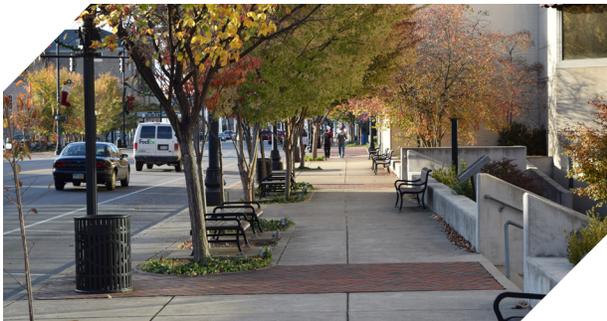


Non-Motorized Transportation Plan

for Boyd and Greenup Counties, KY

FINAL



Acknowledgements

We are grateful for the participation and support of staff, residents, and walking and bicycling advocates in Boyd and Greenup Counties and throughout the Huntington, WV-KY-OH Metropolitan Area who helped inform and guide the completion of this report, including:

- ▲ Saleem Salameh, Ph.D., P.E., Terri B. Sicking, and other staff of the KYOVA Interstate Planning Commission
- ▲ Kent Morrison and members of Ashland Cycling Enthusiasts
- ▲ Don Sammons, Raceland Police Chief
- ▲ Kelly Ward and other staff at FIVCO Area Development District
- ▲ Troy Hearn, Kentucky Pedestrian and Bicycle Coordinator
- ▲ And countless others that we relied on for information, comments, and input

Thank you for your time, your questions, and your ideas for improving walking and bicycling in Boyd and Greenup Counties. It is sincerely appreciated. This plan would not have been possible without you.

Prepared by:

Kimley»»Horn

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Appendix

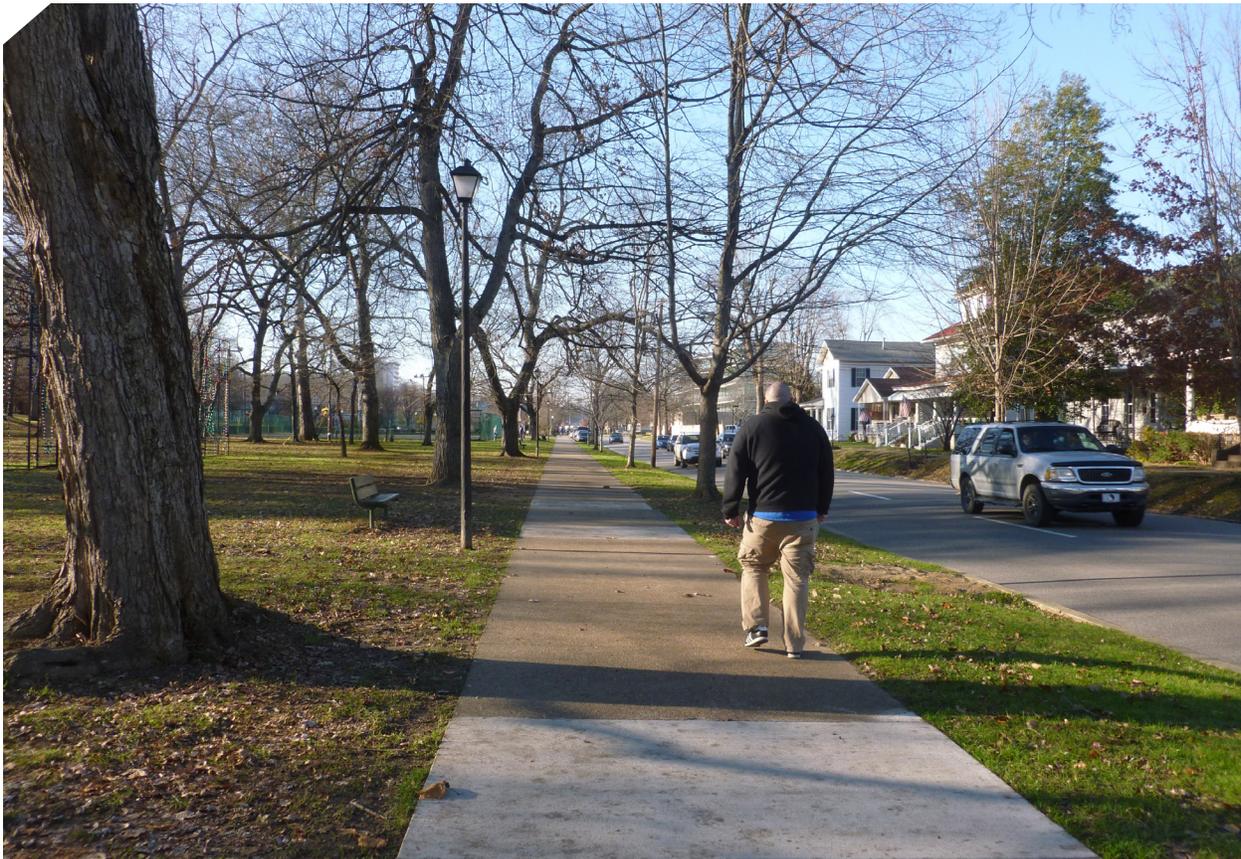
- ▲ All Public Engagement Comments
- ▲ Sample Maintenance Agreement
- ▲ Process for Review, Development, and Assessment of a Quantitative Bicyclists Comfort Index (BCI)
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Boyd and Greenup Counties have developed over time on the hilly banks of the Ohio River. Like many places throughout the United States, the recent transportation history in the area has been dominated by the automobile. Recent efforts have increased awareness for those walking and biking in the two counties for recreation and transportation purposes.

The member-driven organization Ashland Cycling Enthusiasts has raised the profile for road bicycling on the rural roads of the area. Wayfinding and interpretative installations like the EK Bikeway and the Raceland historic walking tour mark designated routes and attract visitors. Public officials and community members alike have come together to brainstorm creative ways to encourage active transportation in everyday life. Instead of top-down direction to change lifestyle behaviors, many local citizens are taking the initiative and are creating positive impacts to their environment.

This non-motorized transportation plan for Boyd and Greenup Counties will help establish a roadmap to ongoing walking and biking improvements. This plan will reinforce and support the ongoing efforts and will empower those willing to create positive change. The goal is to create a future in the two counties with accessible, comfortable, and connected pedestrian and bicycle facilities for those of all ages and abilities.

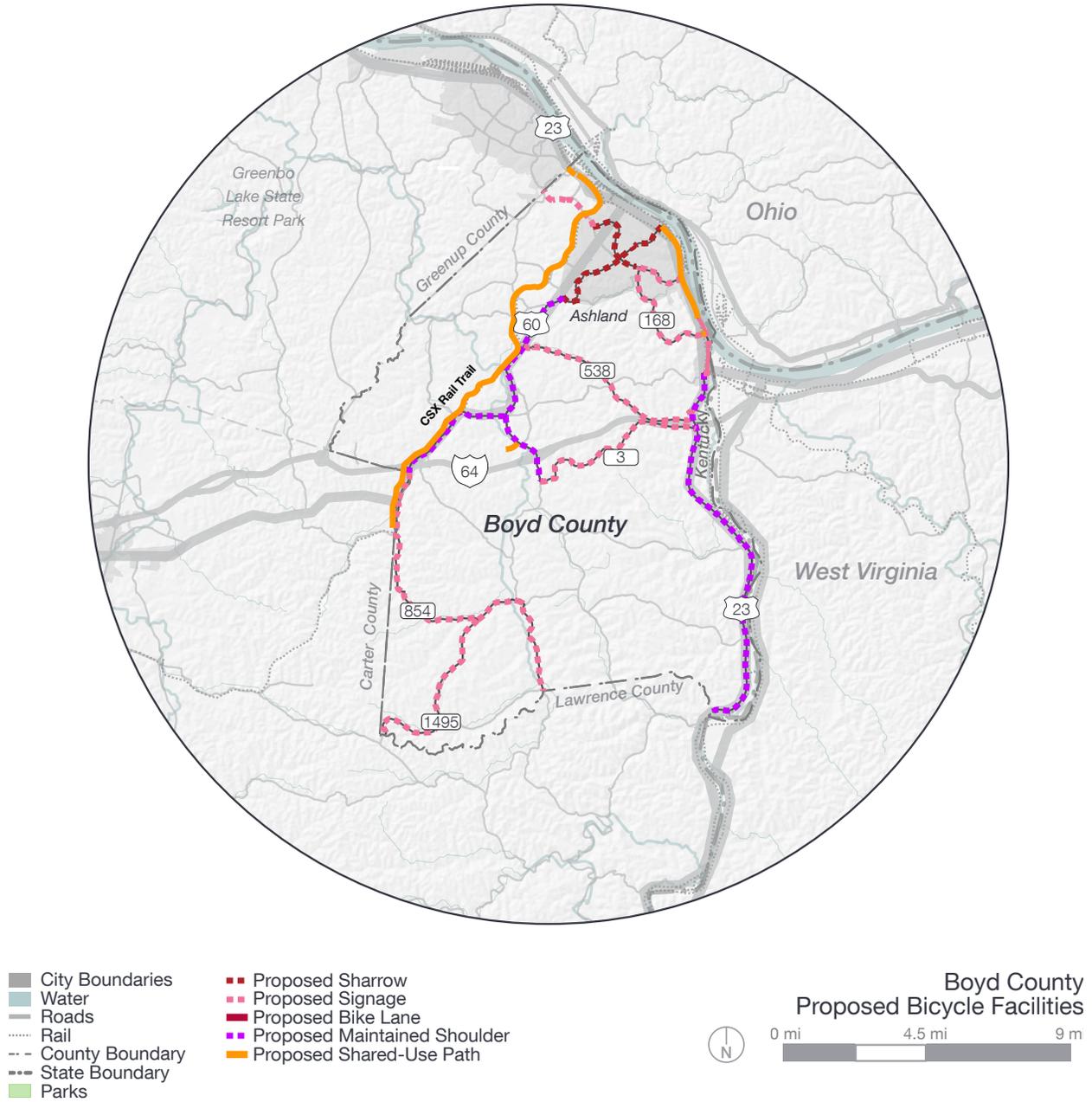


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Recommended Route Networks

Recommended Bike Network in Boyd County

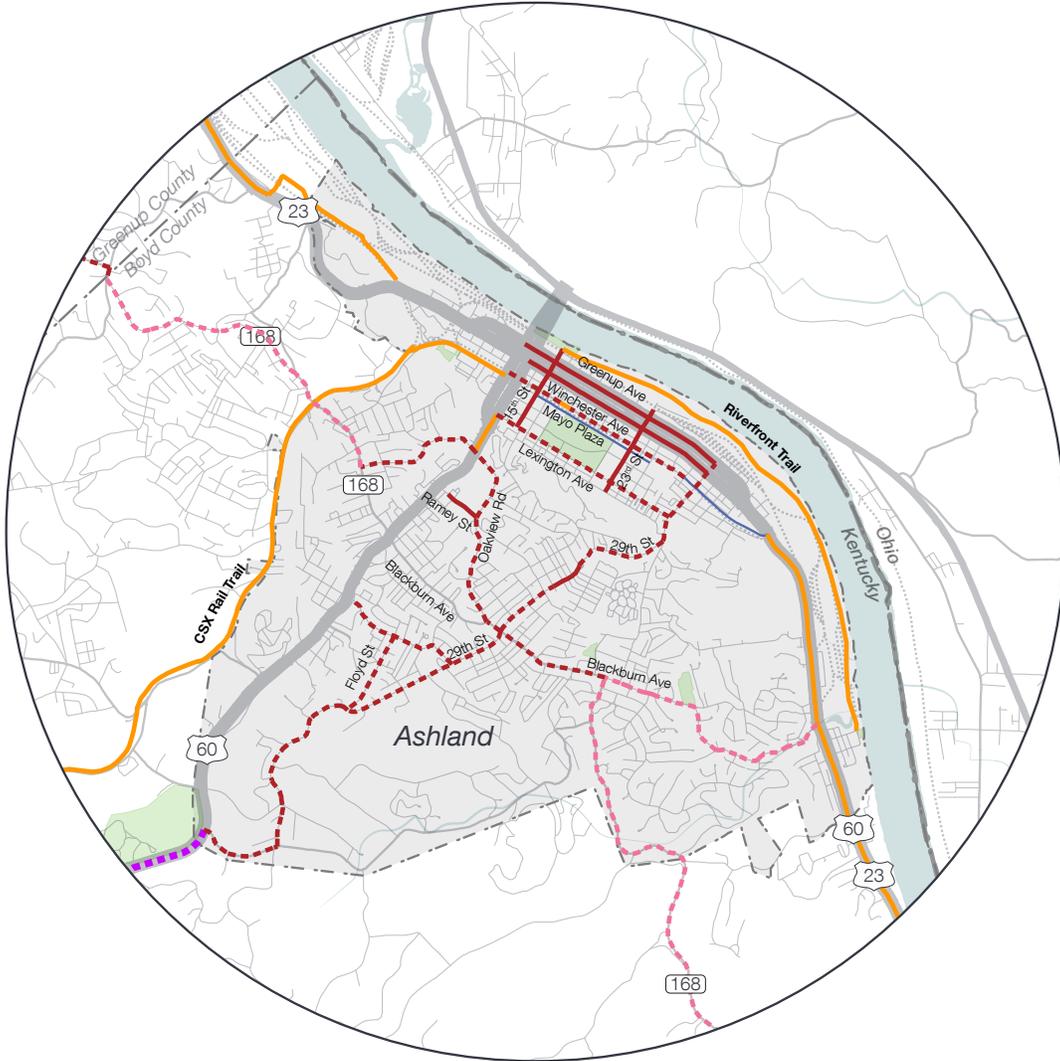
The map below depicts the recommended bike network improvements for Boyd County. Recommendations are presented by location and route type.



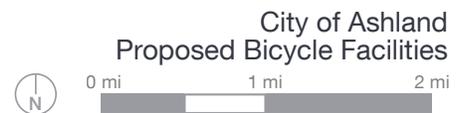
Recommended Bike Network in Boyd County

Recommended Bike Network in the City of Ashland

The map below depicts the recommended bike network improvements for the City of Ashland. Recommendations are presented by location and route type.



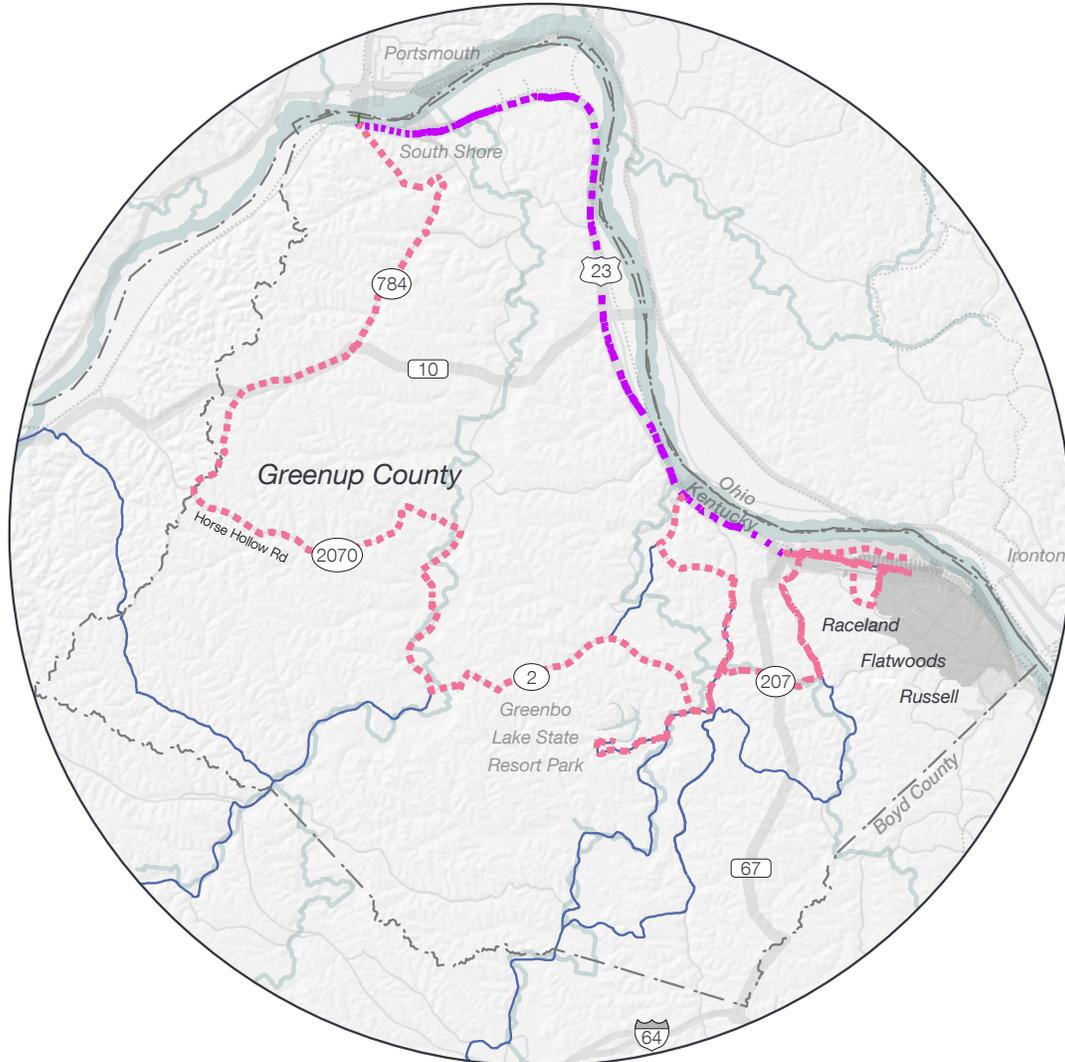
- | | |
|-----------------|------------------------------|
| City Boundary | Existing Bicycle Facilities |
| Water | Proposed Sharrow |
| Roads | Proposed Signage |
| Rail | Proposed Bike Lane |
| County Boundary | Proposed Maintained Shoulder |
| State Boundary | Proposed Shared-Use Path |
| Parks | |



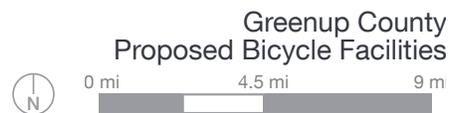
Recommended Bike Network in the City of Ashland

Recommended Bike Network in Greenup County

The map below depicts the recommended bike network improvements for Greenup County. Recommendations are presented by location and route type.



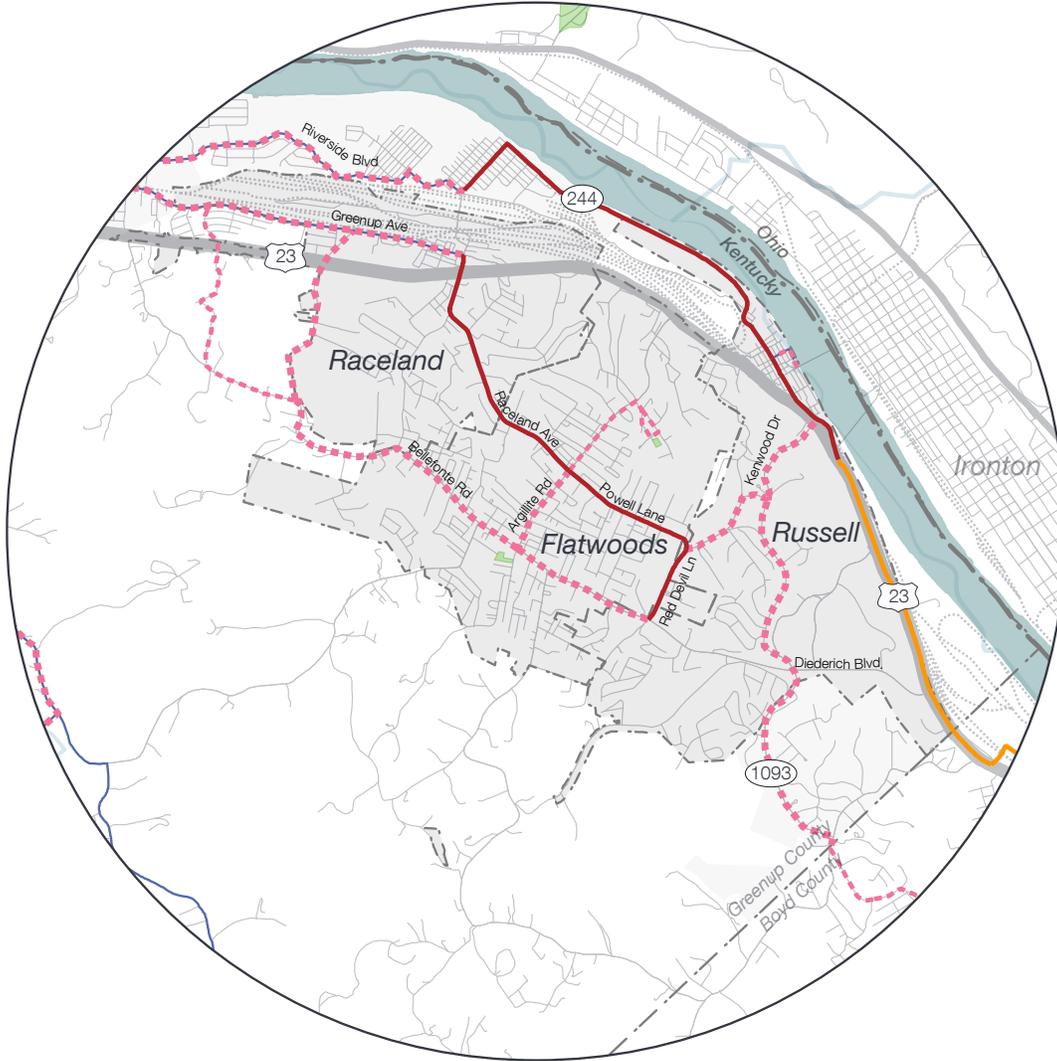
- City Boundaries
- Water
- Roads
- Rail
- - - County Boundary
- - - State Boundary
- Parks
- Existing Bicycle Facilities
- Proposed Signage
- - - Proposed Maintained Shoulder



Recommended Bike Network in Greenup County

Recommended Bike Network in the Cities of Raceland, Russell, and Flatwoods

The map below depicts the recommended bike network improvements for the Cities of Raceland, Russell, and Flatwoods. Recommendations are presented by location and route type.



- City Boundaries
- Water
- Roads
- Rail
- County Boundary
- State Boundary
- Parks
- Existing Bicycle Facilities
- Proposed Signage
- Proposed Bike Lane
- Proposed Shared-Use Path

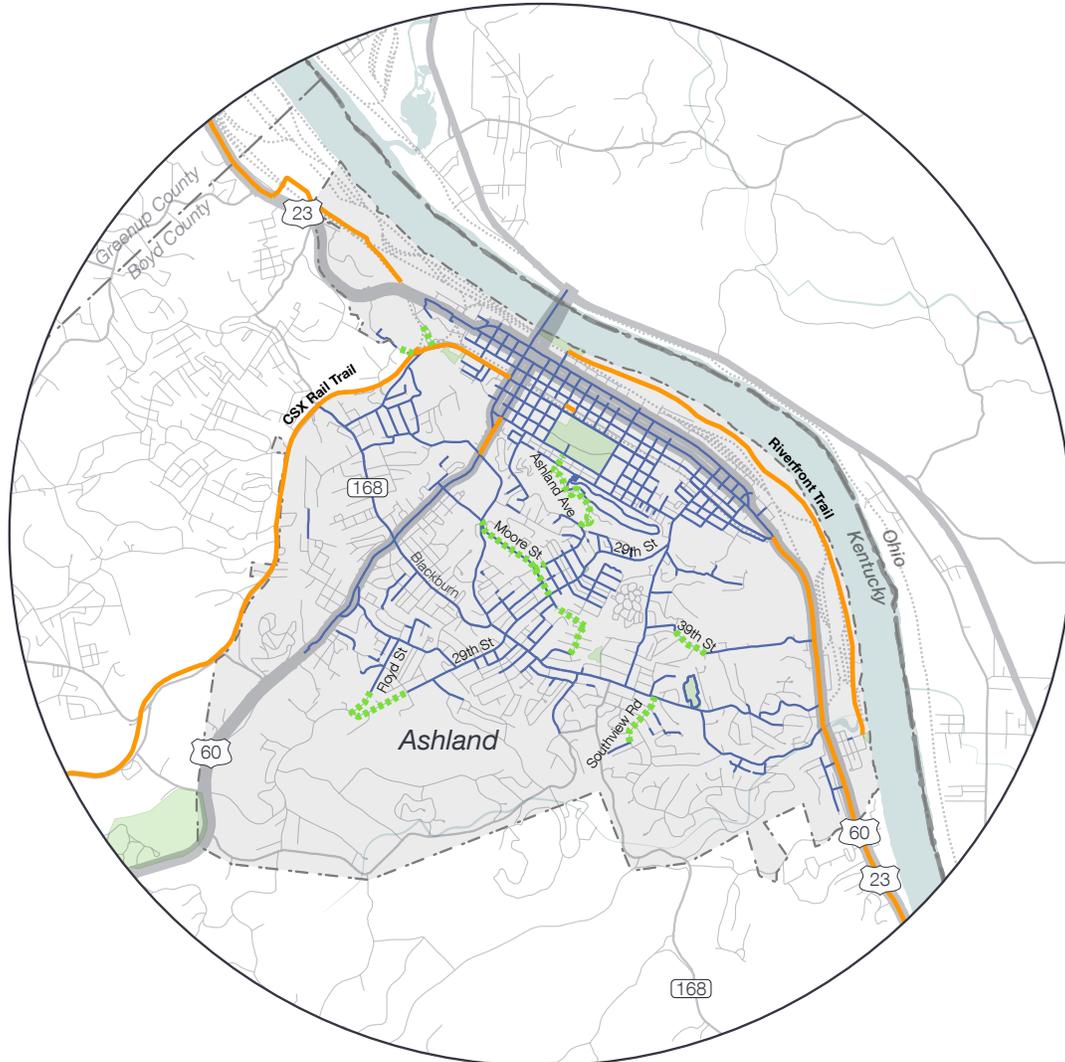
Cities of Russell, Raceland, and Flatwoods
Proposed Bicycle Facilities



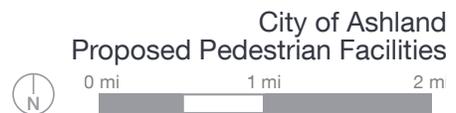
Recommended Bike Network in the Cities of Raceland, Russell, and Flatwoods

Recommended Pedestrian Network Connectivity in the City of Ashland

The map below depicts the recommended pedestrian pathways and connections in the City of Ashland that require attention for possible improvements.



