned bicycle or pedestrian pathway and/or trail, or any safety-related traffic calming measure.

FEDERAL TRANSIT FUNDING

Transit funds can be used for bicycle and pedestrian access to transit facilities, to provide shelters and parking facilities for bicycles in or around transit facilities, or to install racks or other equipment for transporting bicycles on transit vehicles.

Other non-transportation funding sources are also available, particularly for safety and education programs. For example, hospitals and bicycle retailers sometimes fund education efforts targeting child cyclists' use of bicycle helmets and provide free or discounted helmets.

While special grants are available to help fund the development of bicycle improvements, they cannot be used for routine maintenance of existing facilities. Ideal maintenance of a bikeway averages \$2,000/mile per year. This includes street sweeping, street repair, and restriping. Much of this cost is already covered by routine street maintenance work. However, communities interested in developing bikeway projects must address long-term funding for bikeway maintenance, and dedicate bicycle funding as a regular component of its general and capital funds.

EDUCATION

Creating bikeways is a major step in encouraging bicycle use and improving safety. Equally important, however, are efforts to educate bicyclists and motorists on how to safely and properly coexist, as well as promotional efforts to encourage the use of bicycles.

Education programs can help to dispel misconceptions about cycling, improve the skill level of cyclists, and encourage more courteous and lawful interaction between cyclists and motorists. There are currently many education efforts in the region, such as through local police departments, bike retailers, schools, hospitals, bike clubs and other groups. Coordination of the various efforts could help to increase coverage, ensure a consistent message, and allow for sharing of resources.

Education efforts should center on three main elements:

- 1) Developing safe cycling skills in children.
- 2) Educating adult cyclists about their rights and responsibilities.
- 3) Educating motorists about cyclists' rights, and how to share the road with cyclists.

Encouragement efforts could include, but are not limited to:

- 1) Provision of bike racks.
- 2) Bike racks on buses.
- 3) Events to promote the use of bicycles.
- 4) Printed maps with street recommendations and connections with any local trails.

Recommendations regarding education and encouragement activities can be broken into the following phases:

PHASE 1

- Create a regional inventory of programs aimed at bicycle and traffic safety education.
- Organize public/private support for, and develop, a public campaign and/or printed materials to educate children and adult citizens about bicycle and pedestrian safety issues.

- Produce brochures and other materials to be distributed in order to promote walking for both health benefits and as alternative transportation.
- Coordinate with local school officials, KYTC, and other interested organizations to develop a bike safety education curriculum targeting elementary school students for use in both public and private school systems.

PHASE 2

- Develop a public education campaign to educate motorists of bicyclists' legal right to use roadways and how to safely operate a vehicle around bicyclists.
- Ensure that all bicyclists under the age of 16 have access to a low-cost or free bicycle helmet.
- Develop and distribute a pocket-size bike map which shows existing bikeway facilities, any trail connections, a "bike suitability" rating for local roadways, and information on bike-related traffic laws, bike safety tips, and a "Who to Call" list for reporting spot roadway problems, harassment by motorists, etc.
- School districts and other educational institutions should use local auto-pedestrian crash data to develop educational programs to improve child pedestrian safety.

PHASE 3

- Encourage the Kentucky Department of Motor Vehicles to update their driver's manual to incorporate bicycle- and pedestrian-related information, and to include related questions on the written driver's license exam.
- Develop and promote a program that publicly recognizes businesses that encourage their employees and/or customers to bicycle and walk. The participation of local government offices should be encouraged.

- Organize and promote annual local "Bike to Work Week" and "Walk Your Children to School" events to coincide with other state and national promotional events.

ONGOING EFFORTS

- Continue to support and promote bike safety education efforts by local police departments, bike retailers, and others. Bike safety should be aimed at increasing the knowledge and skills of children cyclists through bike rodeos, classroom education, and other opportunities.
- Encourage KYTC to organize and coordinate statewide educational and promotional programs, and act as a clearinghouse for information.
- Sponsor walking events to publicize walking for both health benefits and as alternative transportation.

BICYCLE PARKING AND OTHER AMENITIES

In order for bicycling as a form of transportation to be a convenient option for residents, bike parking should be installed around governmental offices, businesses, parks, and other destinations along bike routes. If there is no bike parking available at a particular destination, few people will decide to make the trip by bicycle. Additional amenities such as showers and lockers at the workplace (or at a nearby health club) are ideal, but not critical, for cyclists who commute by bike.

PHASE 1

- Seek funding for the purchase and installation of bike racks at major public activity centers.
- Recommend bicycle racks in development projects as part of the local development review process.
- Support changes in local zoning ordinances, in the form of either an incentive or a requirement, to provide for bicycle racks in major commercial and employment centers, and at government buildings.

PHASE 2-3

- Encourage employers to provide bike racks, showers and locker facilities for commuting cyclists.
- Begin to monitor bike rack usage and community response, and pursue funding for additional racks as appropriate for rest of study area.

BIKES AND TRANSIT

Many public transit providers in the country are installing bike racks on buses, and providing secure bike parking at major transit stops and transfer centers. This makes transit an option for those who either live beyond walking distance of a bus route, or whose final destination is beyond walking distance of the closest bus stop. In addition, cyclists caught by inclement weather or equipment problems have the option of using public transit and being able to bring their bike with them. Evansville has had great success with bike racks on Metropolitan Evansville Transit System (METS) buses. It is recommended that Henderson Area Rapid Transit (HART) consider the provision of bicycle racks on their transit vehicles and at transfer centers.

greater henderson

BICYCLE and PEDESTRIAN master plan

Evansville Metropolitan Planning Organization

Civic Center Complex, Room 316

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Evansville, IN 47708