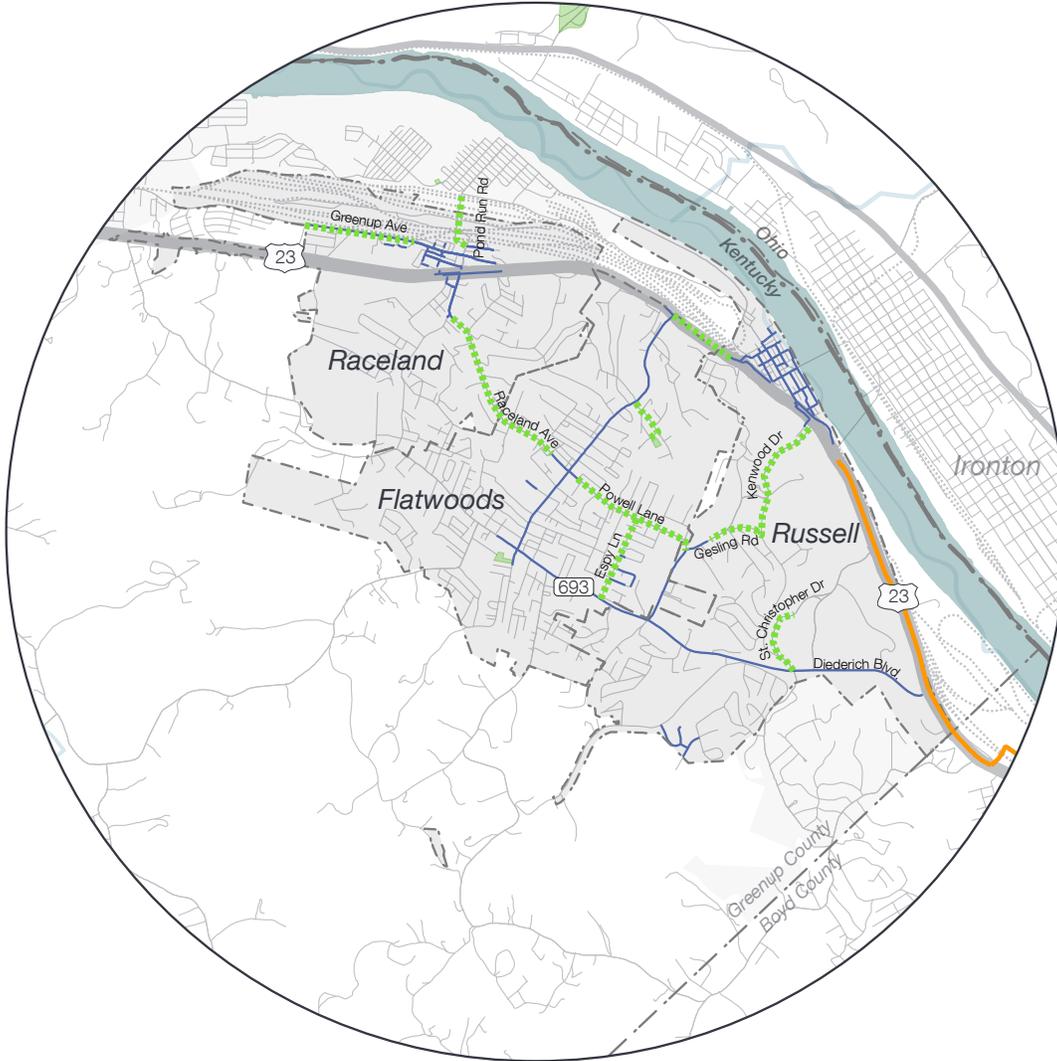
- City Boundary
- Water
- Roads
- Rail
- County Boundary
- State Boundary
- Existing Pedestrian Facilities
- Proposed Shared-Use Path
- Proposed Sidewalk
- Parks



Recommended Pedestrian Network Connectivity in the City of Ashland

Recommended Pedestrian Network Connectivity in the Cities of Raceland, Russell, and Flatwoods

The map on below depicts the recommended pedestrian pathways and connections in the Cities of Raceland, Russell, and Flatwoods that require attention for possible improvements.



- City Boundaries
- Water
- Roads
- Rail
- County Boundary
- State Boundary
- Parks
- Existing Pedestrian Facilities
- Proposed Shared-Use Path
- Proposed Sidewalk

Cities of Russell, Raceland, & Flatwoods
Proposed Pedestrian Facilities



Recommended Pedestrian Network Connectivity in the Cities of Raceland, Russell, and Flatwoods

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1 Introduction



Central Park in Ashland is a major recreational destination for the region.

Community leaders, advocates, and public officials have taken a lead role in improving conditions for walking and biking throughout Boyd and Greenup Counties.

Active citizens and groups such as the Ashland Cycling Enthusiasts promote awareness and participation among pedestrians and bicyclists throughout Boyd and Greenup Counties. The two counties have important natural assets and are popular destinations for recreational bicyclists from the region and beyond.

Various efforts to promote non-motorized transportation, such as programming social cycling events, deploying route signage, and establishing walking tours, are making a positive impact in Boyd and Greenup Counties.

This plan is the foundation for the next phase of walking and biking in Boyd and Greenup Counties. It serves as a vision and guide for identifying, planning, prioritizing, and funding non-motorized improvements to improve comfort, access, and connectivity for pedestrians and bicyclists of all ages and abilities.



This plan aims to help grow walking and biking in the two-county area.

Plan Goals

- ▲ Establish guidance that will help make walking and biking more accessible, convenient, comfortable, and enjoyable in Boyd and Greenup Counties
- ▲ Identify funding sources, educational opportunities, and programs that will ensure walking and biking grows in popularity
- ▲ Prioritize specific corridors and intersections for improvement that will benefit all road users

2 Why Walking and Biking?



Walking is the most basic form of transportation, available to those of all ages and income levels.

No matter the mode of transportation, everyone is a pedestrian in all trips that are made. Bicycling is the most efficient and economical form of transportation. An average cyclist can travel 10 miles in one hour. This means that at an average cycling speed, a cyclist could easily traverse the length of the City of Ashland in 30 minutes or less. Walking and biking bring positive health, social, and environmental benefits. Students walking and biking to school have been shown to have improved concentration. Walking and biking for recreation and transportation are great forms of daily physical activity. According to a British Medical Association study, cycling 20 miles a week can reduce the risk of coronary heart disease by 50 percent.

Biking and walking also has economic benefits. Pedestrians and bicyclists spend money at local restaurants, sporting goods stores, bicycle shops, and other locations. According to the Outdoor Industry Association, biking-related recreation spending alone amounts to \$81 billion annually, supporting nearly 800,000 jobs across the U.S.

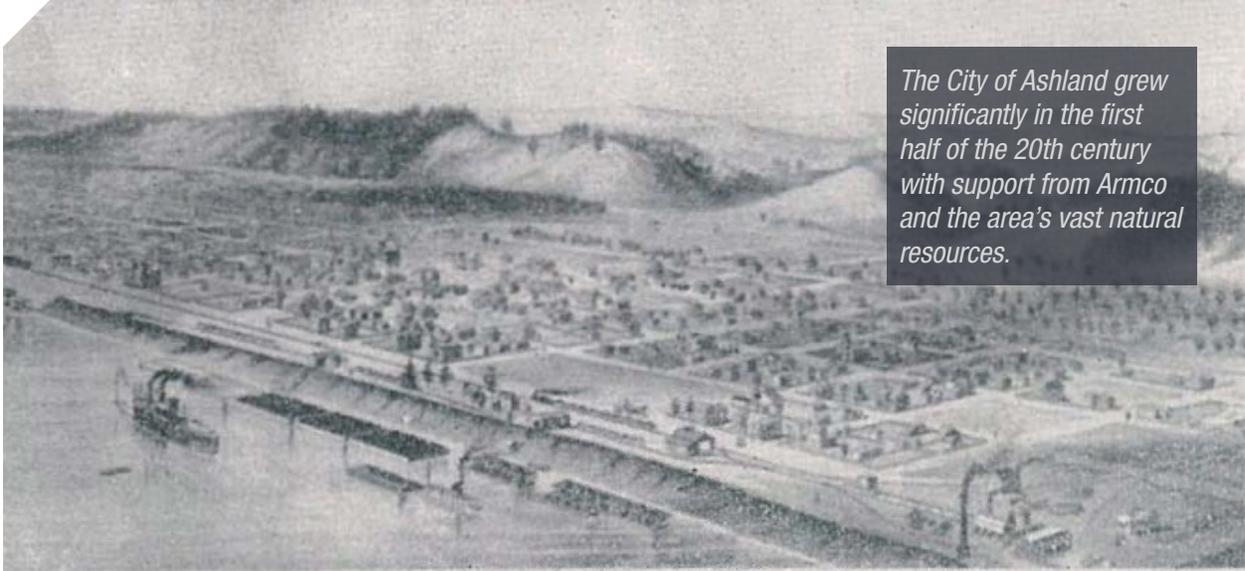
Benefits of Walking and Biking

- ▲ Increases community health and social activity
- ▲ Relieves congestion and physical stress on roads
- ▲ Provides mobility opportunities for people of all ages and incomes
- ▲ Walkable and bikable communities help support local economies and increase property values



Bicycling is one of the most efficient forms of transportation. People can bike to just about anywhere, whether it be work, school, shopping areas, or others. It also is great for fitness and recreational purposes. (Source: Ashland Cycling Enthusiasts)

3 Context



The City of Ashland grew significantly in the first half of the 20th century with support from Armco and the area's vast natural resources.



The Charles and Betty Russell Park trails opened in recent years, providing recreational hiking opportunities just south of Central Park in Ashland.

Boyd and Greenup Counties have a rich industrial history that dates back hundreds of years before permanent settlement. Most communities were established along the southern banks of the Ohio River, with the Poage Settlement and the subsequent creation of Ashland being the most influential.

Although historically an industrial area that has reaped the benefits of its vast natural resources, Boyd and Greenup Counties have diversified in other industries such as healthcare, education, and tourism.

Situated at the edge of the Allegheny Plateau in Northeastern Kentucky, Boyd and Greenup Counties contain vast till valley along the Ohio River mixed with rolling hills and meandering streams. In Ashland—the largest city in the two-county area—terrain is generally flat near the traditional downtown area and more hilly in the southern neighborhoods. Downtown Ashland consists of a traditional street grid, and is a good place to ride a bike for recreational and transportation purposes.

In Greenup County cities like Russell, Raceland, and Flatwoods, terrain is similar to Ashland, but generally contains a traditional suburban, arterial-based roadway network. This puts more traffic burden on connecting arterials with inherent challenges for implementing dedicated bicycle or pedestrian facilities. Several grassroots movements have helped establish a recreational walking and bicycling culture in the area, positioning Greenup County for future non-motorized mobility improvements.



Homemade signage, like these in Raceland, demonstrate the community's desire to increase walking and biking activity. These signs demonstrate the grassroots activity and advocacy of the region's cycling community. These signs are not MUTCD-compliant. Chapter 7 of this plan recommends the updating of these signs to be MUTCD-compliant.

Boyd and Greenup County Facts

	Boyd County	Greenup County
Population (2014)	48,832	36,308
Median Household Income	\$41,739	\$44,035
Average Commute Time to Work (2009-2013)	21 minutes	24 minutes
Area	162 square miles	355 square miles

Source: US Census QuickFacts

4 Funding, Programming, and Policy Framework



Like all transportation projects, improving walking and bicycling infrastructure requires an understanding of the existing policies, programs, and funding that dictate what is possible.

Understanding this framework allows planners and public officials to know what constraints and limitations exist and be able to recognize strategic opportunities and focus limited resources in making improvements over time.

Various regional, state, and federal policies, programs, and funding sources form the basis for this framework in Boyd and Greenup Counties. This section summarizes this framework as a basis for making improvements.



Pedestrian sign in Greenup County.

Supporting Walking and Biking Improvements

- ▲ Policy guides investment priorities for non-motorized transportation infrastructure, and dictates safety priorities for all road users
- ▲ With limited capital funds, external funding resources are vital in helping make pedestrian and bicycle improvements a reality
- ▲ Programs encourage communities to walk and bike more frequently

4.1. Funding Mechanisms

To implement walking and biking improvements, Boyd and Greenup Counties will need to strategically allocate funds to projects over a period of time.

Several cities in the region, including Raceland, Flatwoods, and Ashland, have used funding and grant money for related projects. In addition to city funding, the two-county area should research, pursue, and apply for various funding programs from both federal and state sources. Federal, state, and private funding sources for non-motorized transportation are summarized below.

4.1.1. Federal Funding

Fixing America's Surface Transportation (FAST) Act

In December 2015, President Obama signed the FAST Act, marking the first long-term transportation bill in 10 years. This bill is a 5-year transportation reauthorization bill extended until the year 2020. The FAST Act appropriates \$835 million annually for pedestrian and bicycle improvements in the first 2 years, and \$850 annually for the last 3 years. Funds from MAP-21 are still being appropriated, but more information about the specific funding mechanisms arising from the FAST Act for pedestrian and bicycle improvements will be coming from states soon.

Surface Transportation Block Grant Program

The Surface Transportation Block Grant Program provides flexible spending to states and local entities to improve and maintain efficiency, safety, and performance on a range of multimodal transportation infrastructure. This includes federal aid highways, public roads, bridges and tunnels, pedestrian and bicycle infrastructure, and transit capital projects. The fund is the most flexible of all highway programs and historically one of the largest single programs. The FAST Act has allocated \$180,483,983 to Kentucky under this program for Fiscal Year (FY) 2016. States suballocate their shares of program funds to areas within the state with eligible projects.

Transportation Alternatives Program (TAP)

The TAP funding source provides money to programs and projects listed as transportation alternatives. These may include bike and pedestrian infrastructure improvements and recreational trail projects. Safe Routes to School programs, which were specifically designated funds in previous transportation bills, are now included in TAP.

In FY 2016, there will be \$13,300,102 in funds apportioned to the TAP for the state of Kentucky under the FAST Act.

Highway Safety Improvement Program (HSIP)

The HSIP provides funding for programs and projects that significantly reduce traffic fatalities and serious injuries on public roads. This funding requires a data-driven and strategic approach to developing programs and projects.

The FAST Act has allocated \$37,120,611 to Kentucky under this program for FY 2016.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

CMAQ is a funding source that provides flexible funding for transportation projects and programs that help achieve Clean Air Act requirements. Funding is available for non-attainment areas or former non-attainment areas to help reduce congestion and improve air quality. Boyd County and portions of Greenup County are currently eligible.

4.1.2. Other Federal Funding

Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants

TIGER grants are a highly competitive source of transportation funding from the Department of Transportation (DOT) for projects that achieve national objectives. Projects are evaluated based on their long-term benefits relating to:

- ▲ Safety
- ▲ Economic competitiveness
- ▲ State of good repair
- ▲ Quality of life
- ▲ Environmental sustainability

Projects also are scored based on innovation, partnerships, project readiness, benefit-cost analysis, and cost share. Local communities are required to contribute at least a 20 percent match, but since it is one of the scoring criteria, local communities receiving grants typically contribute a significant amount. In FY 2015, \$500 million was available for funding projects.

Community State Development Block Grants (CDBG)

CDBG provide funding to states to support projects that serve vulnerable populations. Projects receiving funding must meet at least one of the following criteria:

- ▲ Serve low- and moderate-income persons
- ▲ Prevent or eliminate slums or blight
- ▲ Address currently unfunded community development needs that threaten the health or welfare of the community

During a 1-, 2-, or 3-year period, at least 70 percent of CDBG funding is required to go toward projects that serve low- and moderate-income persons.

Recreational Trails Program (RTP)

The RTP provides funding for acquiring easements and for developing and/or maintaining recreational trails and trailhead facilities. States must spend 40 percent of their allocated funds on diverse recreational trail use, 30 percent on motorized trails, and 30 percent on facilities for non-motorized modes. Grants are awarded for a minimum of \$5,000 and a maximum of \$75,000 and local communities are required to provide at least 20 percent of the necessary funding. In FY 2014, approximately \$81 million in RTP funds was distributed and Kentucky received \$1.4 million in RTP funding. Applications in Kentucky are critiqued based on:

- ▲ Length of the trail
- ▲ Type of trail
- ▲ Special populations served
- ▲ Linkage to other trails
- ▲ If it serves a trail town
- ▲ Trail and resource stewardship education
- ▲ If the community has another RTP grant open
- ▲ Other information

Land and Water Conservation Fund (LWCF)

The LWCF provides matching grants for facilities within parks. They have a minimum grant requirement of \$5,000 and a maximum of \$75,000. Applications are available through the Kentucky Department of Local Government and are scored on the following:

- ▲ Previous administration of LWCF grants
- ▲ Location of the project facility and if it can be effectively used by the user population
- ▲ If at least 50 percent of the grant request is going toward the primary facility of the park location
- ▲ If the application has the ability to operate and maintain the project
- ▲ If the applicant has another LWCF project currently open
- ▲ If the project would serve special populations

A total of \$43.3 million was allocated to the LWCF in FY 2014 and Kentucky received approximately \$650,000.

4.1.3. State Funding

Tourism Development Loan Program

The Tourism Development Loan Program is a source of funding from the Kentucky Tourism Development Finance Authority for projects that will improve tourism to a community. Projects must have costs less than \$1 million and the loan can only finance fixed assets. The maximum amount of credit is \$250,000 or 50 percent of the project, whichever is less.

Paula Nye Memorial Bicyclist and Pedestrian Education Grant

The Paula Nye Memorial Bicyclists and Pedestrian Education Grant is available from the Kentucky Bicycle and Bikeway Commission to fund bicycle and pedestrian education. While the education it funds can take many forms, it must either be focused on safety or promotion.

Funding for this grant is dependent on the number of “Share the Road” license plates purchased each year, so it is not consistently available. When funding is available, applications are scored based on:

- ▲ Number of people reached
- ▲ Geographic distribution of project benefits
- ▲ Cost effectiveness
- ▲ Project practicality
- ▲ Applicant’s track record
- ▲ Expressed needs and goals
- ▲ If the project is a self-contained concept
- ▲ Strength of the educational component
- ▲ Community benefit
- ▲ Reliability of the cost estimate/engineering

4.1.4. Private Funding

PeopleforBikes Community Grant Program

The PeopleforBikes Community Grant Program is funded by bicycling suppliers and retailers as well as other donors. It provides funding for bicycle infrastructure projects and initiatives that make it easier and more inviting for all people to bicycle. PeopleforBikes grants only fund specific projects and do not fund operating costs. The maximum grant amount that is awarded is \$10,000. While a local match is not required, it is highly recommended. Grants are not awarded to projects where the grant would be more than 50 percent of the funding.

PeopleforBikes has one or two grant funding cycles per year and requests a letter of interest from applicants prior to a full application. Projects and programs are evaluated based on:

- ▲ Project quality
- ▲ Benefits to the community
- ▲ Proposed measurements and evaluation measures
- ▲ Community support and partnerships
- ▲ Role of how the grant funding would be used
- ▲ Diversity of the community that would be served by the project or program

Funds have been suballocated to the following projects in Boyd and Greenup Counties. These projects are included in KYOVA’s 2016-2019 Transportation Improvement Plan (TIP).

4.1.4 Funding Source Summary

Projects Appropriated for Funding

Funds have been suballocated to the following projects in Greenup County. These projects are included in KYOVA's 2016-2019 TIP.

Funding Source	Agency	Project Description
STP	City of Russell, Greenup County	Sidewalk construction for Division B and C in the Kenwood area of Russell, KY. Total Project Cost: \$354,131
STP	City of Flatwoods, Greenup County	Design and construction of sidewalk along Powell Lane beginning at the end of the existing sidewalk at MP 1.74 and extending approximately 0.7 miles east to the intersection of KY-750 with KY-1172/Red Devil Lane for safe access to schools and to provide alternative transportation options for low-income area. Total Project Cost: \$501,900
STP	City of Greenup, Greenup County	Design and construction of approximately 8,400 linear feet of bicycle use area (including landscaping) the length of East Main Street on both sides of right-of-way (ROW) beginning at the intersection of Easternmost ROW of Walnut and East Main Street and continuing in a southeasterly direction the full length of East Main Street with terminus on the Westernmost ROW of US-23. Total Project Cost: \$545,600
TAP	City of Worthington, Greenup County	Design and construction of sidewalk to encourage elementary students in physical fitness and safe access to school on the easternmost ROW of Stewart Avenue commencing at a point on the southernmost ROW and continue in a northeasterly direction to the Ohio River. Total Project Cost: \$100,000

4.2. Policies

4.2.1. Local Policies

2013 Ashland Comprehensive Plan

The Commonwealth of Kentucky establishes the requirement for and purpose of a comprehensive plan for communities (KRS-100.183). The Ashland Comprehensive Plan is a naturally broad and flexible vision that helps guide future transportation, land use, redevelopment opportunities, and other attributes within Ashland city limits.

Various pre-planning and engagement exercises pointed out the importance of non-motorized mobility around the city. In the public engagement process for the plan, sidewalks were one of the most highly desired attributes that community members wanted to see in Ashland. Comments from Ashland Police Officer Robert Ratliff noted that vehicular speeding is a problem on Lexington Avenue, Central Avenue, and Blackburn Avenue. The Vision statement notes that Ashland desires to be better connected with multiple transportation options, with sidewalks and trails as

major components. The plan seeks to expand the sidewalk and trail network throughout Ashland for both transportation and recreation.

The comprehensive plan articulates a desire to implement multimodal transportation improvements, and specifically to expand bicycle and pedestrian facilities. Shared-use paths and walking paths also are seen as desirable and the plan recommends exploring the feasibility for the implementation of a riverfront trail and hillside trail.

As part of the “Downtown and Riverfront” chapter, Winchester and Greenup Avenues are identified as Ashland’s main streets that act as highly flexible complete streets. Both corridors should include large sidewalk zones, bicycle lanes, seating, lighting, and traffic calming measures. It is noted that improvements should focus on Winchester Avenue with Greenup and Carter Avenues as ancillary corridors.

4.2.2. Commonwealth of Kentucky Policies

Pedestrian and Bicycle Travel Policy

Spawning from the USDOT-issued *Design Guidance, Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*, the Kentucky Transportation Cabinet released the *2002 Kentucky Pedestrian and Bicycle Travel Policy*, which describes goals to improve accessibility, mobility, and safety for all travelers throughout the state. The travel policy was established by the multidisciplinary Pedestrian and Bicycle Task Force, which was established to provide recommendations for state projects. According to the travel policy, pedestrian facilities will be considered for urban roadway projects in existing and planned urban and suburban areas.

Although considerations differ between urban and rural roadways, several overarching criteria exist for determining if a roadway project should include pedestrian or bicycle facility, and are listed below:

- ▲ Pedestrian traffic presently exists
- ▲ Development is anticipated nearby
- ▲ Gaps in connectivity exist
- ▲ An officially adopted pedestrian or biking policy has designated the route to include facilities
- ▲ Public interest demands roadway to include facilities

Maintenance of pedestrian and bicycle facilities also is described in the travel policy. The various types of infrastructure and corresponding responsible agencies are listed below:

- ▲ Sidewalks within city limits are the city's responsibility to maintain
- ▲ Sidewalks outside of city limits are the responsibility of the Kentucky Transportation Cabinet (KYTC)
- ▲ Bicycle lane maintenance is considered incidental to normal KYTC roadway maintenance
 - ▲ KYTC is limited to repairing and resurfacing pavement, snow removal, striping, signing, and sweeping if the road is normally swept
- ▲ Shared-use paths are the responsibility of the local government or city

Policy about roadway rumble strips is not explicitly listed in the travel policy, but has since been revised. Rumble strips between travel lanes and shoulders will be designed to have 10-foot gaps in between 40-foot lengths of strips. These strips also will be designed with less depth to better accommodate bicyclists and small vehicles.

KYTC Ped/Bike Safety

The Commonwealth has established safety guidance for pedestrian and bicycling movement. Pedestrian laws list crossing rules, right-of-way compliance, crosswalk compliance, movement within a tunnel or bridge, and associated guidelines for vehicle-pedestrian conflict points. Bicycle laws list traffic control rules for biking and bicycle operation safety standards. Safety rules dictate that cyclists use shoulders along highways when possible, and dictate that no more than two bicycles shall be operated abreast in a single highway lane. On smaller roadways, bicyclists are assumed to operate with the same rules and regulations as vehicles.

The following Kentucky Revised Statutes (KRS) apply to pedestrians and bicyclists on public roadways:

- ▲ KRS 189.570 - Pedestrian general law
- ▲ KRS 189.575 - Yielding right-of-way to blind pedestrians
- ▲ KRS 189.080 - Horns and other sound devices
- ▲ KRS 189.231 - State maintained highways
- ▲ KRS 189.287 - Bicycle safety regulations
- ▲ 601 KAR 14:020 - Bicycle safety standards



Community leaders and citizens come together to create a strategy to increase non-motorized transportation around the area.

Both agency-led and grassroots programming concentrated on increasing walking and biking have been ongoing in Boyd and Greenup Counties. This section lists a few that have helped guide recommendations in this non-motorized transportation plan.

4.3. Programs

4.3.1 Get Moving Ashland Partnership

In late 2012, the Get Moving Ashland Partnership convened to create a strategy and plan to increase walking, biking, and active mobility in Ashland. The partnership included members from Healthy Kids, Healthy Communities Coalition, Healthy Choices Kentucky, and the City of Ashland. Several public officials, health advocates, and physicians also met with the partnership to brainstorm ideas to get youth and adults to be more active within the city.

Complete Streets Efforts

Complete streets are corridors designed for all users of the road including motorists, cyclists, transit riders, parkers, and pedestrians. Many benefits come from building a complete street including traffic calming, added safety for bikers and pedestrians, and less impact on pavement. These streets also reduce crashes through safety improvements and are safer for children and individuals with disabilities.

During the past few years, various officials and members of the public in the two-county area have made efforts to enact complete streets policies for their communities. Ashland created a complete streets workgroup to evaluate a survey in 2011 where 98.1 percent of residents supported a complete street ordinance. Kentucky Youth Advocates also sponsored an educational video about complete streets for Ashland in 2013 and led outreach and education efforts. In Greenup County, both Raceland and South Shore have established complete streets ordinances for their cities.



A complete street, like Fleet Avenue in Cleveland, OH, includes facilities for driving, cycling, parking, and walking. (Source: GreenCityBlueLake, gcbl.org)

EK Bikeways

Several citizens of Raceland have established the EK Bikeway, a currently unofficial network of bike-friendly roads through Greenup, Lewis, Carter, and Boyd Counties. Many route signs are located throughout the network, helping guide cyclists around the many country roads. In addition to the route signs, a trailhead has been established near the corner of US Highway 23 and Pond Run Road.



Informal route marking signs such as this one shown have been placed around Greenup County roads and have helped raise awareness of on-road cycling. Chapter 7 of this plan recommends the updating of these signs to be MUTCD-compliant.

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5 Public Engagement



Members of the public were asked to identify existing assets and challenges related to walking and biking

Comments, recommendations, and ideas from the public and area stakeholders were central to the creation of this plan.

Stakeholder meetings were held in July 2015 to have preliminary discussions about walking and biking in the two counties. A public workshop was held in early November 2015 where members of the public were invited to share their insights and experiences walking and biking throughout Boyd and Greenup Counties. This section summarizes the results of these engagement forums, results that were used as a basis for the analysis and recommendations presented in this plan.

Key Takeaways

Key takeaways from the stakeholder meetings and public workshop influenced the development of this plan.

- ▲ US Highway 23 is a major barrier for people walking and biking
- ▲ There is a desire for retrofitting the excess shoulder widths in Ashland to bike lanes
- ▲ Educating drivers is critical to success
- ▲ Including schools in infrastructure and practice discussions is important
- ▲ There is a large desire for more dedicated bicycle lanes and better infrastructure to improve bicycle connectivity in the area



The project team presented initial findings to the open house group.

5.1. Public Engagement

Stakeholder Meetings

Stakeholder meetings were held on July 27, 2015, in Ashland and July 28, 2015, in Russell, KY. Attendees included representatives from Greenup County, Flatwoods, Raceland, FIVCO Area Development District, KYTC, the City of Ashland, and others.

The meetings consisted of discussion about walking and biking in the two counties. Attendees shared their experiences as well as ideas for improving conditions and what the plan should focus on.

Public Workshop

The KYOVA Interstate Planning Commission held a public workshop on Thursday, November 5, 2015, from 5:00 to 7:00 p.m. at the Ashland Transportation Center in Ashland, KY. The purpose of this public workshop was to:

- ▲ Inform the public about the non-motorized transportation plan
- ▲ Gather feedback on conditions of existing infrastructure
- ▲ Identify areas that work well and areas that need improvement
- ▲ Understand how to prioritize bike and pedestrian improvement policies

Following a presentation that detailed the background, purpose, and status of the plan, the 23 attendees were given the opportunity to provide input to staff at two interactive stations. Ultimately the desired improvements and the policy priorities identified through the public workshop guided the analysis, infrastructure, and policy recommendations of this plan. All comments received are included in this plan's appendix.



Attendees were asked to locate walking and biking opportunities for future improvement.

Station 1: Where and What Type of Improvements are Desired

The first station included large maps displaying current popular bicycle and pedestrian routes and facilities.

Attendees were invited to use numbered stickers to identify up to five routes or locations that need improvement. If desired, attendees could describe the needed improvement on a comment card that was labelled with the sticker number. The shade of red correlates to the number of improvements requested near that area; darker red indicates more comments or requested improvements.

There were 43 stickers placed, 34 comment cards filled out, and 23 desired improvements sketched on the maps directly. There were many desired improvements clustered around Raceland and Ashland.

Building new infrastructure, including new or expanded bike lanes, was requested 42 times (62 percent). This was by far the most commonly requested improvement. Ten comments, or around 15 percent of the stickers placed, highlighted safety concerns at specific locations. An informal network of well-traveled but infrastructure-devoid bike routes was noted throughout the engagement process. Four comments (6 percent) indicated a positive aspect of the existing infrastructure. A full list of all comments from the public hearing is available in the appendix of this plan.

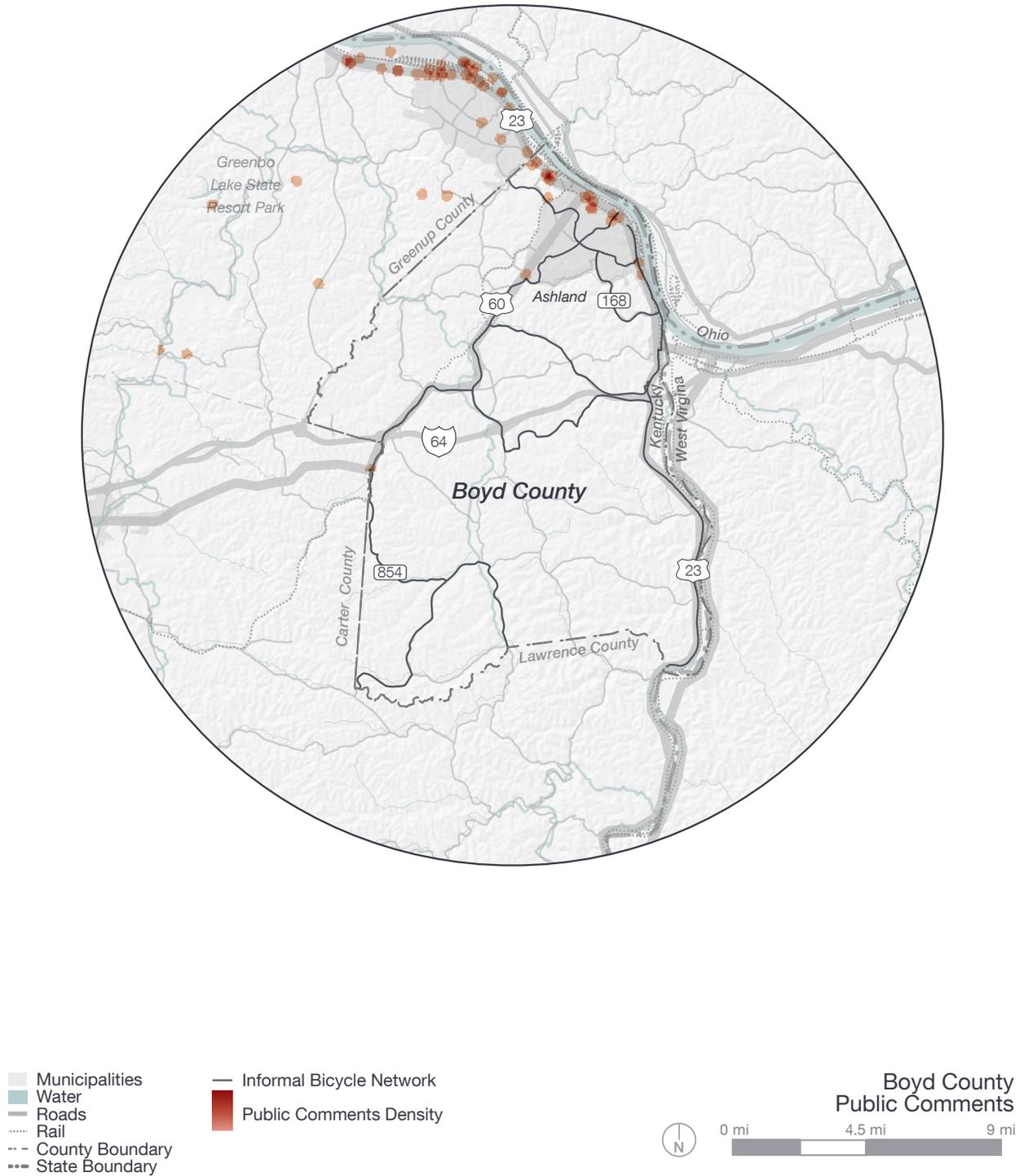


Figure 5.1. Heat map representing public comment density.

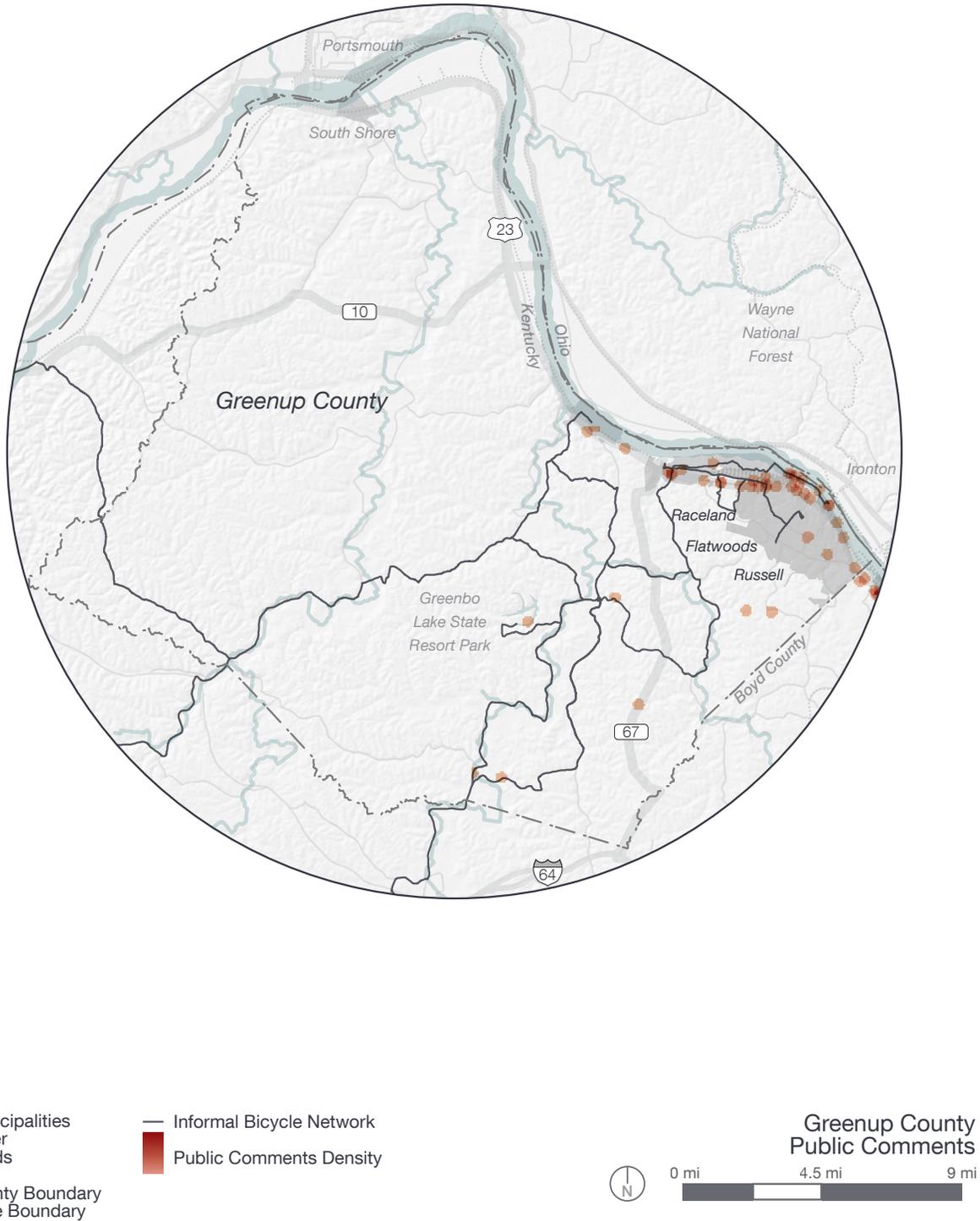
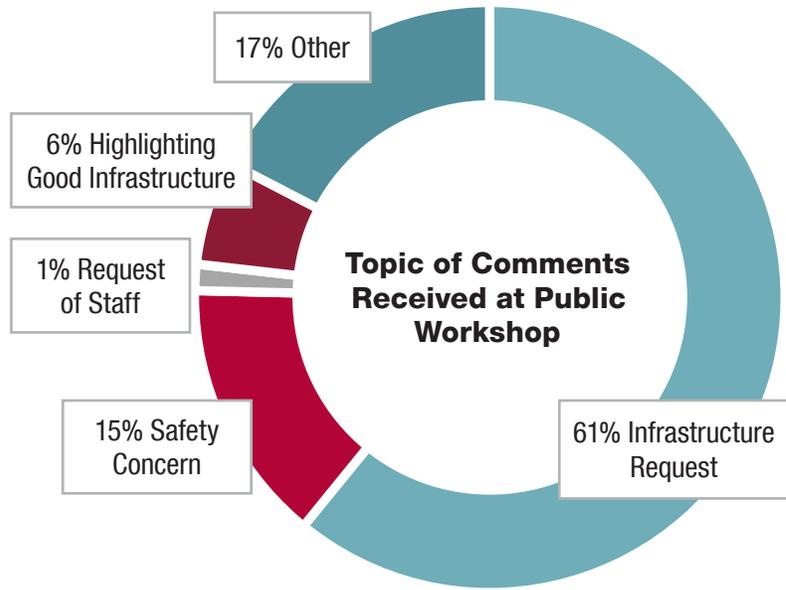


Figure 5.2. Heat map representing public comment density.

Station 2: Policy Priorities

At the second station, participants voted for up to three potential priorities for improving walking and bicycling conditions. The top-voted policy priority with 12 votes (26 percent) was educating motor vehicle drivers about how to interact with pedestrians and bicyclists. All voting options and results are shown below.



Priorities to Improve Walking and Bicycling from November 2015 Public Workshop	
Number of Votes	Improvement Priorities
12	Educate motor vehicle drivers about how to interact with pedestrians and bicyclists
8	Engage local police departments and advocates to promote safety and awareness of pedestrians and bicyclists among area residents
7	Enforce traffic laws to improve conditions for walking and biking
7	Create and adopt complete streets policies to provide space for all modes of transportation in roadway improvement projects
5	Educate pedestrians and bicyclists about applicable traffic rules and regulations
3	Encourage and promote walking and biking among students to get to and from school
2	Develop ongoing programs to increase access to bicycles among youth and adults in Boyd and Greenup Counties
1	Promote recreational walking and biking groups and tourism
1	Further investigate grants and other financing mechanisms to make continued walking and biking improvements
0	Improve the condition and maintenance of walking and biking facilities, especially in winter
0	Provide end of trip facilities such as bicycle parking near area destinations
0	Develop and distribute maps of walking and biking facilities
0	Investigate and implement ADA-compliant pedestrian facilities including ramps and crosswalks

6 Existing Conditions: Assets, Challenges, and Opportunities



Inventory presented here is based on observations and input from stakeholders, public officials, and public residents.

Boyd and Greenup Counties contain a variety of infrastructure dedicated to walking and a mixture of road treatments for bicycling. This section describes the existing conditions of bicycle infrastructure, which includes both official and unofficial bike route markings, bicycle pavement treatments, bike-friendly road shoulders, and other infrastructure. The section also details the pedestrian infrastructure in Ashland, Raceland, Flatwoods, and Russell.



A combination of factors induce cyclists to ride on sidewalks, including poor bike infrastructure, dangerous driver behavior, and lack of bicyclist education in the area. Biking on sidewalks is commonly seen as dangerous for pedestrians.

Existing Assets

- ▲ Pedestrian assets include sidewalks, paths, supplementary infrastructure, and overall condition of facilities
- ▲ Bicycle assets include signed routes, sharrows, paths, and other cycling elements

6.1. Existing Pedestrian Infrastructure

Comfortable pedestrian infrastructure expands mobility options for all individuals, regardless of age or location. Walking always acts as the first and last leg of any trip between destinations and sidewalks are usually the primary facility for pedestrian movements. Therefore it is important to establish and implement a system of sidewalks and pedestrian-specific facilities for most urban and suburban roadways.

6.1.1. Central Ashland

For the purposes of this plan, the area identified as central Ashland is bounded by the Ashland Town Center Mall to the west, the bluff line and Hilton Avenue to the south, and the Ohio River to the north. This historic section of Ashland was mostly developed before the automobile era and is situated in a consistent square street grid.

Central Ashland contains the most contiguous sidewalks and pedestrian infrastructure network. Sidewalks on major commercial corridors like Winchester Avenue, Central Avenue, and various others, are wide and well used. They provide a comfortable pedestrian environment for most pedestrians. Pedestrian accessories exist in the business district including benches, ornamented lighting, sidewalk trees, and wayfinding.

Sidewalks also connect to and exist in other major destinations inside of central Ashland including Central Park, King's Daughters Medical Center, and the Ashland Town Center Mall. Other walking paths in central Ashland include pathways within Central Park and the urban trail network in the bluff areas south of Hilton Avenue.

Some sidewalk sections, including many on Winchester Avenue, contain Americans with Disabilities Act (ADA)-complaint ramps at street crossings; however, many sidewalk street corners around Central Ashland lack accessible ramps or do not contain ramps at all. Various roadways, including Greenup Avenue, 12th Street, and 13th Street, carry fast-moving and high-volume traffic that negatively impacts the pedestrian environment.



Many sidewalks near downtown Ashland are wide, separated from the road by a grass verge, and provide comfort for pedestrians.



Sidewalks with planter trees, trash receptacles, and lighting invite pedestrians and help calm traffic.

Challenges

- ▲ Some major corridors contain sidewalks on only one side of the road
- ▲ Sidewalk curb ramps are not ADA-compliant or are non-existent
- ▲ No sidewalk along Mayo Plaza
- ▲ Connections to Riverfront Park and Amtrak station are uncomfortable crossing railroad tracks
- ▲ Poor sidewalk connections between Winchester Avenue and Greenup Avenue east of central business district (18th Street)
- ▲ No sidewalk or pedestrian area along Chattin Drive in Central Park
- ▲ Uncomfortable pedestrian connection to Ashland Town Center Mall
- ▲ Dangerous crossings along Greenup Avenue, 12th Street, 13th Street, and other various streets in downtown



Non-compliant ramps and confusing crosswalk paint make it harder for individuals with disabilities to cross the street.

6.1.2. Outlying Ashland

For this plan, the neighborhoods and corridors within Ashland that are not designated inside the boundaries of central Ashland are considered outlying Ashland. Most development is south of central Ashland and was developed after 1920, when the Armco Steel Mill helped drastically increase Ashland's population.

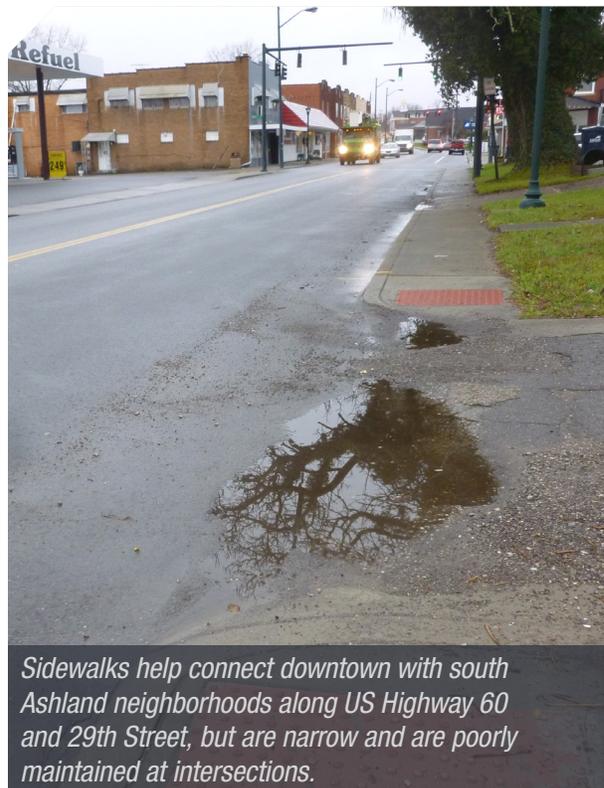
The sidewalk network in outlying Ashland is generally disconnected and fragmented; however, sidewalks do run along some major routes and connect major destinations including the Ashland Technical and Community College, 29th Street business district, Ashland Middle School, and Poage Elementary School. The sidewalks in outlying Ashland are inconsistent and are poorly maintained or only exist on one side of the road in many areas. A sidewalk exists along US Highway 23 between Ashland and Catlettsburg, but it is narrow and directly adjacent to high-speed eastbound lanes. See Figure 6.1 for the existing walking network for the City of Ashland.

Challenges

- ▲ Widespread lack of pedestrian-specific infrastructure in various neighborhoods
- ▲ Many sidewalks are generally narrow and poorly maintained
- ▲ Lack of pedestrian furniture including lighting, benches, and grass verges between sidewalks and the street pavement
- ▲ Sections of 29th Street contain sidewalks on only one side of roadway
- ▲ Uncomfortable connection between Ashland and Catlettsburg along US Highway 23



Sidewalk segments along US Highway 23 between Ashland and Catlettsburg are small, in poor condition, and uncomfortable for walkers.



Sidewalks help connect downtown with south Ashland neighborhoods along US Highway 60 and 29th Street, but are narrow and are poorly maintained at intersections.

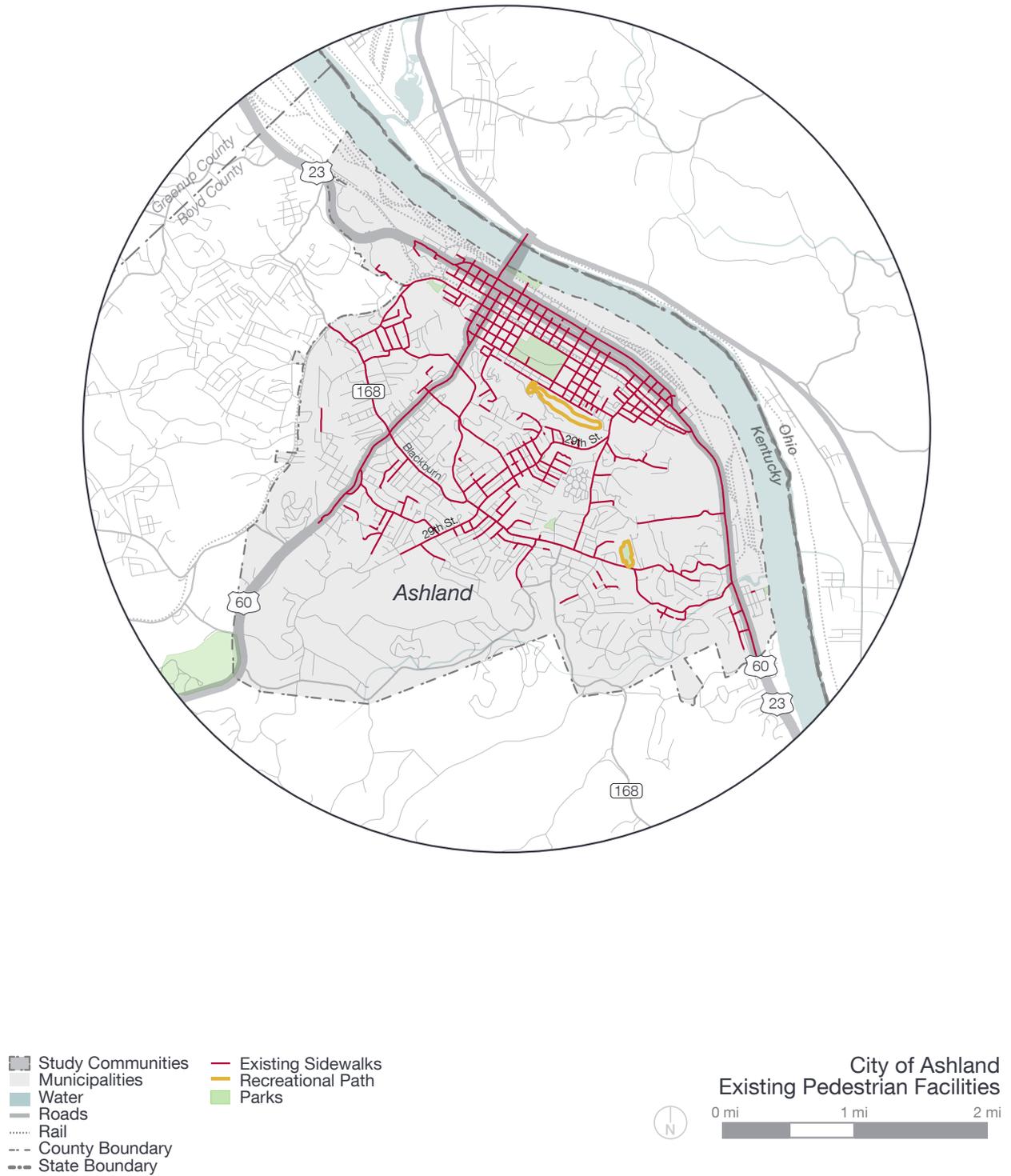


Figure 6.1. City of Ashland Existing Pedestrian Facilities

6.1.3. Russell/Flatwoods

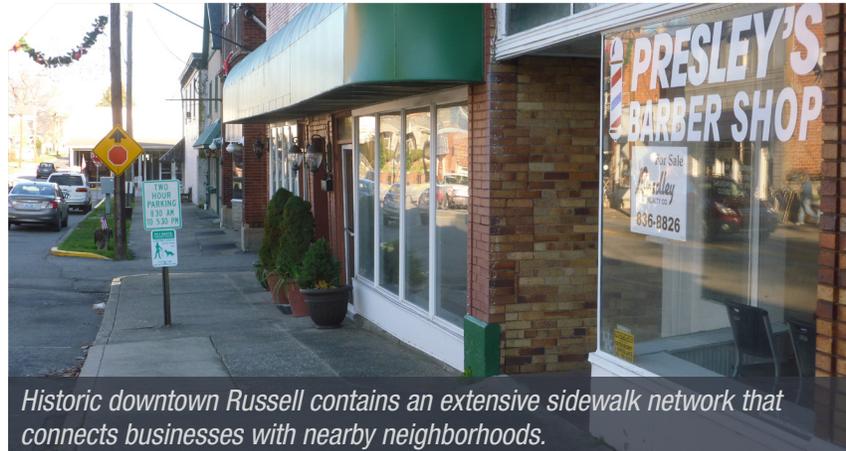
The Cities of Flatwoods and Russell make up about 30 percent of the population of Greenup County, and are located within 5 miles of Ashland in Boyd County. Whereas central Russell has a historic downtown area and consistent street grid, Flatwoods is more suburban and its land use favors automobiles over other modes.

Sidewalks in historic Russell north of US Highway 23 and the railroad tracks match the designated street network. The Ironton Bridge connects Russell with Ironton, OH, across the Ohio River, but is currently planned to be decommissioned once the new Ironton Bridge is completed south of the current bridge. Sidewalk corridors outside of central Russell are concentrated along and around the Diederich Boulevard corridor between US Highway 23 and Red Devil Lane. Sidewalk connectivity from central Russell to neighborhoods south is poor and fragmented. US Highway 23 is currently a major barrier between central Russell and the surrounding communities.

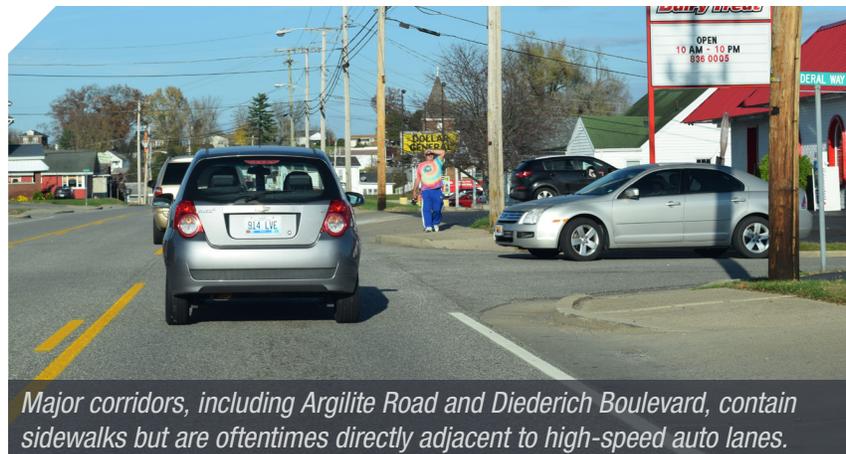
The sidewalk network in Flatwoods is sparse and only traverses major corridors like Bellefonte Road and Argillite Road. Major destinations within Flatwoods reside along the Argillite Road corridor and are connected with sidewalks. Recently updated sidewalks with ADA-compliant ramps exist from Diederich Boulevard and Russell Middle School, but sidewalks do not exist on other major roads such as Powell Lane and Lexington Avenue.

Challenges:

- ▲ Very poor sidewalk connection between downtown Russell and Flatwoods
- ▲ Many sidewalks are generally narrow and poorly maintained
- ▲ Lack of pedestrian furniture, including lighting, benches, and grass verges between sidewalks and the street pavement
- ▲ Closing old Ironton Bridge poses significant challenges to crossing the Ohio River via walking or bicycling
- ▲ No safe connection between Boyd and Greenup Counties along US Highway 23



Historic downtown Russell contains an extensive sidewalk network that connects businesses with nearby neighborhoods.



Major corridors, including Argillite Road and Diederich Boulevard, contain sidewalks but are oftentimes directly adjacent to high-speed auto lanes.

6.1.4. Raceland

Raceland sidewalks are concentrated around the traditional business district north of US Highway 23, but are sparse and generally disconnected. Major pedestrian corridors exist along and near Greenup Avenue between Pond Run Road and Raceland-Worthington School. Poorly maintained sidewalks exist along US Highway 23 on both sides of Raceland Avenue. No complete sidewalk connection exists between the Raceland business district and US Highway 23.

The City of Raceland conducted a walkability audit report that analyzed existing sidewalk conditions within city limits. The city identified poorly maintained travel lanes, a lack of crosswalks, and noted its non-complaint sidewalk ramps.

Challenges:

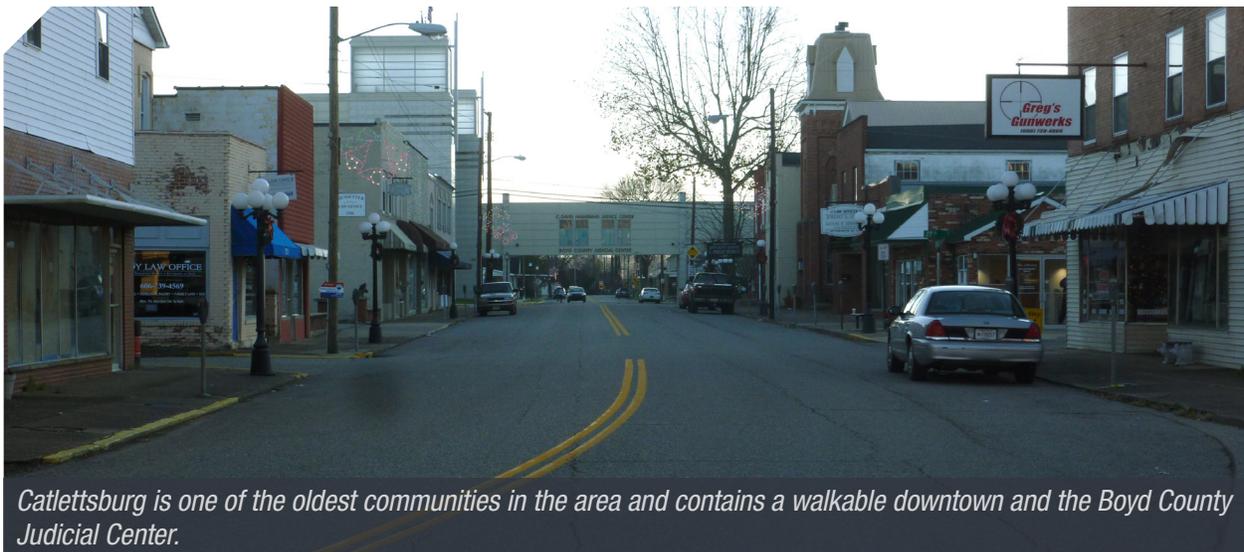
- ▲ No contiguous sidewalk connection to Russell or Flatwoods
- ▲ Existing sidewalks in town are small and many are non-compliant under ADA standards
- ▲ The CSX rail mainline poses a significant barrier between Raceland and Worthington
- ▲ Crosswalks on US Highway 23 are poorly maintained, and sidewalks along roadway are narrow and close to the pavement

6.1.5. Other Communities

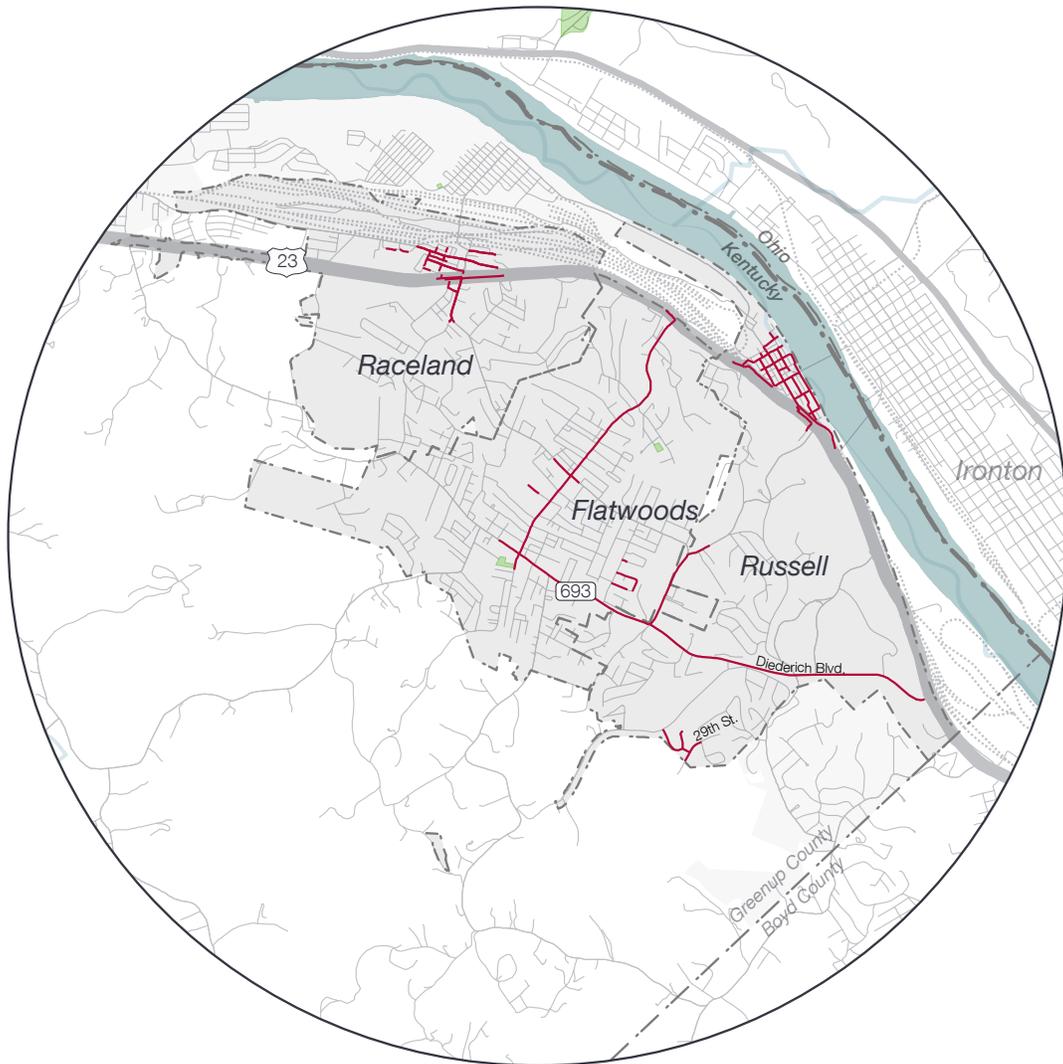
Various other communities in the two-county area contain sidewalk networks and are usually concentrated around traditional business districts and neighborhoods established before World War II. Additional extensive sidewalk networks in Greenup County exist in South Shore and Greenup, and networks in Boyd County exist in Catlettsburg. Figure 6.2 illustrates the walking facilities in Raceland, Russell, and Flatwoods.



Markers, like these footprints, have raised pedestrian awareness and encouraged recreational walking tours in Raceland.



Catlettsburg is one of the oldest communities in the area and contains a walkable downtown and the Boyd County Judicial Center.



- Study Communities
- Municipalities
- Water
- Roads
- Rail
- County Boundary
- State Boundary
- Existing Sidewalks
- Parks

Cities of Russell, Raceland, & Flatwoods Existing Pedestrian Facilities



Figure 6.2. Cities of Raceland, Russell, and Flatwoods Existing Pedestrian Facilities

6.2. Bicycling Infrastructure

In Boyd and Greenup Counties, several recent grassroots efforts have drastically increased the visibility of bicycling and have created bicycling routes through the region. Although little biking-specific infrastructure exists currently, the bike-friendly political will and empowered cycling community will help ensure that cycling grows for years to come.

6.2.1. On-Street Bike Facilities

Kentucky law dictates that bicyclists may operate the same as a motor vehicle on most streets. However, various impediments typically discourage bicyclists from doing so including high vehicular speeds and narrow and hilly road corridors. In the two-county area, there is a lack of bicycle-specific infrastructure within the existing transportation network. Currently, there are no bike lanes, cycletracks, or other segregated bike infrastructure on the roads in the area. Some shared-lane markings—or sharrows—have recently been implemented on Central Avenue and Lexington Avenue in Ashland. These markings encourage bicyclists to use the full travel lane and make motorists aware of bicyclists using the roadway.

With corridors that contain them, Kentucky law allows bicyclists to travel on shoulders. Some roadways in the two-county area have large stretches of paved shoulder that would normally give some comfort to road cyclists including sections of US Highway 23, US Highway 60, State Highway 10, and State Highway 67; however, these corridors allow for high-speed vehicular movement and existing shoulders are often unmaintained, contain poor pavement, and do not illustrate bicycle markings, which discourages cycling activity.



Recreational biking clubs, like Ashland Cycling Enthusiasts, have grown in popularity in recent years. (Source: Ashland Cycling Enthusiasts)



Shared-lane markings, or sharrows, are an inexpensive and fast method to mark biking routes and to make motorists aware of potential bicyclists.

6.2.2. Other Signed Bike Routes

Several bike routes with official or unofficial signage exist in Boyd and Greenup Counties. These routes do not contain pavement treatment or other bike facilities, but the routes themselves have low vehicle volumes and do contain some “share the road” signage.

The Ashland Bike Route is a sign-designated journey that moves along low-volume roads within Ashland. The route touches several major destinations within city limits, such as Riverfront Park and Ashland Transit Center.

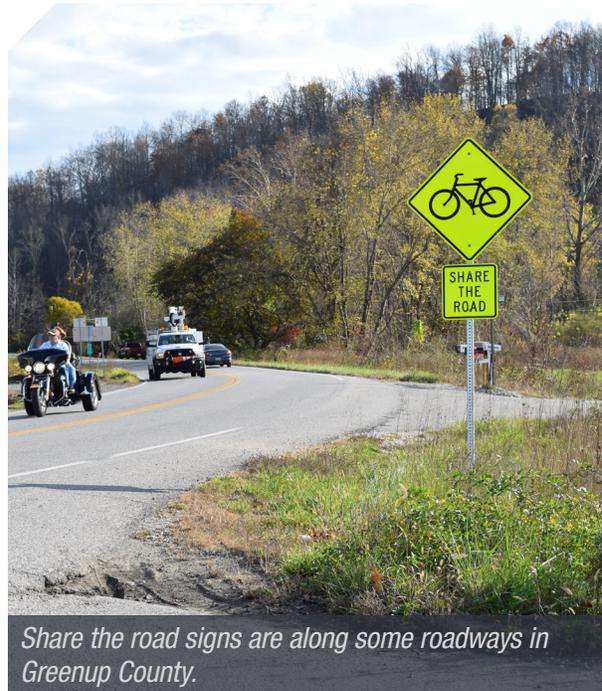
Various individuals in Greenup County have established the EK Bikeway, a vast network of road-based bike routes in Greenup, Carter, Lewis, and Boyd Counties. The routes are color-based and marked with tactical signage alongside existing roadways. Efforts to place more permanent trailhead kiosks, establish QR codes with GPS data, and create officially designated bike signage for the routes also are underway. A map of the EK Bikeway system is shown in Figure 6.3.

Several recreational destinations in the two-county area list cycling routes within and around their premises. The Greenbo Lake State Park and Resort, a regional recreation tourist location, depict three recreational biking routes in the area along the roads.

In addition to the locally designated bike routes, American Association of State Highway and Transportation Officials (AASHTO) currently has an “Identified Corridor” for the United States Bicycle Route (USBR) system. Although currently not officially designated, the Ramblin’ River Bicycle Tour would be marked as USBR 35 and would extend into various roadways in western Greenup County.

6.2.3. End-of-Trip Bike Facilities

Bicycle racks on sidewalks and grass areas are some of the most common bike storage tactics in the two-county area. Some bike racks exist in Ashland near King’s Daughters Hospital, Ashland Technical and Community College, and in several locations downtown. The City of Raceland recently implemented bike racks in their business district, and various schools in the area contain bike racks on their premises.



Share the road signs are along some roadways in Greenup County.



The City of Raceland recently placed these bike racks within city limits.

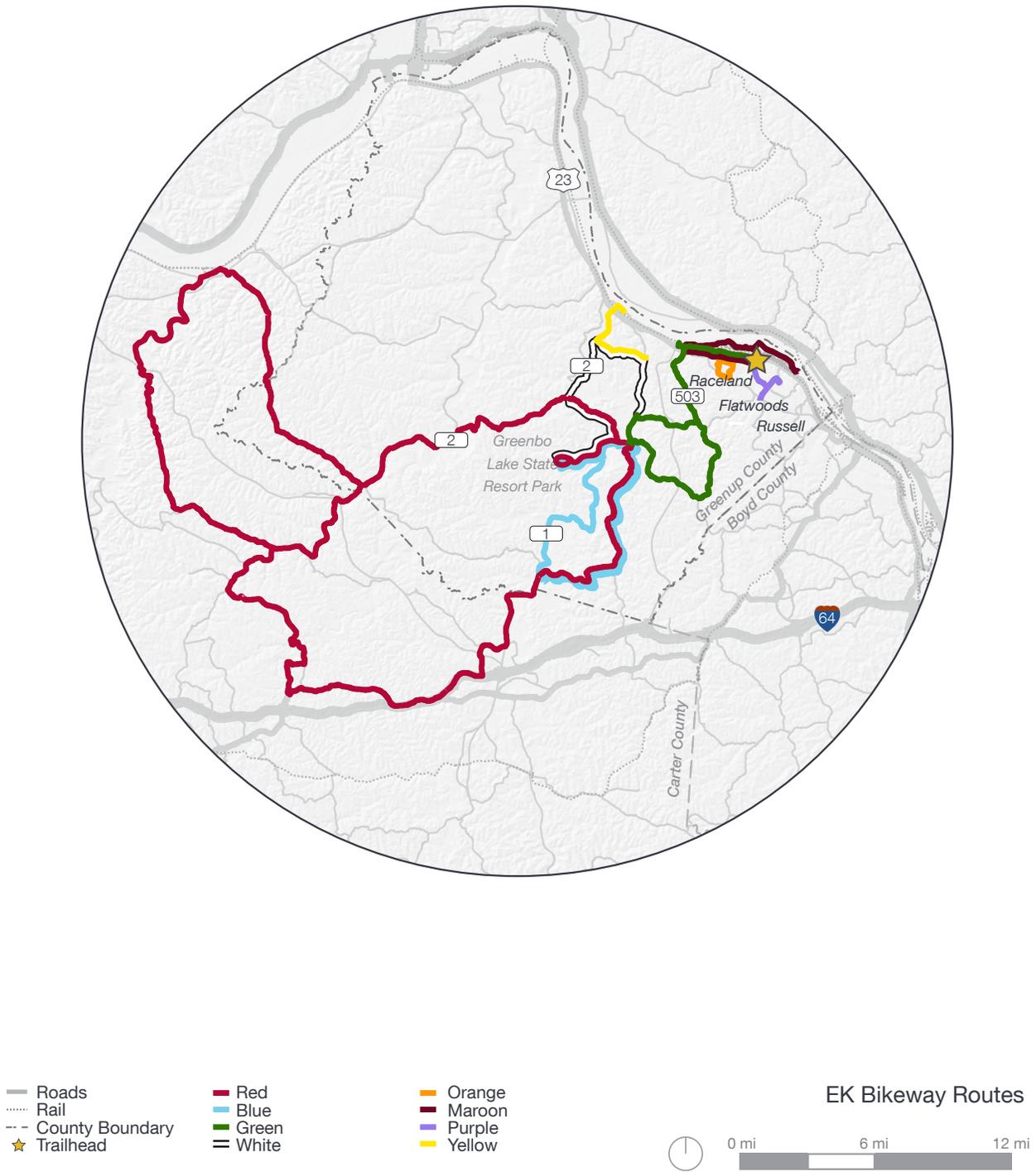


Figure 6.3. EK Bikeways

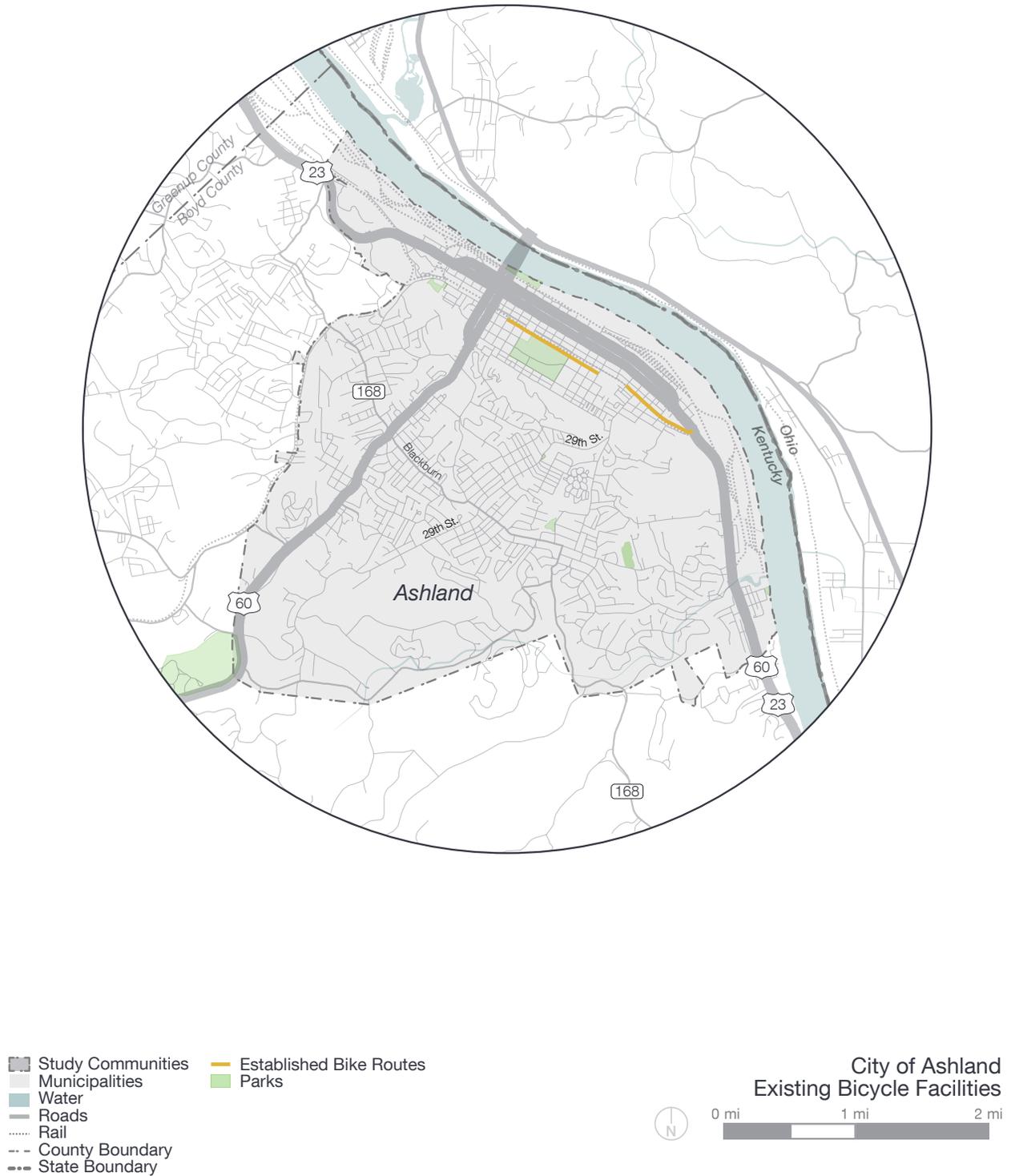


Figure 6.4. City of Ashland Existing Bicycle Facilities

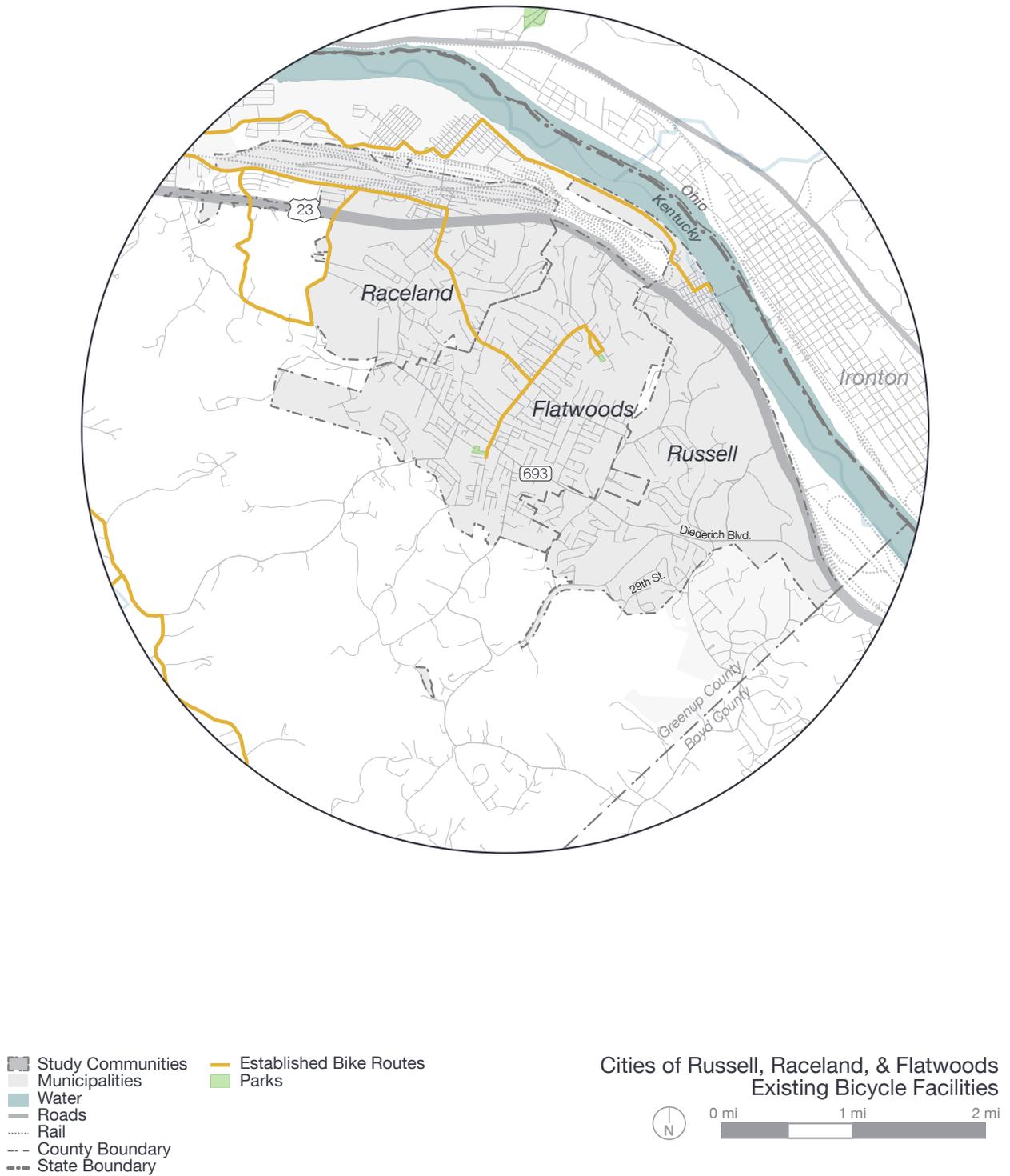


Figure 6.5. Cities of Raceland, Russell, and Flatwoods Existing Bicycle Facilities

7 Walking and Biking Recommendations



Comfortable pedestrian environments like those in downtown Ashland should be replicated around the region.

This plan identifies several opportunities to address network deficiencies and improve walking and cycling conditions in Boyd and Greenup Counties.

The recommendations included in this chapter are intended to make walking and cycling more accessible, convenient, and comfortable for residents, employees, and visitors of all ages and abilities in Boyd and Greenup Counties.



Ashland Cycling Enthusiasts sponsors rides year-round. This ride occurred in December 2015. (Source: Ashland Cycling Enthusiasts)

Creating Bike- and Pedestrian-Friendly Communities

- ▲ Sidewalks should be maintained frequently on high-traveled corridors
- ▲ New bike infrastructure should be implemented in urban and rural areas to match the growing popularity of cycling in the area
- ▲ New bike- and pedestrian-friendly programs and policies should be created to encourage non-motorized transportation

Recommendations

The plan’s recommendations include infrastructure and non-infrastructure solutions and can be divided into five categories, commonly referred to as the “Five E’s.”

	Description	Examples
Engineering	Planning, designing, and installing physical walking and biking infrastructure and facilities	Crosswalks, bicycle lanes, signals, and bicycle racks
Education	Programs and initiatives that educate pedestrians, bicyclists, motor vehicle drivers, transit drivers, and others on how to safely travel along and across streets while interacting with users of other transportation modes	Bicycle rodeos teaching children how to ride a bicycle and navigate motor vehicle traffic, and programs to inform and educate drivers about pedestrians and bicyclists
Enforcement	Working with community law enforcement and others to increase traffic law compliance of road users	Signed or patrolled motor vehicle speed zones and patrolling non-compliant pedestrian crossing behavior
Encouragement	Programs and campaigns that make walking and biking an easy and available transportation and recreation option and promote walking and biking among residents of all ages and abilities	Programs to provide access to bicycles to children, walk and bike to school day, and commuter incentive programs
Evaluation	Quantitative and qualitative measures of comfort, usage, performance, and safety of pedestrian and bicycle programs or infrastructure from the four E’s above. Evaluation initiatives help answer the question “How well is this program or facility working to improve conditions for walking and biking?”	Pedestrian and bicycle counts, observation of user compliance, modal surveys, and crash analysis

A coordinated effort between city staff, community leaders, neighborhood groups, public officials, schools, law enforcement, and others is necessary to improve conditions for walking and biking throughout the community that address all five of these E’s.

Following this chapter is an Implementation Plan that provides specific guidance on how to implement the recommendations included in this plan.

7.1. KYOVA MPO 2016-2019 TIP

The KYOVA Metropolitan Planning Organization’s 2016-2019 TIP programs funding for transportation improvements in Boyd and Greenup Counties.

Table 7.1 below displays the TIP recommendations that overlap with recommendations included in this plan.

Table 7.1 TIP Recommendations that Overlap with Plan

Route/Location	TIP Recommendation	Recommendation of This Plan
US 60 from KY 716 to Rose Hill Cemetery, Boyd County	Reconstruction—no additional lanes	Establish shoulder maintenance Add bike route signs for shoulder bicycling
US 23 at 12th Street in Catlettsburg, Boyd County	Safety—intersection reconfiguration	Construct shared-use path segment at intersection approach to establish shared-use path in future
Blackburn Avenue, City of Ashland, Boyd County	Construct new sidewalks along Blackburn Avenue	Add sharrows in conjunction with sidewalk construction Add bike lanes if road is completely reconstructed
KY 2 from MP 13.2 to MP 17.2 (US 23), Greenup County	Safety—reconstruction	Reconstruct with bike lanes, signage and wayfinding (sharrows may be considered as an alternative)
Bridge on KY 244 (MP 0.103) over CSX railroad, 0.05 miles northeast of Junction US 23, Greenup County	Bridge replacement	Reconstruct sidewalk and add bike lanes to better connect Raceland and Worthington
KY 207 from KY 67 (Industrial Parkway) to KY 693/KY 207 intersection in Flatwoods, Greenup County	Safety—reconstruction, no additional lanes	Consider construction of a shared-use path if the corridor is completely reconstructed

7.2. Pedestrian Recommendations

7.2.1. Recommended Pedestrian Networks

The Cities of Ashland, Russell, Flatwoods, and Raceland represent the population centers of Boyd and Greenup Counties, and are where most of the walking trips are made.

See Figures 7.1 and 7.2 for recommended connections in these communities to enhance connectivity and access for pedestrians. These recommendations are not tied to specific streets or locations, but rather are meant to provide enhancements to promote citywide and local network connectivity and access to important destinations. The Commonwealth of Kentucky uses the 2004 *Guide for the Planning Design, and Operation of Pedestrian Facilities* for its standard design guidance. This guide directed the development of the pedestrian recommendations in this plan.

How Recommendations Were Made

Recommendations presented in this plan are based on review of:

- ▲ Public and stakeholder comments, suggestions, and recommendations
- ▲ School locations, commercial and retail areas, and other important destinations
- ▲ Connecting important destinations along corridors that present strategic opportunities for improvement based on excess pavement widths and missing gaps between destinations

Note: Alignments displayed on these maps are visionary in nature and may change. Off-road recommendations such as shared-use paths are conceptual only. Further study is required in all cases where property acquisition or easements may be necessary, and where construction will take place outside of the road right-of-way to determine feasibility.

Such studies will determine the final alignments and locations of all walking and biking facilities, and will provide additional information necessary to determine final pre-construction and construction costs.

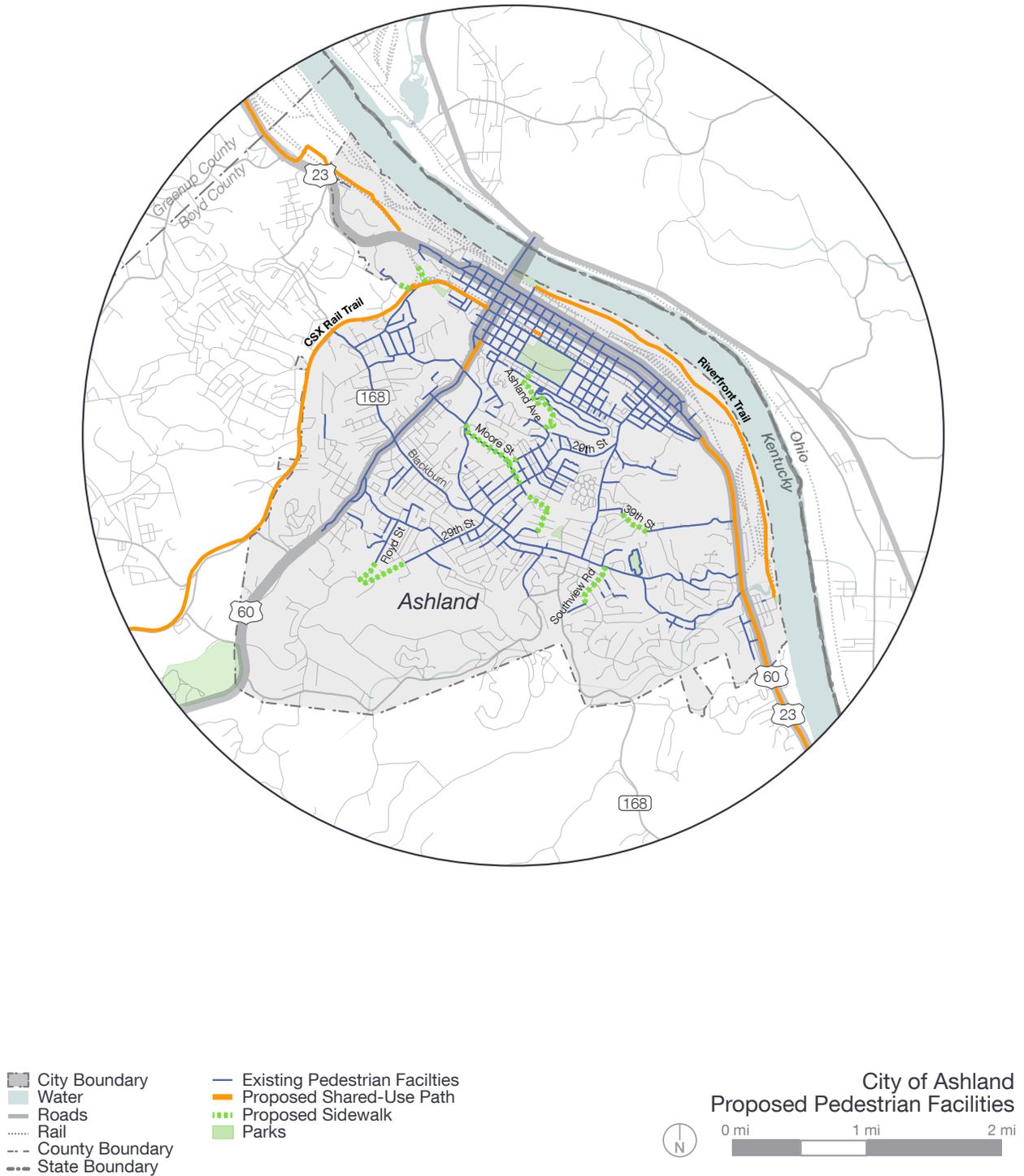
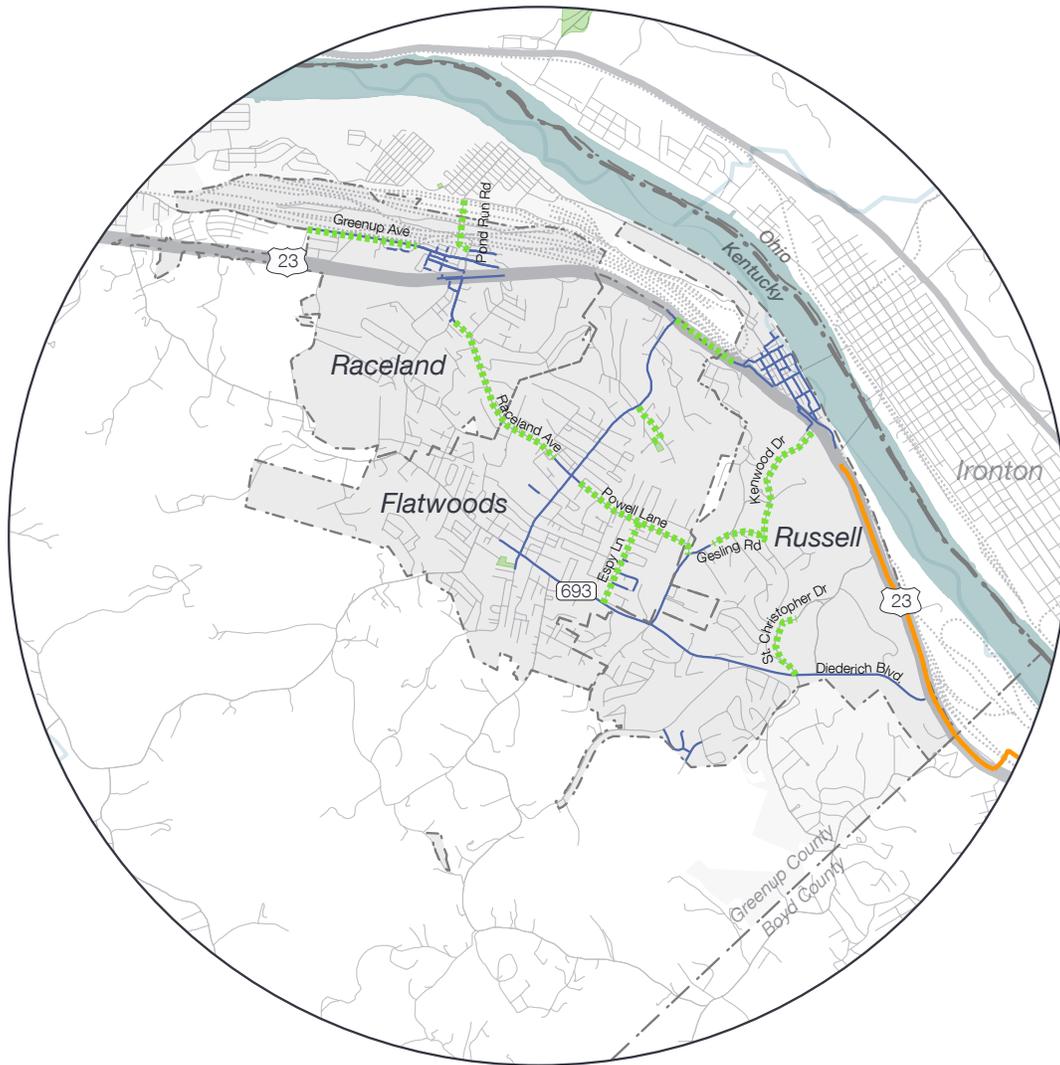


Figure 7.1. Recommended Pedestrian Network in the City of Ashland



- City Boundaries
- Water
- Roads
- Rail
- County Boundary
- State Boundary
- Parks

- Existing Pedestrian Facilities
- Proposed Shared-Use Path
- Proposed Sidewalk

Cities of Russell, Raceland, & Flatwoods
Proposed Pedestrian Facilities



Figure 7.2. Recommended Pedestrian Network in the Cities of Raceland, Flatwoods, and Russell

7.2.2. Types of Pedestrian Infrastructure

Sidewalks

Sidewalks are the most basic form of pedestrian infrastructure. They provide a dedicated space for pedestrians and usually run alongside streets and roads. Well-designed sidewalks contain smooth concrete pavement and are often separated from the road by a grass verge, trail, or other barrier.

Rectangular Rapid Flash Beacons (RRFBs)

RRFBs are used as a supplement to midblock crosswalks to increase motorist awareness of crossing pedestrians. One LED beacon is typically located on each side of the street to alert drivers that pedestrians are crossing the street. The lights flash in a left-to-right pattern that alerts drivers and are either triggered by a pedestrian pushing a button or through an automatic detection system. Many RRFBs are solar powered and can be located at locations without electricity. RRFBs have shown to be an effective safety and traffic calming infrastructure element.

Curb Extensions

Curb extensions, also known as bump outs, are an extension of the sidewalk. Curb extensions are most often located at intersections, but they also are beneficial at midblock crossing locations. Curb extensions are used to protect pedestrians by making them easier for drivers to see when parked cars would otherwise block drivers' sightlines. Curb extensions also decrease crosswalk lengths, reducing the amount of time it takes for pedestrians to cross the street. Curb extensions also reduce turning radii, resulting in slower motorist turning speeds.



RRFBs increase motorists' awareness of midblock crosswalks and crossing pedestrians. (Source: City of Bloomington)



Curb extensions, like this one in Birmingham, MI, provide additional space and added comfort for pedestrians. They also allow for streetscape elements, such as planters or benches. (Source: National Association of City Transportation Officials)

ADA Accessibility

The American with Disabilities Act of 1990 (ADA) was established to protect Americans with disabilities against discrimination. The ADA imposes accessibility requirements on public and private accommodations, including sidewalk widths, ramps, parking lot access routes, building door access, and various others.

There are several elements that create an ADA accessible pedestrian environment. It is important that sidewalks are a minimum of 3 feet wide to ensure that those using wheelchairs or other mobility devices can maneuver the area. A sidewalk width of 5 feet is recommended for increased ease of use for all users. Widths greater than 5 feet are ideal if street furniture is located on the sidewalk or if there is significant pedestrian traffic on the corridor. Finally, pedestrian facilities should be wide enough to avoid obstacles such as bushes, low-hanging branches, benches, and parking meters.

Passing space is a wider segment of sidewalk that allows one person in a wheelchair the ability to pass another person in a wheelchair. Passing space should be designed such that a wheelchair user could make a complete circle in them, a maneuver that requires a minimum of 5 feet.

The grade of the sidewalk is another important consideration for creating ADA-accessible pedestrian environments. The running grade of a sidewalk is defined as the slope parallel to the direction of travel, and should be a minimum of 2 percent and a maximum of 5 percent. The maximum grade or maximum slope for a short segment is 13 percent. For segments where the grade is greater than 5 percent, a landing measuring 5 feet by 5 feet with handrails is needed every 30 inches of vertical rise. Curb ramps should have grades between 2 and 8 percent, depending on the segment of the ramp and should be a minimum of four feet wide and between three and 15 feet in length.

Tactile surfaces also are an important feature of ADA-accessible sidewalks. The change in texture alerts people with visual impairments that they are nearing the curb and in which direction they should travel.

Pedestrian push buttons are another element of the pedestrian landscape that are necessary for ADA accessibility. Push buttons at signalized crosswalks enable pedestrians to indicate to the traffic signal system that they are waiting for the “Walk” symbol to cross the street. Push buttons should include audible and vibro-tactile signals to alert pedestrians that a walk sign will eventually illuminate. Push buttons should be located no more than 5 feet from the outside edge of the crosswalk and should be setback between 1.5 and 10 feet from the curb.



Sidewalk ramps with tactile surfaces help persons with disabilities maneuver in downtown Ashland.

Continental Crosswalks

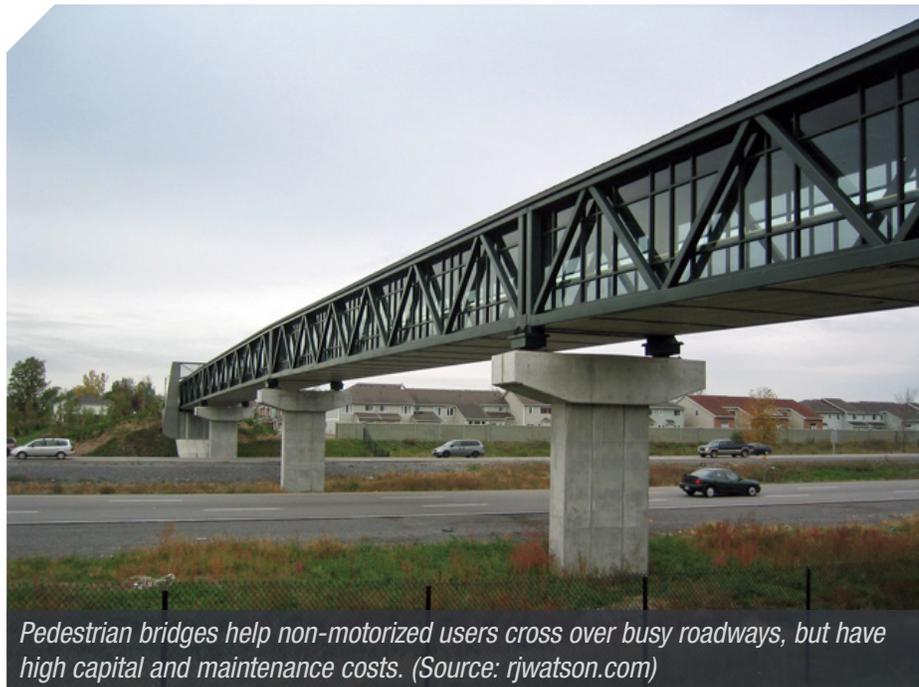
Continental crosswalks are those painted with a striped pattern rather than a solid line or two lines spaced apart. Continental crosswalks are more visible to drivers since they stand out from other pavement markings and pedestrians are more likely to be seen as they cross the street. Continental crosswalks should be added to new streets that are constructed or existing streets that are repaved.



Continental crosswalks are recommended to create visual contrast for motorists between the travel way and the pedestrian-crossing space. (Source: nacto.org)

Pedestrian Bridges

Pedestrian bridges provide connections over significant barriers such as highways, railroads, waterbodies, and ravines. It is essential to non-motorized users that bridges are safe, welcoming, attractive, and comfortable to cross. This can be achieved through lighting, visibility, materials, and accessible vertical circulation. Pedestrian bridges are an expensive investment, so they should be used strategically. Further, elevation changes are a deterrent to pedestrians, so they should not be used as alternative to improving the street-level pedestrian environment.



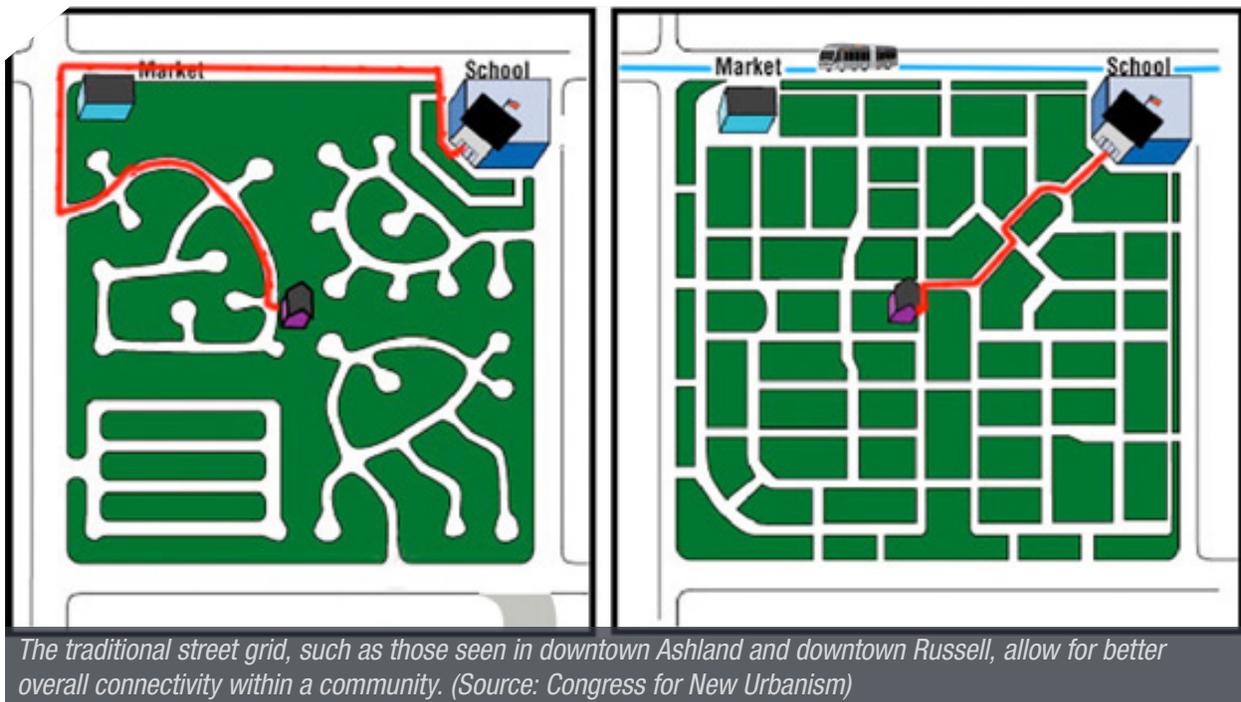
Pedestrian bridges help non-motorized users cross over busy roadways, but have high capital and maintenance costs. (Source: rjwatson.com)

Leading Pedestrian Intervals (LPIs)

LPIs give pedestrians a head start when entering an intersection with a corresponding green signal in the same direction of travel. LPIs grant higher visibility of pedestrians and reinforce their right-of-way over turning vehicles. According to NACTO, LPIs have shown to reduce pedestrian-vehicle collisions as much as 60 percent.

Building a Sidewalk Network

As development and redevelopment occurs, pedestrian infrastructure should be constructed to connect with existing infrastructure to build on the existing pedestrian network. Communities should develop new streets in a grid pattern to increase intersection density and pedestrian connectivity. Pedestrian paths and connections should be created in locations with minimal connectivity or vehicular dead-end locations.



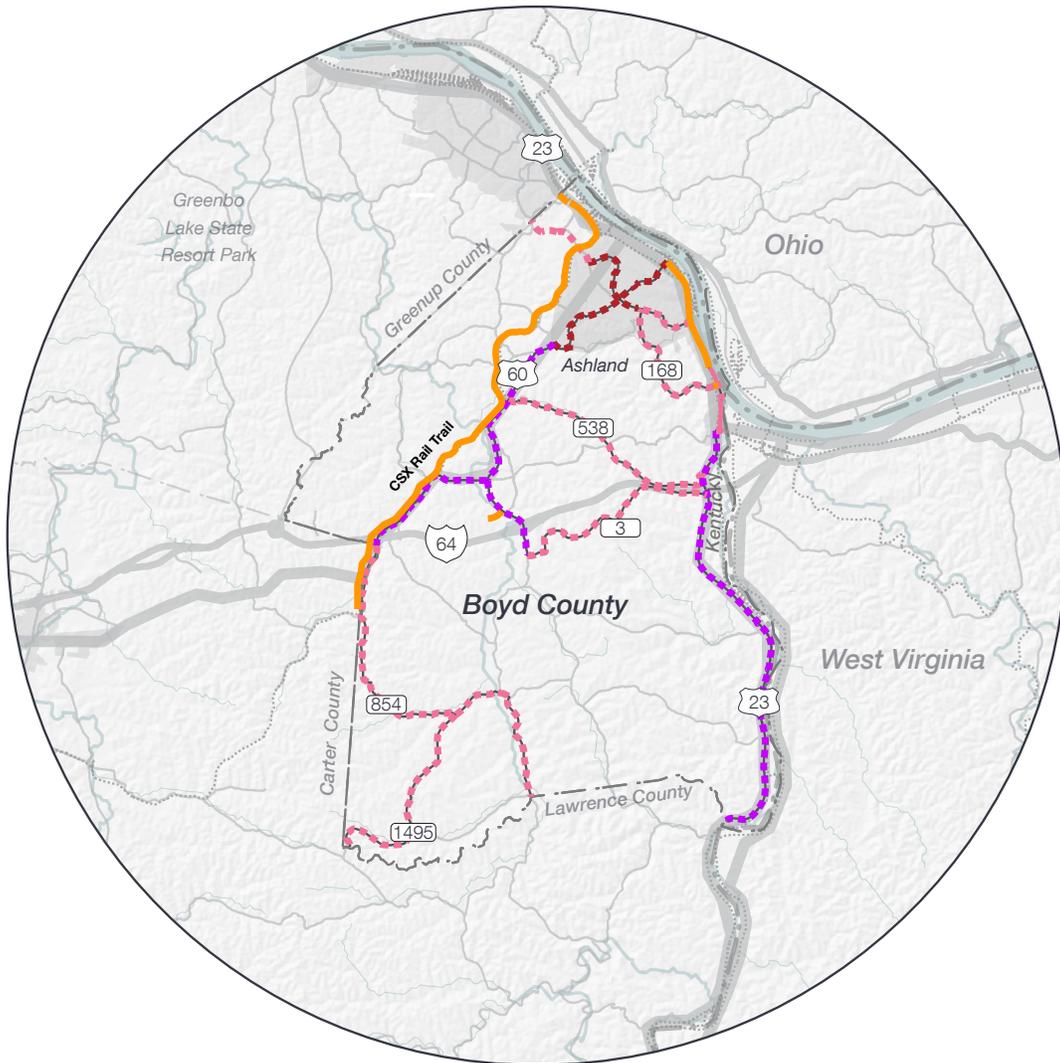
The traditional street grid, such as those seen in downtown Ashland and downtown Russell, allow for better overall connectivity within a community. (Source: Congress for New Urbanism)

7.3. Recommended Bicycle Networks

Bicycling is popular across Boyd and Greenup Counties. Bicyclists enjoy a number of existing signed routes for transportation and recreation purposes.

Figures 7.3, 7.4, 7.5, and 7.6 display the recommended bicycle route network in Boyd and Greenup Counties. Routes are depicted by the recommended facility type. The recommended bicycle network in each county represents the long-term goal for bicycle connectivity across the two counties. These maps serve as a tool for regional and local planners in identifying and taking advantage of opportunities to establish bicycle connections over time.

The Implementation Plan in Section 8 presents a guide for implementing key priority corridors and is a subset of this overall network. The Commonwealth of Kentucky uses the 2012 *Guide for the Development of Bicycle Facilities* for its standard design guidance. This guide directed the development of the bicycle recommendations in this plan.



- City Boundaries
- Water
- Roads
- Rail
- - - County Boundary
- - - State Boundary
- Parks
- Proposed Sharrow
- Proposed Signage
- Proposed Bike Lane
- Proposed Maintained Shoulder
- Proposed Shared-Use Path

**Boyd County
Proposed Bicycle Facilities**

0 mi 4.5 mi 9 mi

Figure 7.3. Proposed Bicycle Route Network in Boyd County

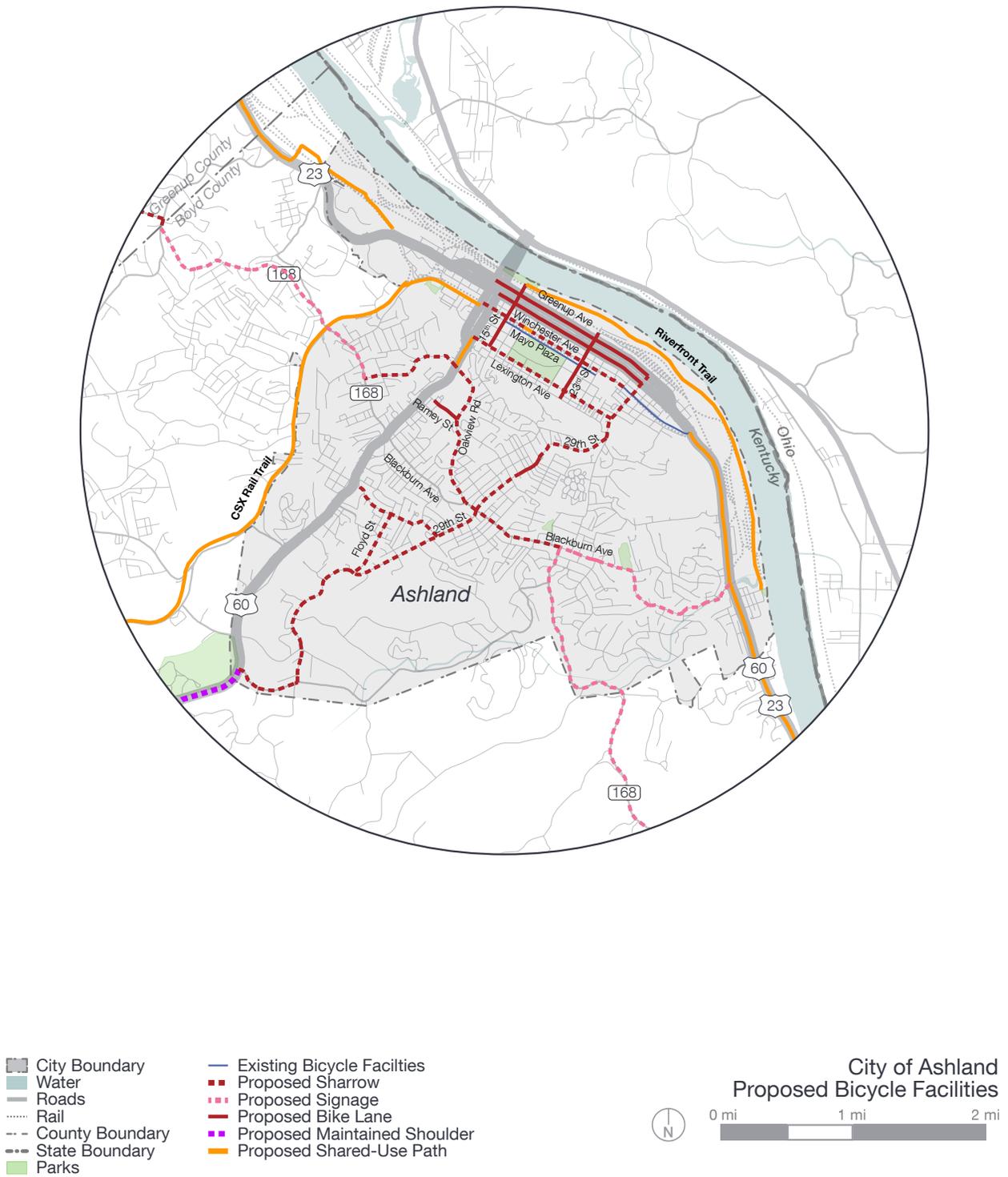


Figure 7.4. Proposed Pedestrian and Bicycle Route Network in the City of Ashland

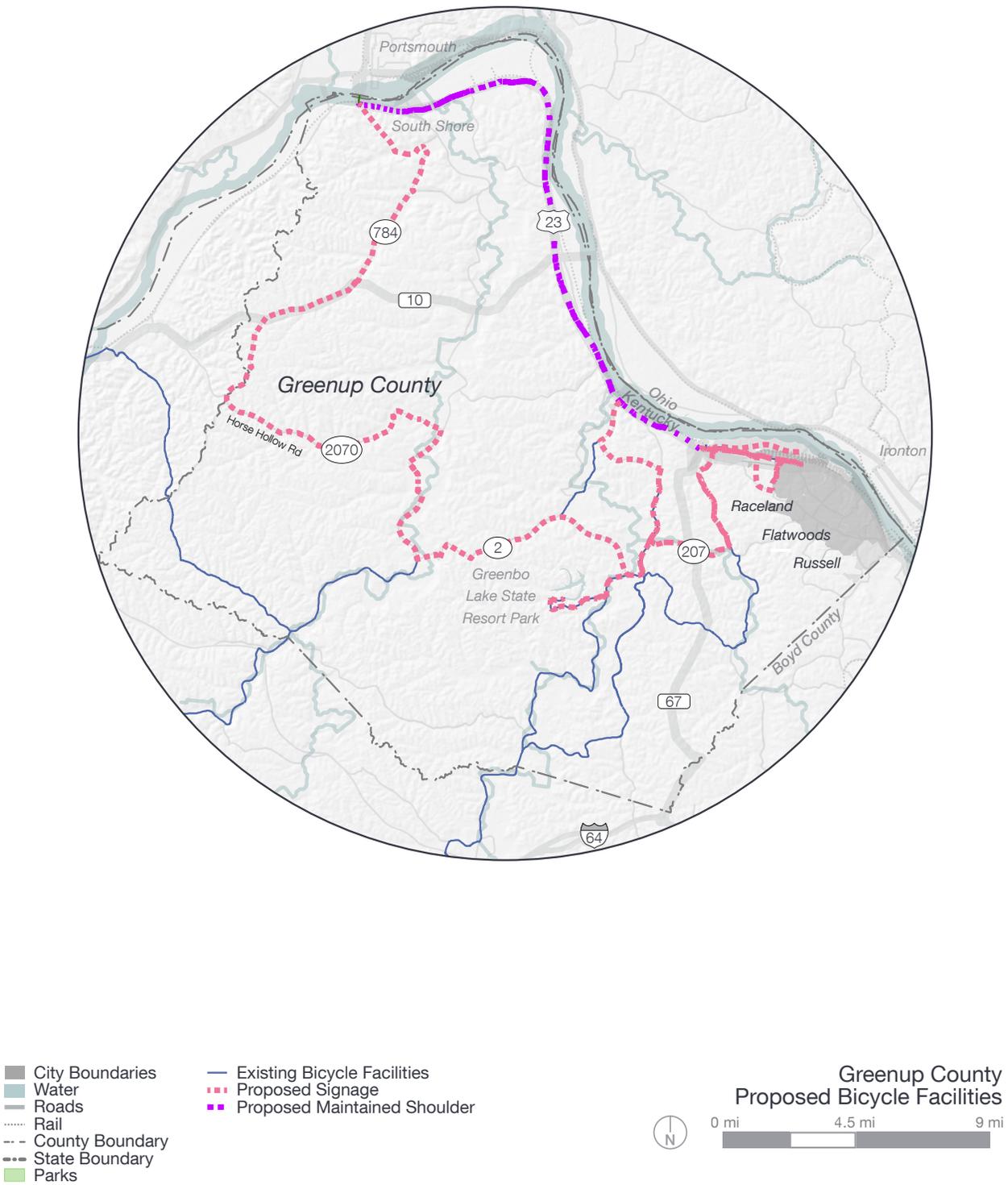


Figure 7.5. Proposed Bicycle Route Network in Greenup County

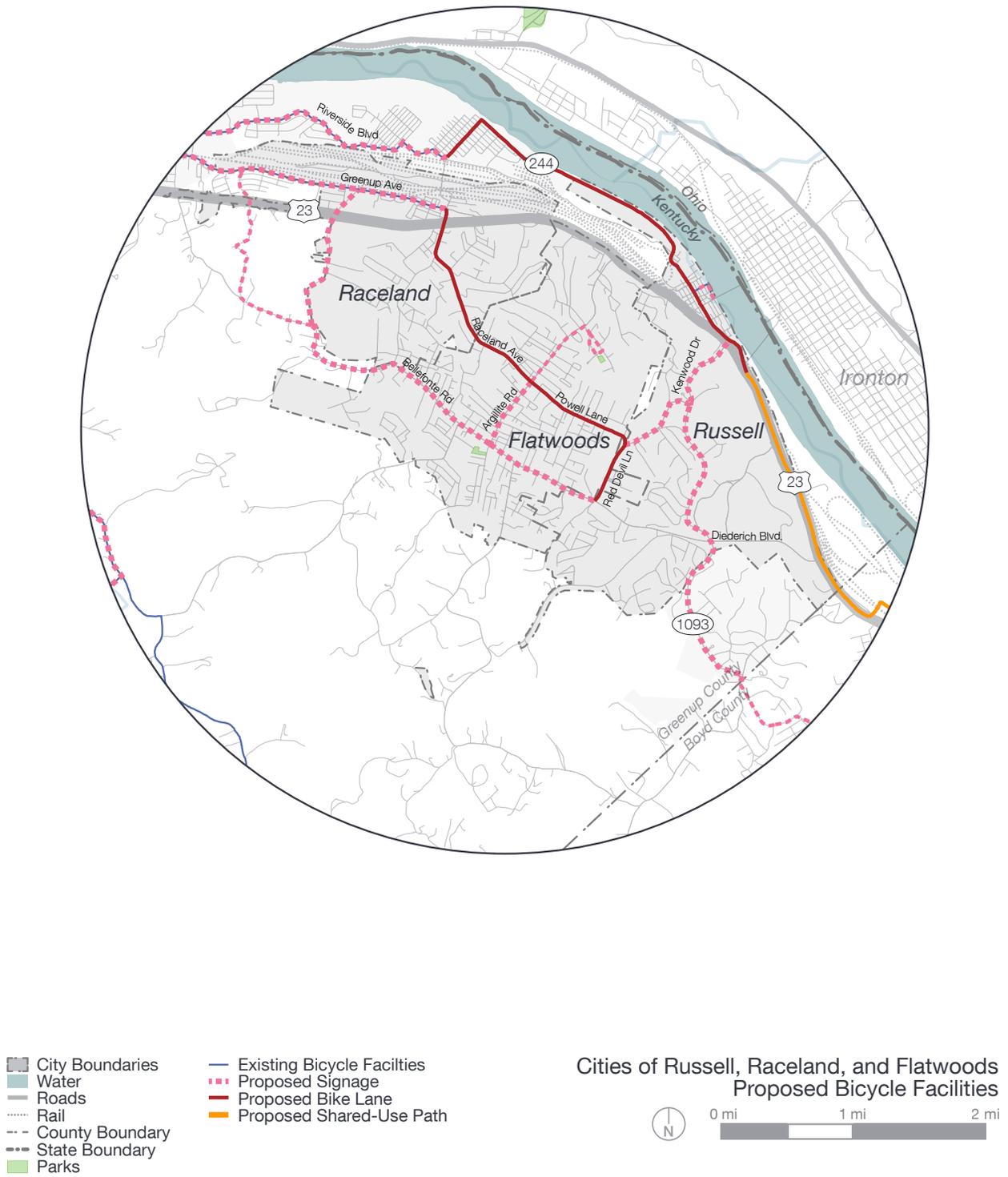


Figure 7.6. Proposed Pedestrian and Bicycle Route Network in the Cities of Raceland, Flatwoods, and Russell

7.3.1. Types of Bicycle Infrastructure

To capitalize on the grassroots activism surrounding bicycling in Boyd and Greenup Counties, a vast network of bicycle facilities and designated bike routes should be implemented throughout the region.

Bicycle infrastructure recommendations were formed using guiding factors including existing road conditions, area destinations, major bicycling barriers, public feedback, and current popular bike routes.

Conventional On-Street Bike Lane

Description	Implement When:	Applicable Locations	Images
Exclusive space for bicyclists through the use of pavement markings and signage	<ul style="list-style-type: none"> ▲ Corridor has high bicycle use ▲ Road width has ample space to provide bike space 	<ul style="list-style-type: none"> ▲ 15th Street, 29th Street, and Greenup Ave, Ashland ▲ Red Devil Lane and Russell-Worthington Road, Greenup County 	

On-Street Buffered Bike Lane

Description	Implement When:	Applicable Locations	Images
Bike lanes with a designated buffer space separating the bicycle lane from the adjacent motor vehicle lane	<ul style="list-style-type: none"> ▲ Corridor is multimodal and highly visible ▲ Many bikeable destinations exist on corridor ▲ Road is restriped and right-sized to allow ample bike space 	<ul style="list-style-type: none"> ▲ Winchester Avenue, Ashland 	

Off-Street Shared-use Path/Sidepath

Description	Implement When:	Applicable Locations	Images
Recreational and transportation trail that accommodates both bicycles and pedestrians	<ul style="list-style-type: none"> ▲ Corridor contains high bicycle and pedestrian traffic ▲ Roadway is reconstructed and/or large enough to accommodate sidepath 	<ul style="list-style-type: none"> ▲ US Highway 23/60, Ashland to Catlettsburg ▲ Riverfront Trail, Ashland 	

Rails to Trails & Rails with Trails

Description	Implement When:	Applicable Locations	Images
Recreational and transportation-based train running on top of or alongside railroad tracks	<ul style="list-style-type: none"> ▲ Railroad has been abandoned by freight company and can be used for bike and pedestrian purposes 	<ul style="list-style-type: none"> ▲ CSX railroad northeast of Ashland ▲ CSX rail spur between Ashland and Coalton 	

On-Street Shared Lane Markings (Sharrows)

Description	Implement When:	Applicable Locations	Images
Lane markings in mixed traffic used to indicate a shared lane environment for bicycles and motor vehicles	<ul style="list-style-type: none"> ▲ Roadway experiences low motor vehicle traffic and speeds ▲ Roadway is too narrow to contain a conventional bike lane ▲ Filling gaps in bicycle network 	<ul style="list-style-type: none"> ▲ Lexington Avenue and Oakview Road, Ashland ▲ Kenwood Drive, Russell ▲ Route 503, Greenup County 	

Signed Bike Route

Description	Implement When:	Applicable Locations	Images
Corridors with no on-pavement markings that contain bicycle signage and wayfinding	<ul style="list-style-type: none"> ▲ Both motor vehicle and bicycle traffic volumes are generally low ▲ Corridor is part of a marked recreational route 	<ul style="list-style-type: none"> ▲ Routes 2 and 503, Greenup County ▲ Route 854, Boyd County ▲ Kenwood Drive, Russell ▲ Currently-identified EK Bikeway routes 	

Maintained Route

Description	Implement When:	Applicable Locations	Images
High-volume roadways with paved shoulders that are designated to be consistently maintained of snow and debris	<ul style="list-style-type: none"> ▲ Both motor vehicle and bicycle traffic volumes are generally low 	<ul style="list-style-type: none"> ▲ US Highway 23 north of Wurtland, Greenup County ▲ US Highway 60 south of Ashland, Boyd County 	

7.3.2. Intersection Treatments for Bicyclists

Technologies and design treatments can increase bicyclist comfort and visibility at intersections and crossings.

Unlike pedestrians who generally cross roadways using crosswalks, bicyclists oftentimes travel through intersections using the roadway lanes. Bicyclists are not able to accelerate as quickly as motor vehicles and take longer to cross. Several intersection treatments exist that can improve safety and comfort for bicyclists traveling through intersections, which are described in detail below.

Colored Intersection Crossing Markings

Description	Image
<ul style="list-style-type: none"> ▲ Painting bike-specific crosswalks with green paint can help raise visibility of a crossing cyclist at high-volume intersections ▲ The green paint should be applied similar to a continental crosswalk and should contain a minimum 6-foot width as it moves across an intersection ▲ Colored crossing markings should be considered at some intersections along routes where bike lanes are recommended, such as Winchester Avenue and 29th Street in Ashland 	

Bike-Specific Crossing Push Buttons

Description	Image
<ul style="list-style-type: none"> ▲ Unlike a pedestrian push button near a sidewalk crossing, bike-specific crossing buttons allow bicyclists to call the traffic signal in locations where bikes aren't acknowledged by detectors designed to pick-up motor vehicles. ▲ These push buttons can be near a roadway curb and gutter or next to the edge of pavement in a rural roadway, preventing bicyclists from dangerously rolling onto a sidewalk to push the pedestrian button and can provide safety for otherwise unsignalized intersections ▲ Several intersections in Boyd and Greenup Counties, such as the corner of Route 503 and US Highway 23 in Wurtland and the corner of Route 168 and US Highway 23/60 in Catlettsburg, would benefit from a bike-specific push button 	

Corner Radii Reduction

Description	Image
<ul style="list-style-type: none"> ▲ Many intersections along the busiest roadways in Boyd and Greenup Counties include corner radii that encourages high-speed right-turn movements onto intersecting roads ▲ Reducing the corner radii will reduce turning speeds of motorists without significantly affecting traffic flow ▲ Reduced corners will improve bicyclist safety and should be considered on future road reconstruction projects 	

7.3.3. Additional Bicycle Recommendations

In coordination with complete streets ordinances and policies that assist in implementing non-motorized infrastructure, building bikeways should be considered during most road reconstruction projects. As funding becomes available for corridor reconstruction, bicycle-specific facilities such as bike lanes, trails, and sidepaths should be considered, especially in highly traversed routes.



Off-street sidepaths and shared-use paths offer the most separation and comfort for bicyclists, and are most appropriate where motor vehicle traffic speeds and volumes are highest. (Source: Ebicycles.com and Urbanophile.com)

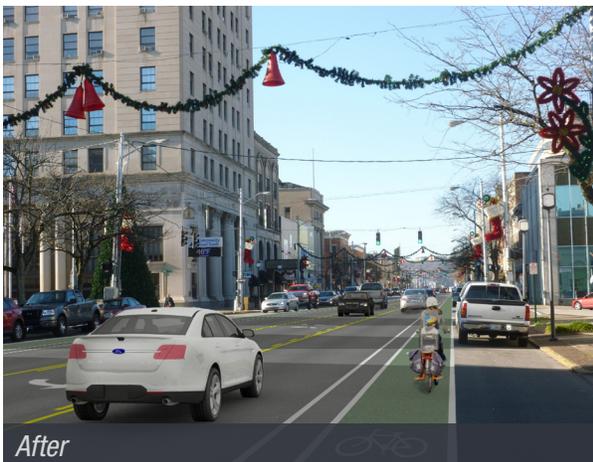
7.4. Exemplary Potential Projects

Following are six exemplary projects that demonstrate possible treatments to improve conditions for pedestrians and bicyclists.

These examples were selected due to their location in the two-county area and their importance to fill gaps in the non-motorized network. These flexible and adaptable treatments are translatable to other corridors with similar conditions and challenges.

Exemplary Project 1: Winchester Avenue 4-to-3 Restriping

Existing condition: Winchester Avenue is the “main street” of Ashland, and is home to dozens of shops, restaurants, entertainment attractions, and other significant destinations. It is delineated as Business US Highway 23 between its intersections with Greenup Avenue. The stretch of Winchester Avenue consistently contains four total travel lanes, with some segments including on-street parking areas. Recent congestion management reports from KYOVA indicate that average daily traffic (ADT) volumes along Winchester Avenue are more than 16,000 vehicles per day, which is significantly less than the roadway’s current capacity. The recent Ashland Parking Study recommends exploring an option to add reverse-angled parking and to reduce lane widths on Winchester Avenue.



1. http://safety.fhwa.dot.gov/road_diets/brochure/
2. <https://www.fhwa.dot.gov/innovation/everydaycounts/edc-3/roaddiets.cfm>

Challenges:

- ▲ Undivided four-lane roadways have shown to be dangerous for motorists, bicyclists, and pedestrians
- ▲ Crash rate for this section is more than two times higher than the statewide average crash rate
- ▲ Current road design features high motor vehicle speeds through downtown

Advantages:

- ▲ Major safety advantages—FHWA states crash reductions up to 47%¹
- ▲ Increases biking and walking—recent study showed a 30% increase in bike volumes and 23% increase in pedestrian volumes²
- ▲ Low-cost solution with high returns
- ▲ Does not significantly impact traffic with roadways containing less than 20,000 ADT
- ▲ Increases comfort for all users and induces traffic calming through vehicular speed reduction

Recommendations:

- ▲ Restripe and “right-size” the corridor as a three-lane road to slow motorists as narrower street design brings lower speeds.
- ▲ One lane in each direction with a center turn lane.
- ▲ Add buffered bike lanes between travel and parking lanes.
- ▲ Implement reverse-angled parking with buffered bike lane if full reconstruction of Winchester Avenue occurs in the future.

Exemplary Project 2: 29th Street Bike Lanes and Sharrows

Existing condition: 29th Street is a major local corridor in Ashland that connects downtown to King's Daughters Medical Center and neighborhoods south of the bluffs. The corridor has been identified as a popular route for walkers and bicyclists, but contains a small sidewalk, no bike markings, and a speed limit of 30mph. Most of the corridor is narrow, but some sections have wider pavement areas where bike lanes could be placed.



Before



After

Challenges:

- ▲ Long, narrow roadway does not allow for bike lanes in some segments
- ▲ 30 mph signed corridor encourages faster vehicle speeds

Advantages:

- ▲ Bike lanes provide dedicated space for bicyclists
- ▲ Sharrows encourage bicycling on the street and raise bike awareness to motorists
- ▲ Increased non-motorized usage will help justify reconstructing 29th Street with better bike infrastructure in the future

Recommendations:

- ▲ Paint bike lanes on wider sections and add sharrows on narrow sections.
 - ▲ Paint 5' wide bike lanes between Holt Street and Newman Street.
 - ▲ Paint on-street sharrows between Newman Street and Greenup Avenue.
- ▲ Construct shared-use path or widen roadway to add bike lanes in the future.
- ▲ Add bicycle safety signage along route, including "MAY USE FULL LANE" signs.
- ▲ Assign a 25 mph speed limit on the corridor to discourage fast-moving traffic.

Exemplary Project 3: Enhanced School Crossing

Existing condition: Schools around the region are natural walking and biking destinations. However, many schools are located along roadways that provide insufficient non-motorized infrastructure like sidewalks or bike lanes, and are unsafe for students walking and cycling to school. Many crosswalks near schools should be improved to increase safety and comfort.

Challenges:

- ▲ Dangerous crossings at busy roadways
- ▲ Fading crosswalks or broken sidewalks discourage walking
- ▲ No warning signals or signage exists that would alert motorists of nearby schools

Advantages:

- ▲ Better crosswalk paint will alert motorists of potential pedestrian crossings
- ▲ Blinking signage—especially signs programmed to shine right before and after school—will encourage drivers to slow down and be cautious through school zones
- ▲ Both official and volunteer crossing guards will look out for speeding traffic and help ensure students and other pedestrians can cross safely



Recommendations:

- ▲ Construct ADA-compliant ramps at all intersections near schools.
- ▲ Paint standard continental crosswalk across both major arterials and minor local roads within 1/8 mile of school boundary.
- ▲ Add standard “school crossing” signage at all crossings.
 - ▲ Add solar-powered blinking crossing signage at crossings along major arterials, such as 29th Street and Central Avenue in Ashland and Russell High School in Greenup County.
- ▲ Encourage school officials to recruit volunteer crossing guards at the beginning and end of school days.

Exemplary Project 4: Rails-to-Trails Opportunity

Existing condition: The railroad industry has historically assisted industry in Boyd and Greenup Counties, but now the region contains some excess and underutilized track. Corridors near the riverfront north and east of Ashland, as well as the CSX rail spur along Roberts Drive in Boyd County, are prime locations to convert railroad corridors into trails if the tracks are no longer used.



Challenges:

- ▲ Actively utilized railroads make a potential trail infeasible
- ▲ Railroad tracks are common barriers in a transportation network and present mobility challenges between communities
- ▲ Capital costs are generally high, and funding sources for rails-to-trails are nationally competitive
- ▲ Railroad corridors are oftentimes polluted and contain soil contamination

Advantages:

- ▲ Former rail corridors are good non-motorized corridors due to their consistent and generally flat routes
- ▲ Former barriers caused by rail tracks can be eliminated and turned into multimodal pathways

Recommendations:

- ▲ Communicate with state officials and railroad companies to discuss potential track abandonment or rail relocations.
- ▲ Apply for rails-to-trails funding.
- ▲ When possible, construct a rail trail along the CSX spur to connect Ashland with Summitt and surrounding communities in south Boyd County.
- ▲ When possible, fulfill desire for an Ashland riverfront trail—as identified in the Ashland Comprehensive Plan—and construct a rail trail near the CSX mainline track by the Ohio River.

Exemplary Project 5: County Road Bike Treatments

Existing condition: Throughout Boyd and Greenup Counties, recreational cycling has increased in popularity with the advent of the EK Bikeway and other unofficial bike routes. Many routes are along generally low-volume, high-speed, and narrow country roads in scenic rural parts of each county. Official bike safety signage does exist on some routes, but received public and stakeholder feedback indicates that the signs alone do not increase safety and comfort for bicyclists.



Challenges:

- ▲ Country roads are narrow, less maintained than urban roadways
- ▲ Numerous hills and windy roads increase likelihood of dangerous conflict points with bicyclists and motorists
- ▲ Bike safety signage does inform motorists of potential on-road cyclists but may not provide enough warning information to prevent accidents

Advantages:

- ▲ Solution to legitimize bike facilities and increase awareness of bicycling to others
- ▲ Recreational routes can encourage tourism and improve public health
- ▲ Designated signed routes can help connect other communities and regions to the two-county area

Recommendations:

- ▲ Establish formal MUTCD-compliant bike routes for EK Bikeway and other designated bike routes. See Section 7.5 for more information on the recommended bike route designation process.
- ▲ Work with state officials to establish D11-1 Bike Route signs to mark routes.
- ▲ Add appropriate D1 plaques to provide destination direction and distance information.

Exemplary Project 6: Divided Highway Treatments

Existing condition: Bicycling and walking are still popular along busy divided roads, even though comfort levels are usually poor. Many sections on large highways like US Highways 23 and 60 contain wide paved shoulders, which are oftentimes separated by rumbled warning strips. Vehicles can temporarily stall in the paved shoulders, but these shoulders are also commonly used by bicyclists. Currently, many of these paved shoulders are not as well maintained as the travel lanes, and therefore present dangerous situations to non-motorists.



Before



After

Challenges:

- ▲ Divided roadways incite fast-moving motor vehicles and unsafe conditions for non-motorists
- ▲ Unmaintained shoulders filled with debris and broken pavement present dangerous conditions for pedestrians and cyclists

Advantages:

- ▲ Maintained shoulder increases safety and comfort for cyclists throughout highway corridors
- ▲ Bike and pedestrian warning signage helps raise awareness of non-motorized users along busy routes

Recommendations:

- ▲ In conjunction with KYTC and local officials, develop comprehensive shoulder maintenance plan that will ensure cleanly swept paved shoulders on US Highways 23 and 60. Shoulder improvements recommended here should not be made unless a maintenance plan is in place.
- ▲ Add bicycle route signage along highways to inform motorists of potential bicyclists on shoulders.
- ▲ Establish 10' gap in rumble strips every 40' of road.
- ▲ Educate drivers about non-motorized movements on shoulder through the use of televised public service announcements (PSAs), special signage, and other low-cost means.

7.5. Other Supporting Non-Motorized Recommendations

Recommendations

Bicycle Parking

Accessible, convenient, and available bicycle parking is important to creating destinations and communities that are supportive of bicycling. Bicycle parking should be immovable, stable, and should allow for locking of both bicycle wheels and frames. Racks should be placed with proper surrounding clearance, in areas away from motor vehicle traffic and located conveniently to building entrances.



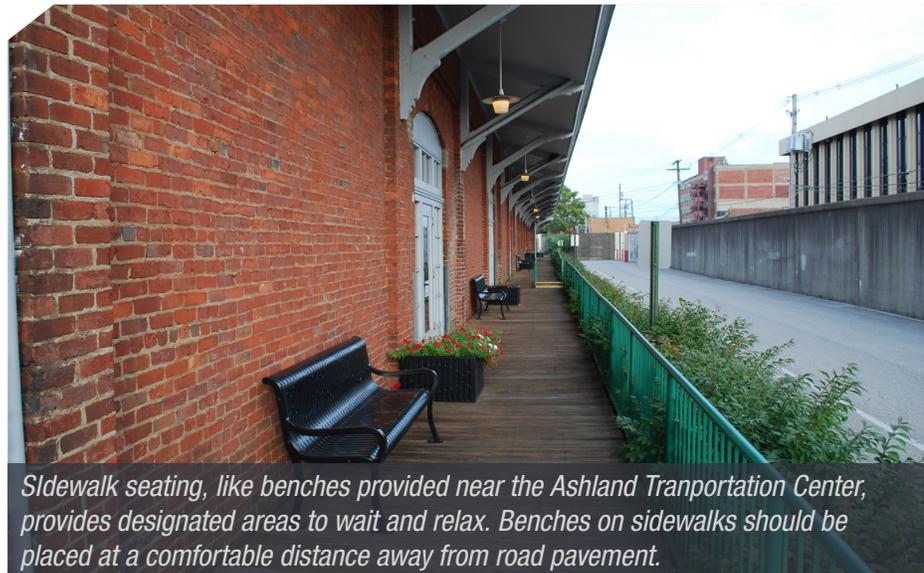
Inverted-U bicycle racks allow two bicycles to be securely locked by the wheel and frame. (Source: City of Greeley)

Bicycle racks are available in numerous sizes, shapes, and colors. In particular, inverted-U and post-and-loop bicycle racks offer stable and secure bicycle parking. Racks are recommended to be placed at schools, in central business districts, and in other commercial and retail locations with a focus on the Cities of Ashland, Raceland, Russell, and Flatwoods. In Greater Boyd and Greenup Counties, bicycle racks

should be placed at recreational destinations, such as parks and trailheads. Racks near industrial uses and business parks also would help encourage bicycle commuting to job locations.

Seating

Comfortable seating along sidewalks, pathways, and trails provide comfort to traveling pedestrians and waiting places for bicyclists and transit riders. Common

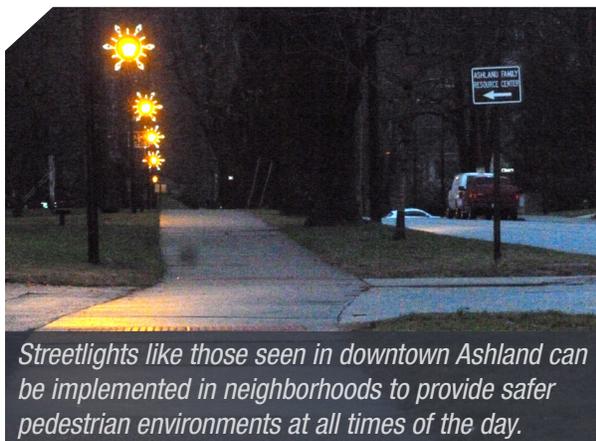


Sidewalk seating, like benches provided near the Ashland Transportation Center, provides designated areas to wait and relax. Benches on sidewalks should be placed at a comfortable distance away from road pavement.

seating elements, such as wooden and metal benches, often improve the sidewalk experience for pedestrians. Seating should be placed along sidewalk corridors near businesses, such as downtown Ashland, Russell, and Catlettsburg, and should be placed a minimum of 3 feet from the edge of pavement. Benches should match the streetscape style in their surrounding context and be properly maintained to prevent deterioration.

Lighting

To increase the safety of walkways and beautify associated streets, lighting should be added to corridors with frequent pedestrian and bicycling activity. Various types of street lighting exists and each is appropriate for certain contexts. For business districts and highly walkable areas such as downtown Ashland, pedestrian-scale lighting should be added. Similar lighting should be applied for walkable neighborhoods, such as residential areas near Central Park, south Ashland near 29th Street, Russell, and Raceland. For high-volume roadways with walking activity, LED lighting should be added to give drivers more warning when pedestrians want to cross.



Streetlights like those seen in downtown Ashland can be implemented in neighborhoods to provide safer pedestrian environments at all times of the day.

Bike Corrals

Communities around the country are beginning to use bike corrals to store many bicycles efficiently in a constrained space. Bike corrals usually replace one or two on-street parking spaces and transforms it into a barrier-protected, on-pavement area for safe bike parking. These corrals can usually hold up to 10 bicycles per motor vehicle space and have been shown to positively impact nearby businesses. Coordination with public works departments and nearby businesses must take place to remove one parking space and implement a bicycle corral. City governments should offer easily accessible incentives for businesses to create both temporary and permanent bike corrals and advertise their benefits that have been realized in other communities.



Bike corrals provide ample bicycle parking space and increase local business activity. (Source: Heather Bowder, Pedbikeimages.org)

Wayfinding and Route Markings

Route markings and informational wayfinding signage in urban and rural areas help raise awareness about designating routes and nearby destinations. The informal EK Bikeway signs throughout Greenup County are an example of an attempt to provide route identification and wayfinding benefits.

In rural areas, *Manual on Uniform Traffic Control Devices* (MUTCD)-compliant green D11-1 Bike Route signs with appropriate D1 destination direction and distance plaques are recommended for all identified bike routes. Different MUTCD-compliant signage may be permitted, depending on whether the road is state-maintained, or a local county or city road,

Greenup County should work with the KYTC Highway District 9 Engineer to formalize the EK Bikeway route signs on roads throughout the county to make them MUTCD compliant. This process requires the routes are safe, connected, and maintained. For state maintained roads, EK Bikeway routes will need to be analyzed using KYTC's Bicyclists Comfort Index. A permit is required for the placement of all signs. The description of the bicycle route signing process is included in this report's appendix.



Customized community wayfinding signs are appropriate in more urban areas and help direct pedestrians and bicyclists to destinations by providing direction and distance information. (Source: MUTCD, 2009 Edition)

7.6. Policy and Programming Recommendations

Accessible infrastructure combined with appropriate policies and programming efforts can encourage walking and biking.

Strong and guiding policies that encourage non-motorized transportation, as well programs and events that raise awareness and encourage walking and biking, will significantly benefit all communities in the region.

7.6.1. Programming

Various activities and organized events focusing on non-motorized movement can help catalyze future transportation choice behaviors and can raise awareness to motor vehicle drivers and other modes.

Walk/Bike to School Day

Participating in a national “Walk to School Day” and a “Bike to School Day” event will help demonstrate the benefits and existing challenges of school accessibility through transportation modes other than driving. Teachers, school officials, and community members can assist students to walk and bike to school, and can encourage others to participate. In 2014, 4,783 schools participated in Walk to School Day across the country, and 2,222 schools participated in Bike to School Day.

National Walk to School Day is typically in October, and National Bike to School Day is typically in May. More information can be found at www.walkbiketoschool.org.

Bike to Work Day

Similar to “Walk to School Day,” an officially recognized “Bike to Work Day” event can help encourage adult bicycling use and increase bicycling awareness. Incentives for biking can come from both public agencies and private businesses. Organized rides can add safety in numbers during the event. More information can be found at www.bikeleague.org.



Creating a Walk to School Day will allow parents and children to think more about sidewalks and paths in their neighborhood.

Police Walking and Biking Education

To combat potential stigmatization against walking and bicycling in the area and to reinforce current laws and policies that involve non-motorized transportation rules, public officials and police officers should be encouraged to partake in a “rules of the complete street” class. This lecture can be provided by Kentucky State Bureaus, walking and biking experts within KYTC, or within local police departments themselves. Classes not only help police become more aware of pedestrians and bicyclists, but also can also help educate the public about legal and illegal activities while walking and biking.

Tactical Urbanism and Pop-up Events

Many communities around the country are embracing tactical urbanism or inexpensive and temporary interventions that change the built environment. Concepts include temporarily closing a street to traffic (commonly referred as Open Streets), constructing parklets in on-street parking spaces, and creating pop-up retail shops, which are temporary stores that are set up in otherwise vacant storefronts. Although historically enacted by members of the community, public agencies can lead the charge on sponsoring events that enact these tactical placemaking tools.



Setting up parklets, or temporary sidewalk extensions at on-street parking spaces, can provide more amenities for pedestrians and increase pedestrian visibility. (Source: Mark Hogan, wikipedia.org)



Temporary installations like this neighborhood traffic circle are inexpensive ways to test out potential design solutions.

7.6.2. Policy

Policy modifications have the potential to make streets more accessible and comfortable for pedestrians and cyclists. This section presents some policy efforts that should be prioritized.

Reducing Posted Speed Limits

Reducing posted speed limits to slow vehicular traffic can decrease the chance of fatal pedestrian and bicycle accidents. According to the *Chicago Forward Department of Transportation Action Agenda*, a pedestrian is 95 percent likely to survive a crash when the motor vehicle is traveling at 20 mph, but is only 55 percent likely to survive a crash with a motor vehicle traveling at 30 mph.

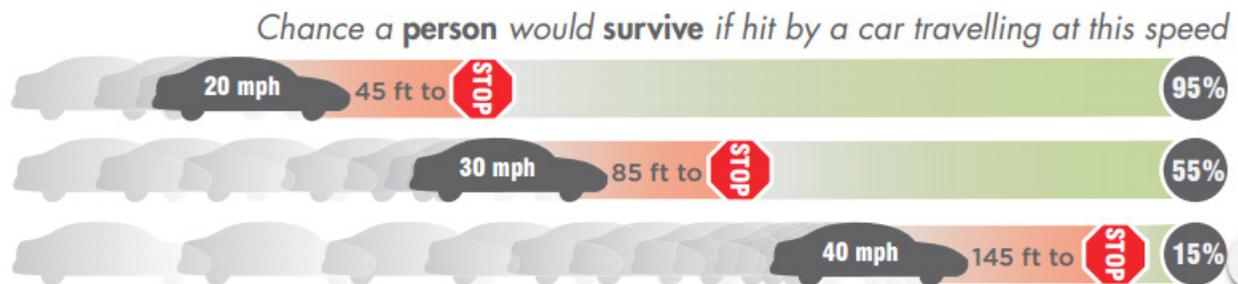
Several highly traveled bike and pedestrian corridors, including 29th Street in Ashland, have posted speed limits higher than 25 mph. Cities in Boyd and Greenup Counties should explore the reduction of posted speed limits on local and arterial streets, especially in areas near commercial destinations and schools. Reducing posted speed limits on local streets to 25 mph or less may be possible, for instance, without adversely affecting motor vehicle flow and circulation. Consideration of all site-specific factors (such as adjacent land uses and destinations, intersection controls, daily traffic volumes, road type and function, site lines, grades, and others) should occur before making any speed limit reductions. Please refer to the Federal Highway Administration’s report *Methods and Practice for Setting Speed Limits: An Informational Report* for additional information (http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwas12004/fhwas12004.pdf).

Complete Streets Ordinances and Policies

A great way to ensure that new transportation projects include infrastructure elements for bicyclists and pedestrians is through a complete streets policy. These streets are designed to add safety and comfort for bicyclists, pedestrians, transit vehicles, and motorists alike.

Currently, Raceland and South Shore in Greenup County both have complete streets ordinances that requires new road construction to consider and build sidewalks and other infrastructure. The City of Ashland conducted a resident survey about complete streets in 2013 and although more than 95 percent of respondents agreed that a safe streets policy should be in place, Ashland has not passed a complete streets ordinance as of the writing of this Non-Motorized Transportation Plan.

It is recommended that all cities and towns in the region enact complete streets to ensure safety and comfort for all users.



Source: *Chicago Department of Transportation Chicago Forward Action Agenda* (<http://chicagocompletestreets.org/wp-content/uploads/2016/02/Chicago-Forward-Action-Agenda.pdf>)

ADA Transition Plan

ADA-compliant sidewalk curb ramps are vital pieces of the sidewalk network, especially in populated communities like Ashland, Flatwoods, Raceland, and Russell. Either in association with the two-county area or with the KYOVA Metropolitan Planning Organization, an ADA Transition Plan should be established to direct the long-term rollout of accessible ramps. Since requiring curb ramps along pedestrian-traveled routes are required by the United States Department of Justice, it is important that all ramps be addressed in a scheduled manner.

Education and Awareness Efforts

During the public engagement process for the Non-Motorized Transportation Plan, most comments received listed a desire to educate motor vehicle drivers on how to interact with pedestrians and bicyclists. Increasing the number of pedestrians and bicyclists on streets and improving infrastructure for walkers and bicyclists will increase the need for education of all transportation users. Walking and biking become more comfortable as the number of non-motorized travelers increase.

In order to make non-motorized transportation more accessible, convenient, and safe, it is vital that all users are educated about the rules of the road. Currently, Kentucky offers several resources for transportation education. Kentucky's "Share the Road" and a "Toward Zero Deaths Kentucky" program provide educational resources to motorists, pedestrians, and bicyclists on how to properly and safely interact. Louisville also has a program called "Look Alive Louisville" that raises awareness on how pedestrians and motorists can interact safely.

The key to safe interaction between all modes of transportation is understanding, awareness, visibility, and predictability. This means the following for all users:

- ▲ Users are aware of their rights and responsibilities, and the rights and responsibilities of those using other travel modes
- ▲ Motorists are aware of and looking out for pedestrians and bicyclists and vice versa. Awareness improves the time it takes to react and anticipate the behavior of other users
- ▲ All users can easily see each other and visibility is otherwise not obstructed. Visibility is paramount. Facility and infrastructure design often has a lot to do with how visible users are, particularly at intersections and other conflict points
- ▲ Users are behaving in a consistent and predictable manner, in accordance with rights and responsibilities

Media campaigns can help raise awareness of other modes of transportation as well as of rights and responsibilities for road users. Radio, television, signage, and print advertising can help increase a campaign's profile. Troy Hearn, Pedestrian and Bicycle Coordinator at the State of Kentucky ([502] 564-7183 x3297), should be contacted about current resources and opportunities for education. Incorporating safety and education programs into driver's education, youth, and school programs helps to make a sustained impact on improving the interaction between all modes for years to come.

7.6.3. Year-Round Maintenance of Facilities

Proper maintenance of non-motorized infrastructure will ensure that all users of a facility will be able to use it throughout the year. Busy roadways with paved shoulders, such as US Highway 23 in both Boyd and Greenup counties, usually have loose gravel and other debris on areas where bicyclists often traverse. A consistent street cleaning schedule that includes shoulder maintenance will ensure bicyclists can use the shoulders safely. In addition to shoulder maintenance, sidewalks at road intersections and their associated crosswalks

should be consistently cleared of debris to allow safe maneuvering for pedestrians and individuals with mobility impairments. Public agencies also should encourage and incentivize residents to plow their sidewalks during and after snowstorm events.

In order to effectively and efficiently maintain identified and marked walking and biking facilities, counties and local jurisdictions should establish formal maintenance plans. These plans should clearly articulate who will do the maintenance, when it will be done, and how it will be performed and funded. In many communities throughout Kentucky, parks and recreation departments perform much of the maintenance on walking and biking facilities. It is helpful for maintenance plans to identify priority routes for maintenance. The Kentucky Transportation Cabinet



Street sweepers, like this one in Collierville, TN, are able to sweep up to the curb line, therefore ensuring a clean street for both vehicles and curbside cyclists. (Source: collierville.com)

(KYTC)-approved quantitative index assessment of bicycle facility comfort is a useful way to help identify the most comfortable bicycle routes as priority routes for maintenance. A description of the Bicyclists Comfort Index (BCI) process is included in this report's Appendix.

The maintenance of pedestrian and bicycle infrastructure on roads under state jurisdiction (non-local roads such as US highways, state highways, etc.) is the responsibility of the local jurisdiction and not the state. The local jurisdiction should complete a signed maintenance agreement with the state outlining these local maintenance responsibilities. A sample maintenance agreement can be found in this report's appendix.

7.6.4. Enforcement

Not only should enforcement agencies refresh and learn the rules of the road for motor vehicles, but they also should understand the associated state pedestrian and bike laws and regulations. Police officers and other enforcement agencies also should encourage and educate on proper facility use. Recently, a local enforcement agency created a "reverse ticketing"

event, where police officers would hand out prizes to individuals who crossed a street in a legal intersection and bicyclists who properly maneuvered through intersections. Events like this not only reinforce good behavior, but also encourages continued proper use of facilities, which should create a safer environment overall.

8 Implementation and Financing Plan



The Implementation Plan included here identifies select walking and biking infrastructure and non-infrastructure improvements to prioritize for implementation.

Walking and biking improvements (illustrated in Figures 8.1-8.4 and labeled in Tables 8.1 and 8.2) were prioritized based on one or more of the following criteria:

1. The improvement will connect two or more significant destinations
2. The improvement will improve the comfort and connectivity for walking and biking in an area heavily used by pedestrians and bicyclists
3. Strategic opportunities exist that would make it easier to implement the improvement

With limited financial resources, the prioritized improvements in Table 8.1 should be the focus of planners and public officials to obtain the greatest benefit relative to the cost expended. Priority improvements identified for the near-term can be achieved relatively quickly and with a low financial investment. Priority recommendations included in the table should be incorporated into applicable capital improvement plans.

Implementation and planning cost estimates for each priority recommendation are included in the table and are based on the unit cost estimates summarized in Table 8.2. In general, design costs, which include construction planning, public process, facility design, and other background work required to implement the project, are estimated to be 40 percent of facility construction cost.

Infrastructure recommendations presented are a subset of the recommendations presented in Section 7.



A well-defined plan for implementing walking and biking improvements should integrate with existing capital improvements and maintenance plans, seeking outside funding support where necessary. This will increase the likelihood that facilities are actually installed and utilized.

Disclaimer on Costs

Costs presented here are opinions of probable costs only and are based on best available unit costs at the time of the study. Unit costs may vary based on current economic conditions and/or specific site conditions for each project. Actual final design and construction costs will vary based on final design and review of each project by a professional engineer. Costs presented are for the construction of the specific pedestrian or bicycle facility recommended ONLY and DO NOT include ancillary costs such as earthwork, excavation, or the construction or reconstruction of adjacent road infrastructure outside of the pedestrian or bike facility. Additional costs not presented here may include pre-construction costs such as property purchase or acquisition expenses, and costs associated with the public outreach and advance notification process.

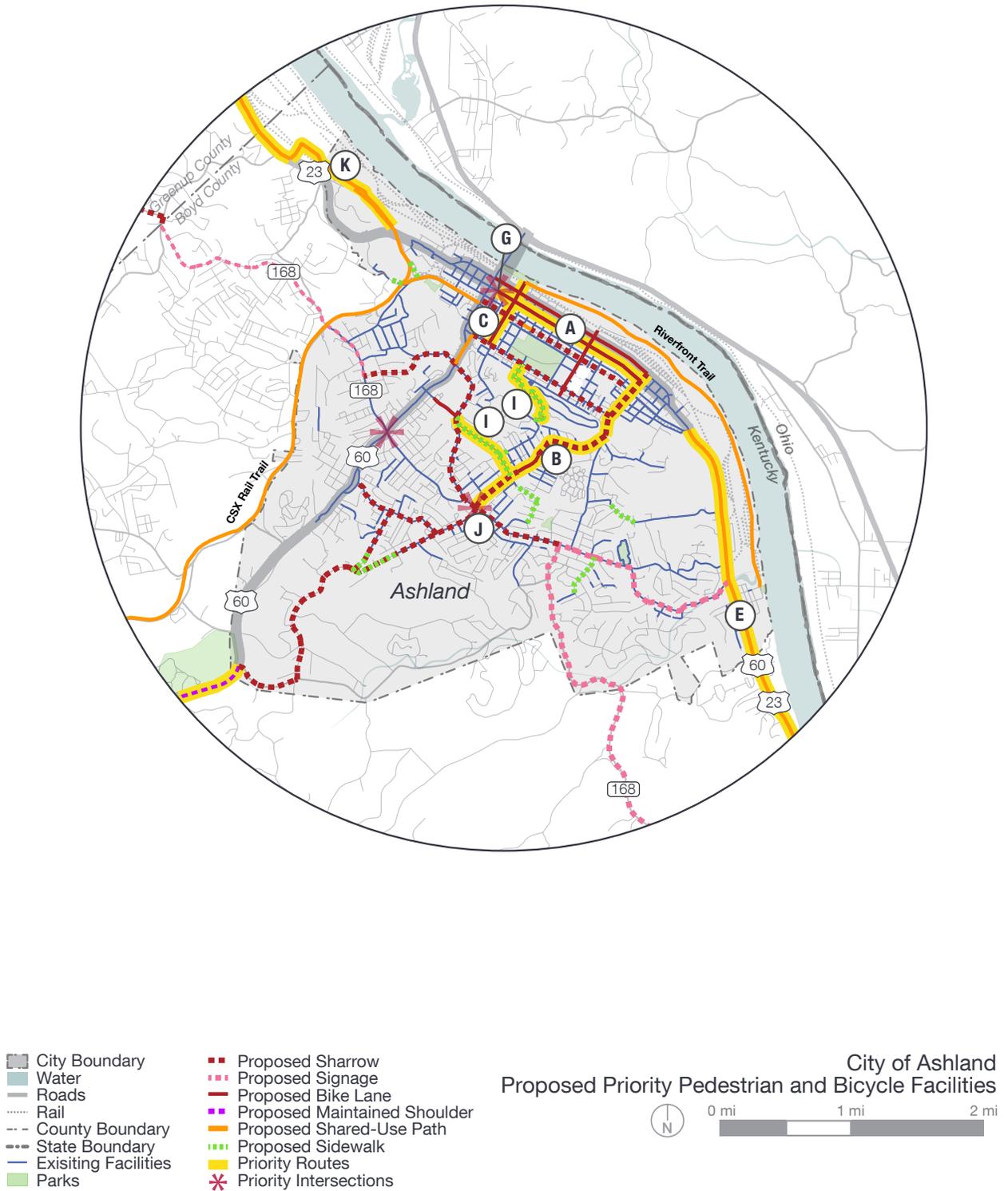


Figure 8.1. Priority Pedestrian and Bicycle Recommendations in the City of Ashland

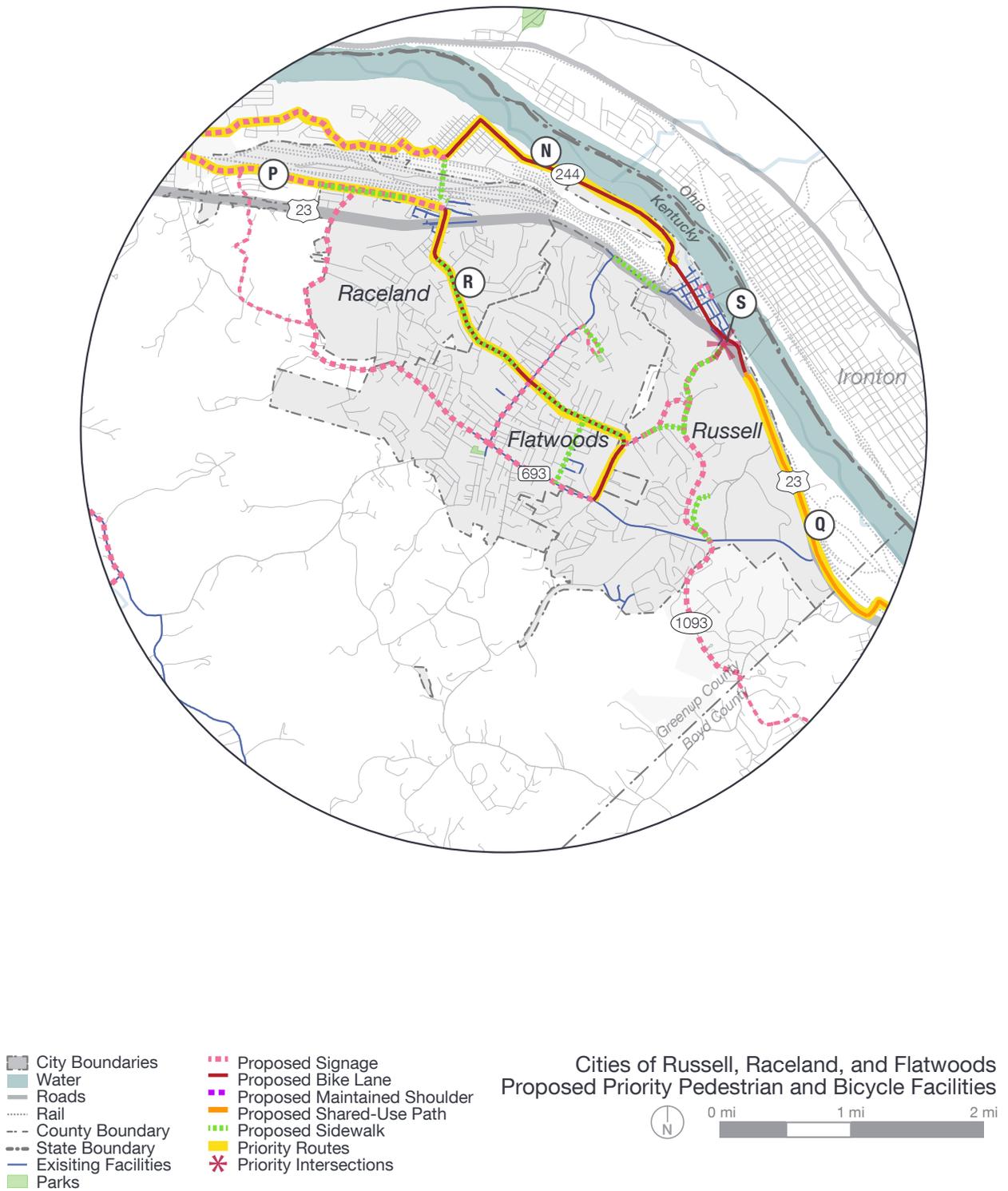
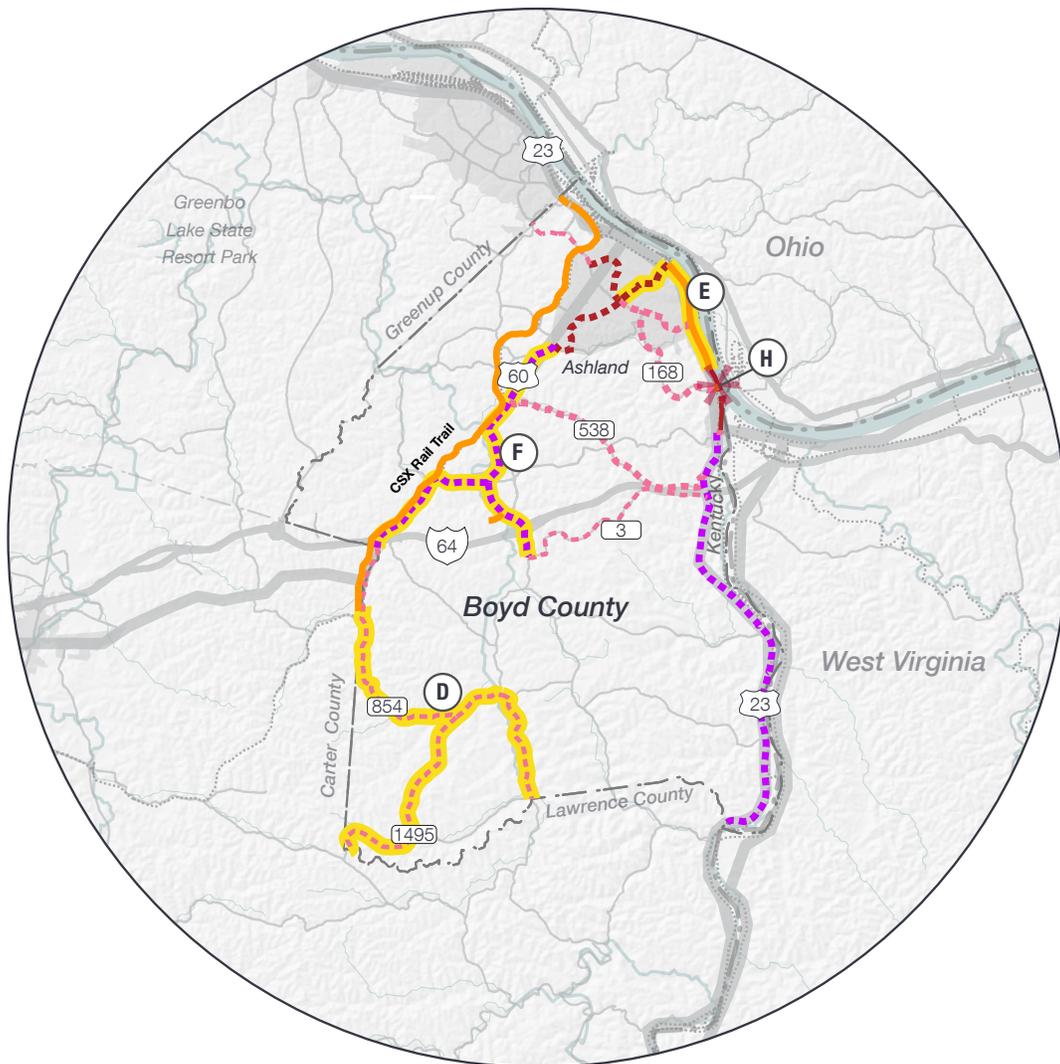


Figure 8.2. Priority Pedestrian and Bicycle Recommendations in the Cities of Russell, Raceland, and Flatwoods



Boyd County
 Proposed Priority Bicycle Facilities

City Boundaries
 Water
 Roads
 Rail
 County Boundary
 State Boundary
 Parks
 Proposed Sharrow
 Proposed Signage
 Proposed Bike Lane
 Proposed Maintained Shoulder
 Proposed Shared-Use Path

N
0 mi
4.5 mi
9 mi

Figure 8.3. Priority Pedestrian and Bicycle Recommendations in Boyd County

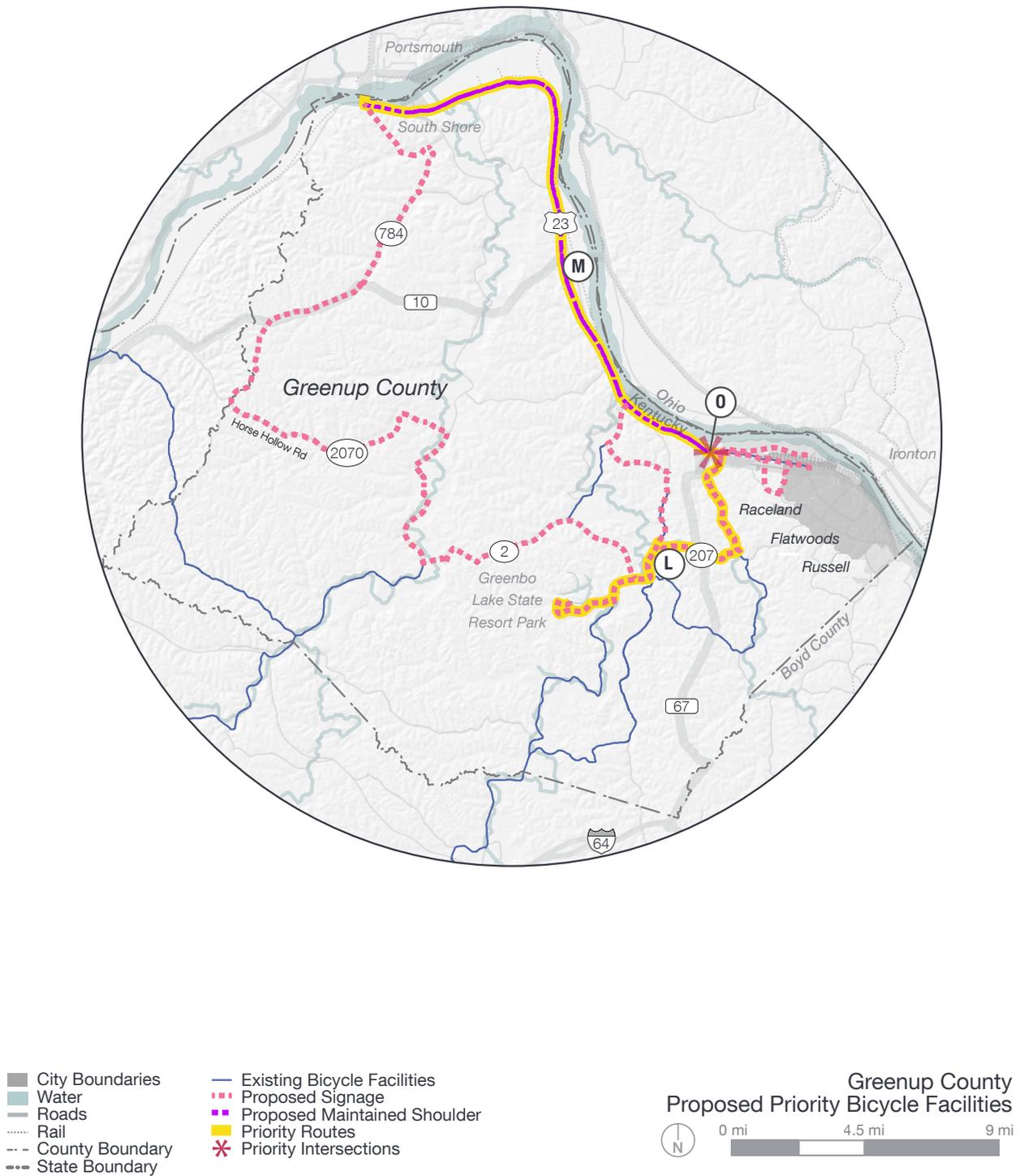


Figure 8.4. Priority Pedestrian and Bicycle Recommendations in Greenup County

This plan recommends making the priority improvements in the table below with a phased approach that focuses initially on the recommended short-term (0 to 2 years) improvements, and progressing from there. Implementing these improvements will help increase pedestrian and bicycle awareness among residents and build momentum for additional improvements as opportunities present themselves.

Table 8.1. Boyd County Implementation Plan

A. Winchester Avenue from 29th Street to 13th Street (bridge)

Walking or Biking	Biking	
Length	1.3 miles	
Type	Corridor	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	City of Ashland	
Description	<ul style="list-style-type: none"> ▲ Restripe roadway from 4 lanes to 3 lanes, paint 5-foot (minimum) bike lanes in each direction ▲ Add 2- to 3-foot buffer between travel and bike lanes (costs only include bike lane striping) 	
Other Guiding Policies/Programs	2013 Ashland Comprehensive Plan, Ashland Parking Study	
Recommended Next Steps	▲ Coordinate with KYTC, City of Ashland; Conduct traffic analysis at intersections with 12th Street and 13th Street	
Assumptions	▲ Cost estimate includes bike lanes in each direction	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$61,000	\$24,400	\$85,400

B. 29th Street, Greenup Avenue to Blackburn Avenue

Walking or Biking	Walking and Biking	
Length	1.8 miles	
Type	Corridor	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	City of Ashland	
Description	<ul style="list-style-type: none"> ▲ Paint 4-foot (minimum) bike lanes between Holt Street and Newman Street ▲ Paint sharrows and add signage between Newman Street and Greenup Avenue ▲ Add bike lanes in conjunction with 29th Street expansion between Herman Avenue and Belmont Street 	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with utility project, City of Ashland	
Assumptions	▲ Cost estimate includes bike lanes in each direction	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$15,000	\$6,000	\$21,000

C. 15th Street, Lexington Avenue to Riverfront Park

Walking or Biking	Biking	
Length	0.5 miles	
Type	Corridor	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	City of Ashland	
Description	▲ Add minimum 4-foot bike lane where feasible, add sharrows between bike lane segments from Lexington Avenue to Riverfront Park	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with the City of Ashland	
Assumptions	▲ Bike lanes, sharrows on roadway	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$13,300	\$5,200	\$18,200

D. Signed routes near Rush, Route 854

Walking or Biking	Biking	
Length	18.2 miles	
Type	Corridor	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	Boyd County	
Description	▲ Add official signage around southern Boyd County roads along popular recreational cycling areas	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with KYTC	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$30,000	\$12,000	\$42,000

E. US Highway 23/60 from Railroad Avenue (Ashland) to Center Street (Catlettsburg)

Walking or Biking	Walking and Biking	
Length	2.6 miles	
Type	Corridor	
Timeframe	Medium-Term (2 to 5 years)	
Lead Responsibility	Cities of Ashland, Catlettsburg	
Description	▲ Construct shared-use path (SUP) in conjunction with US 23/60 reconstruction	
Other Guiding Policies/Programs	None	
Recommended Next Steps	<ul style="list-style-type: none"> ▲ Coordinate with cities, USDOT, KYTC ▲ Keep an eye on Scenic Biway Funds 	
Assumptions	<ul style="list-style-type: none"> ▲ SUP on one side of the street ▲ No crossing signals needed 	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$825,000	\$330,000	\$1,155,000

F. Maintenance along US 60, US 23

Walking or Biking	Biking	
Length	TBD	
Type	Corridor	
Timeframe	Medium-Term (2 to 5 years)	
Lead Responsibility	Boyd County	
Description	▲ Establish shoulder maintenance plan for arterial routes; sweep paved shoulders during 9 months of the year along US Highway 60 and 23	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with KYTC, City of Ashland	
Assumptions	▲ Cost estimate includes shoulder maintenance in each direction	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
Costs to be determined based on final length to be maintained. The Wichita, KS Planning Level Cost Estimator estimates sweeping costs to run \$34 per mile.		

G. Winchester Avenue and 12th Street

Walking or Biking	Walking	
Length	N/A	
Type	Intersection	
Timeframe	Medium-Term (2 to 5 years)	
Lead Responsibility	City of Ashland	
Description	<ul style="list-style-type: none"> ▲ Add lead pedestrian interval on signal ▲ Reconstruct corners to reduce radii on east side of intersection 	
Other Guiding Policies/Programs	None	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$8,500	\$3,400	\$11,900

H. Route 168 and US Highway 23/60

Walking or Biking	Walking	
Length	N/A	
Type	Intersection	
Timeframe	Medium-Term (2 to 5 years)	
Lead Responsibility	City of Ashland, Boyd County	
Description	<ul style="list-style-type: none"> ▲ Reconstruct intersection with ped signal ▲ Upgraded sidewalk ramp to pedestrian tunnel under rail tracks to Catlettsburg 	
Other Guiding Policies/Programs	SRTS funding in 2016-2019 KYOVA TIP	
Recommended Next Steps	▲ Coordinate with US23/60 reconstruction	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$55,000	\$22,000	\$77,000

I. Various sidewalk implementations (Ashland Avenue from Hilton Avenue south over bluffs, Moore Street from 29th Street to Oakview Road, etc)

Walking or Biking	Walking	
Length	0.6 miles each segment	
Type	Corridor	
Timeframe	Medium-Term (2 to 5 years)	
Lead Responsibility	Ashland, Catlettsburg	
Description	▲ Construct sidewalks along busy roadways; connect incomplete sidewalk segments where appropriate	
Other Guiding Policies/Programs	SRTS funding in 2016-2019 KYOVA TIP	
Recommended Next Steps	▲ Coordinate with the City of Ashland	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$18,000	\$7,200	\$25,200

J. 29th Street and Blackburn Avenue

Walking or Biking	Walking and Biking	
Length	N/A	
Type	Intersection	
Timeframe	Long-Term (5+ years)	
Lead Responsibility	City of Ashland	
Description	▲ Reconstruct intersection to better accommodate pedestrians and bicyclists using design best practices	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with the City of Ashland, KYTC	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
Costs to be determined after specific treatments are identified.		

K. US Highway 23 from Ashland (7th Street) into Greenup County

Walking or Biking	Walking and Biking	
Length	1.9 miles	
Type	Corridor	
Timeframe	Long-Term (5+ years)	
Lead Responsibility	Boyd County	
Description	▲ Establish shared-use path connection along U.S. Highway 23 between Boyd and Greenup Counties	
Other Guiding Policies/Programs	None	
Assumptions	▲ Enact corridor study through future KYOVA TIP or grant funds	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$1,203,840	\$481,536	\$1,685,376

Table 8.2. Greenup County Implementation Plan

L. Route 503, Route 207, Route 1 from US Highway 23 to Greenbo Lake State Resort Park

Walking or Biking	Biking	
Length	9.8 miles	
Type	Corridor	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	Greenup County	
Description	▲ Add bike route signage along popular EK Bikeway route to Greenbo Lake State Resort Park	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with KYTC	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$15,680		\$15,680

M. Maintenance along US 23

Walking or Biking	Biking	
Length	20.9 miles	
Type	Corridor	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	Greenup County	
Description	<ul style="list-style-type: none"> ▲ Establish shoulder maintenance plan for arterial routes ▲ Sweep paved shoulders during 9 months of the year along US Highway 23 	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with KYTC	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
Costs to be determined based on final length to be maintained. The Wichita, KS Planning Level Cost Estimator estimates sweeping costs to run \$34 per mile.		

N. Riverside Boulevard/Russell-Worthington Road

Walking or Biking	Biking	
Length	5.8 miles	
Type	Corridor	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	Greenup County	
Description	<ul style="list-style-type: none"> ▲ Reconstruct shoulder to add bike lanes between Worthington and Russell ▲ Add official bike signage along EK Bikeway route between Wurtland and Worthington 	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with KYTC, Cities of Worthington, Russell	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$9,284		\$9,284

O. Route 503 and US Highway 23

Walking or Biking	Biking	
Length	N/A	
Type	Intersection	
Timeframe	Short-Term (0 to 2 years)	
Lead Responsibility	Greenup County	
Description	<ul style="list-style-type: none"> ▲ Reconstruct intersection with tighter turning radii ▲ Add bike crossing push button (coordinate with future signal implementation) 	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with KYTC	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
Costs to be determined after specific treatments are identified.		

P. Greenup Avenue/Wurtland Avenue from Raceland to Wurtland

Walking or Biking	Biking	
Length	3.4 miles	
Type	Corridor	
Timeframe	Medium-Term (2 to 5 years)	
Lead Responsibility	Raceland, Greenup County	
Description	▲ Add bike route signage along popular EK Bikeway route between Raceland and Wurtland	
Other Guiding Policies/Programs	None	
Recommended Next Steps	▲ Coordinate with the City of Raceland, KYTC	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$5,440		\$5,440

Q. US Highway 23 from Boyd County to New Ironton Bridge, Russell

Walking or Biking	Walking and Biking	
Length	1.8 miles	
Type	Corridor	
Timeframe	Long-Term (5+ years)	
Lead Responsibility	Greenup County	
Description	▲ Establish shared-use path connection along U.S. Highway 23 between Boyd and Greenup Counties. This recommendation is corresponding with Route K.	
Other Guiding Policies/Programs	Yes	
Recommended Next Steps	▲ Coordinate with Russell, Greenup County, KYTC ▲ Conduct corridor study	
Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$1,140,480	\$456,192	\$1,596,672

R. Powell Lane/Lexington Avenue/Raceland Avenue from Russell High School to Raceland

Walking or Biking	Walking and Biking
Length	2.6 miles
Type	Corridor
Timeframe	Long-Term (5+ years)
Lead Responsibility	Flatwoods, Raceland
Description	<ul style="list-style-type: none"> ▲ Construct contiguous sidewalk on one side of corridor ▲ Implement bike route signage between US Highway 23 and Russell High School
Other Guiding Policies/Programs	None
Recommended Next Steps	▲ Coordinate with Cities of Raceland and Flatwoods, KYTC

Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$122,760	\$49,104	\$171,864

S. Kenwood Drive and US Highway 23

Walking or Biking	Walking
Length	N/A
Type	Intersection
Timeframe	Long-Term (5+ years)
Lead Responsibility	Russell
Description	<ul style="list-style-type: none"> ▲ Add rectangular rapid flash beacon (RRFB) signal ▲ Upgrade sidewalks ▲ Construct ADA ramps and add continental crosswalk across US Highway 23
Other Guiding Policies/Programs	None
Recommended Next Steps	▲ Coordinate with KYTC

Estimated Implementation Costs	Planning, Design and Contingency	Total (2015 dollars)
\$57,000	\$22,800	\$79,800

7.1. Improvement Unit Costs

Estimated unit costs for making relevant pedestrian and bicycle improvements are included in Tables 8.2, 8.3, and 8.4. Note that costs presented here are estimates according to available sources and are presented assuming the use of paint as opposed to thermoplastic. Painted treatments are recommended to be repainted annually, while thermoplastic may last 3 to 5 years. While thermoplastic has a longer lifespan, capital costs are often two to four times higher than painted treatments.

Final costs will vary and will be determined by the specific real-life conditions and circumstances at the locations of the improvements. A formal estimate from a professional engineer is recommended to determine true costs.

After initial capital investments to install walking and biking infrastructure, funds should be allocated to ongoing facility maintenance and upkeep. This includes street sweeping, plowing, symbol repainting and replacement, sign replacement, and other costs. Annual maintenance and replacement costs should be incorporated into municipal and county maintenance plans with appropriate funds allocated.

The maintenance of pedestrian and bicycle infrastructure on roads under state jurisdiction (non-local roads such as US highways, state highways, etc.) is the responsibility of the local jurisdiction and not the state. The local jurisdiction should complete a signed maintenance agreement with the state outlining these local maintenance responsibilities. A sample maintenance agreement can be found in the Appendix.

Several resources are available for more information about unit capital and maintenance costs of different types of pedestrian and bicycle infrastructure improvements. These resources should be used as estimates only:

- ▲ Wichita, Kansas Planning Level Cost Estimator (Appendix C)
- ▲ UNC Highway Safety Research Center, Costs for Pedestrian and Bicyclists Infrastructure Improvements
 - ▲ PedBikeInfo Database of costs

Table 8.2. Bicycle Improvements

Item	Material	Unit	Cost	Source/Notes
6-inch white lane striping		Per linear foot	\$1.57	http://www.pedbikeinfo.org/data/library/details.cfm?id=4873
Bike stencil/bike lane symbol with arrow	Paint	Per symbol	\$169.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4874
Bike stencil/bike lane symbol with arrow	Thermoplastic	Per symbol	\$520.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4875
Bike sharrow symbol	Paint	Per symbol	\$180.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4876
Bike sharrow symbol	Thermoplastic	Per symbol	\$300.00	
Bike sign		Per sign	\$160.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4878
Inverted U bicycle parking		Per stall	\$660.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4879
Buffered bike lane (3' buffer w/ hatch)		Per linear foot	\$5.10	http://www.pedbikeinfo.org/data/library/details.cfm?id=4880
Cost per mile of standard painted bike lane			\$18,909.20	<p>Notes</p> <ul style="list-style-type: none"> ▲ Assumes both sides of the street and no on-street parking ▲ Assumes paint as opposed to thermoplastic ▲ Assumes 5 painted markings and 2 signs in each direction per mile
Cost per mile of painted buffered bike lane			\$56,186.00	<p>Notes</p> <ul style="list-style-type: none"> ▲ Assumes both sides of the street and no on-street parking ▲ Assumes paint as opposed to thermoplastic ▲ Assumes 5 painted markings and 2 signs in each direction per mile

For guidance on cost per mile of bike facilities, refer to the City of Wichita, KS, Planning Level Cost Estimator. This guidance lists accurate non-motorized costs and descriptions of these costs.

8.3. Pedestrian Improvements

Item	Material	Unit	Cost	Source/Notes
Sidewalk	Concrete	Per cubic yard	\$40.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4870 Notes ▲ Average cost for concrete sidewalk and sidewalk with curb
5' wide crosswalk		Per linear foot		http://www.pedbikeinfo.org/data/library/details.cfm?id=4871
5' wide crosswalk		Per linear foot	\$6.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4872
Rectangular rapid flash beacon (RRFB)		Per unit	\$50,000.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4873
Pedestrian hybrid beacon		Per unit	\$58,000.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4874
Leading pedestrian interval signal modification		Per unit	\$175,000.00	http://www.lexingtonky.gov/Modules/ShowDocument.aspx?documentid=21225
Pedestrian push button		Per unit	\$350.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4876
Pedestrian bump out		Per unit	\$13,000.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4877
New curb and gutter			\$30.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4877
Speed hump		Per unit	\$2,640.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4878
Pedestrian refuge island		Per square foot	\$10.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4879
ADA curb ramp		Per unit	\$2,000.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4880
Lighting		Per unit	\$4,800.00	http://www.pedbikeinfo.org/data/library/details.cfm?id=4881 Notes ▲ \$10,000 to \$42,000 per crosswalk

Table 8.4. Per Mile Costs

Improvement	Type	Cost per mile	Cost
Bike lanes	Pavement marking	\$169.00	\$1,690.00
	Striping	\$1.57	\$16,579.20
	Signs	\$160.00	\$640.00
	Total Per Mile		\$18,909.20 (both sides)
Buffered bike lanes	Pavement marking	\$169.00	\$1,690.00
	Buffer	\$5.10	\$53,856.00
	Signs	\$160.00	\$640.00
	Total Per Mile		\$56,186.00 (both sides)
Shared-use path	Pavement, excavation, etc., per linear foot (assumes 12-foot pavement)	\$60.00	\$633,600.00
	Total Per Mile		\$633,600.00 (both sides) \$316,800.00 (one side)
Sidewalk	Pavement, excavation, etc., per linear foot (assumes 5-foot pavement)	\$20.00	\$211,200.00
	Total Per Mile		\$211,200.00 (one side)
Sharrows	Pavement marking	\$169.00	\$1,690.00
	Signs	\$160.00	\$640.00
	Total Per Mile		\$2,330.00 (both sides)

All Public Engagement Comments

All comments received at the public workshop:

- ▲ Diedrich Blvd High speed 4 lane road great sidewalk-but shared walk run bikes Need safety connect city park
- ▲ great quiet roads flat Cannot get from Flatwoods Russell across 23 US Hwy
- ▲ Greenup Ave/River cannot feel safe No bike lane/signs High Speed by Pass
- ▲ Aggressive drivers need more education on cyclists rights
- ▲ Improvements to covered bridge and new pavement on Fraziers Branch
- ▲ Direct connection between Raceland-Worthington thru tunnel
- ▲ New EK Bikeway Trail Head
- ▲ Traffic control on bike path...
- ▲ Improved bike/walking paths
- ▲ Needs bike lane
- ▲ Bike Lane US 23 to Cat-Lettsburg
- ▲ Needs bike lane marking & riding lane (road shoulder) kept clear of gravels and small rocks, etc. From state route 5 to downtown Ashland
- ▲ Bike lane marked along US 23 from Ashland to South Shore with regular sweeping of the bike lane to keep it clear of gravel
- ▲ I would like to see a better way to connect downtown Ashland to Russell
- ▲ Better traffic control on downtown streets. Angled parking? (Winchester Ave)
- ▲ Better driver education (aggressive drivers)
- ▲ Promote activities with/at state park
- ▲ Keep bridge swept to connect Ohio & KY Routes
- ▲ Possible bike lane from wortland-south Portsmouth to protect cycests from aggressive drivers on US23
- ▲ US parkway/bikepath parallel to Via Duct on US 23
- ▲ Clean shoulders on bridge to allow cyclists improved safety crossing from/to Ohio
- ▲ Add possible bike lane from Cotesburg to RT 257 Int.
- ▲ Keep shoulder swept
- ▲ Need to keep shoulder along US23 cleared and made available to bicyclists
- ▲ Kenwood Drive from Geslind Rd to Diedrich Blvd there is no sidewalk or walking trail.
- ▲ Argillite Road thru Flatwoods out Rt. 207
- ▲ Powell lane Flatwoods needs side walk finished from Red Devil to Argillite
- ▲ Need bridge need bike/ped access KY to OH.
- ▲ Improve sidewalk along US 23 Russell to Wheelock Hill. Plus add bike lane Russell to Raceland on US 23
- ▲ Need bike lane
- ▲ Bike lanes
- ▲ Keep shoulder of 23 cleaner
- ▲ New pavement
- ▲ Driver problems
- ▲ Stop sign on bike route
- ▲ Cut out on speed bumps
- ▲ Bike share
- ▲ New bridge intersection bike/walk
- ▲ Park
- ▲ New trailhead designation to come - state of KY
- ▲ Bicycle route crossing
- ▲ Bicycle route crossing
- ▲ Bicycle route crossing
- ▲ Light to go in
- ▲ Destinations
- ▲ Shoulders need to be maintained so could be used for bike route
- ▲ Asked Flatwoods to put Caution and Share the Road signs
- ▲ No sidewalk here going to school
- ▲ Sidewalk too close to US-23 & poor condition
- ▲ No sidewalk
- ▲ PSAs to raise awareness about cyclists

Sample Maintenance Agreement

Memorandum of Understanding for Extended Maintenance of Bicycle and Pedestrian Facilities

Between	The Kentucky Transportation Cabinet (KYTC)
and	The City of Frankfort

The Parties to this Memorandum of Understanding (MOU) agree to the following

Article 1: Purpose and Scope

This is an extended maintenance agreement and plan for the bike lanes along KY-676 in the city of Frankfort/Franklin County. The most common maintenance for a bike lane is sweeping or removing debris from the travel lane (bike lane). The removal of debris may include sweeping, blowing, scraping, shoveling, or scooping. Sweeping or cleaning of debris should be done on a regular schedule (monthly), after significant weather events (storms), or when significant demand has been received. The removal of dead animals shall be done in a timely manner (as this roadway is known to be a high deer strike area).

Article 2: Conditions and Arrangements

The multi-use path/sidewalk/bike lane along KY-676 shall be constructed by the Kentucky Transportation Cabinet and shall be maintain by the City of Frankfort Government.

Recommended Policy for Maintenance of Bicycle and Pedestrian Facilities

Maintenance of bike lanes/sidewalks within city limits is the responsibility of the city. Maintenance of bike lanes/sidewalks outside city limits is the responsibility (KYTC; if the KYTC constructed the facility.

Maintenance of facilities constructed by the fiscal court or city is the responsibility of that entity.

Maintenance by the KYTC is limited to repairing the surface, mowing, and clearing vegetation. This maintenance is on the same schedule as normal roadway maintenance.

Bicycle Lanes

Maintenance of bicycle lanes is considered incidental to normal KYTC roadway maintenance.

Maintenance by the KYTC is limited to repairing the surface, resurfacing, removing snow, striping, signing, and sweeping (if the KYTC normally sweeps the roadway). This maintenance is on the same schedule as normal roadway maintenance.

Shared Use Paths

Maintenance of shared-use paths is the responsibility of the local government.

Article 3:

This agreement shall be made final after the construction is finished and the two parties (KYTC and City of Frankfort) sign the MOU agreement.

Article 4:

This MOU shall be considered the extended agreement for all future bicycle and or pedestrian facilities that may be constructed by KYTC or for bicycle and or pedestrian facilities constructed along or on any roadway maintained by KYTC.

The present MOU elucidates the general conditions and arrangements for future cooperation between the concerned parties. It is not legally binding on the parties. The exact terms and conditions of this future cooperation will be negotiated in due course and laid down in a contract, should circumstances permit.

Signature:	_____
Signature:	_____
For and on behalf of:	_____
Date:	_____
For and on behalf of:	_____
Date:	_____

Procedure for Signing On-Road Bicycle Routes

This procedure applies to all projects or roadways that include a known bicycle facility. This procedure also applies to all state maintained highways or where bicycle routes are known, proposed, or have AASHTO approved United States Bike Routes.

These signs may be installed on portions of roadways where a significant volume of bicycle use exists or is anticipated. Because both Bicycle Route and Share the Road signing imply a degree of comfort and safety, their use by _____ must be in strict conformance with the following policy:

This is the data needed for evaluation:

- Documentation of significant bicycling demand for the route
- Identification of the portions of roadway requested for signing
- Identification of a contiguous route and/or a physical destination (include maps)
- Traffic volume and bicycle count information
- identification of the minimum roadway cross section available (travel lane and paved shoulder width)

Bicycle Route signs will only be installed if the following conditions are met:

1. Adherence to guidance for bicycle routes in accordance with AASHTO and MUTCD (from Guide for the Development of Bicycle Facilities, AASHTO Fourth Edition and Manual on Uniform Traffic Control Devices (MUTCD), FHWA latest version).
2. Roadway design in accordance with FHWA desirable standards (from Selecting Roadway Design Treatments to Accommodate Bicycles, FHWA-RD-92-073 Tables 4, 5, 6 latest versions). When truck, bus and RV volumes exceed 10% or over 150 ADT, use the appropriate table values.
3. Smooth, paved surfaces for the bicycle path of travel (with "bicycle safe" cascade drainage gates)
4. Desirable sight distances (measured from expected bicycle path of travel)
5. Consistent treatment (path of travel, signing, safety measures, etc.) throughout the signed corridor
6. Connection to a contiguous bikeway system, or a specified destination, at each end of the signed roadway route

7. Designated roadway crossings (crosswalks, signs, signals, etc.) where required, in accordance with MUTCD
8. Potential conflict with motor vehicles must be minimized

All state maintained roads: The route must be reviewed, assessed, and documented using the Kentucky Transportation Cabinet (KYTC) [Bicyclists Comfort Index \(BCI\)](#) analysis and submitted through the AASHTO/ACA bicycle route process and approved by the AASHTO bicycle route committee (for cross state or cross country routes).

Requests for Bicycle Route and/or Share the Road signing shall be submitted to the Chief Highway District Engineer in each highway district. The signage request is then to be forwarded to the Bicycle and Pedestrian Coordinator with KYTC.

For installation of Bicycle Route signing, absolute conformity with the criteria in this procedure is required; no waiver or exception process is available.

If absolute conformity is not provided, KYTC will consider installation of Share the Road signing only. These signs will be used to designate roadways which a significant number of bicycles will use or are currently using, but where full conformance with desirable design standards is not currently exist.

All selected bicycle and pedestrian facilities or roadways should include appropriate signage, markings, and/or signals and should conform to the MUTCD and the KYTC Department of Traffic Operations Guidance Manual.

- The Share the Road sign request (from an individual or group) should be directed through the Bicycle and Pedestrian Program in the Division of Planning.
- The Share the Road request form (**TC 59-101**) shall accompany the request.
- The Bicycle and Pedestrian Coordinator shall forward the request to the Division of Traffic Operations.
- The Division and District shall review the request and notify the Bicycle and Pedestrian Coordinator of their recommendation.
- The Bicycle and Pedestrian Coordinator shall notify the requesting agency of the results of the Cabinet's review.

Where KYTC determines that neither Bicycle Route nor Share the Road signs are permitted under this procedure, bicyclists shall still continue to use all roadways where bicycles are not legally prohibited (Interstates, Parkways, Toll Roads, and all other limited access roadways).

Example of Signage:



W11-1 / W16-1
Share the Road with Bicyclists assembly
Share the Road (plaque) W16-1P with W11-1 (bike symbol plaque),
Information found in Chapter 9 2009 edition of MUTCD



Bike Route (plaque) D11-1, information found in Chapter 9 2009 edition of MUTCD



(Plaque) D11-1bP

Bike Route



M1-9
USB (plaque) M1-9,
information found in Chapter 9 2009 edition of MUTCD

Process for Review, Development, and Assessment of a Quantitative Bicyclists Comfort Index (BCI)

Purpose: Describe the process to develop a qualitative analysis for KYTC-approved bicycle routes and the ability to compare routes that generally access the same destinations and logical termini. This assessment may also provide additional analysis of bicycle considerations for review of roadway projects. This is a quantitative assessment of the comfort level for bicyclists on a given section of roadway.

Process (for use with bicycle routes): Identify a proposed revision of a pre-existing bicycle route, analysis of the current route, the possible alternatives, and collect data for each. Primary source of information is highway district, followed by KY Bicycle and Bikeways Commission (KBBC), and local cycling interests. Ultimate goal is review of all US bicycle routes, submission of routes for approval, and any proposed revisions should be on a 2-5 year review schedule to Adventure Cycling Association and AASHTO. Public input will be in a later phase.

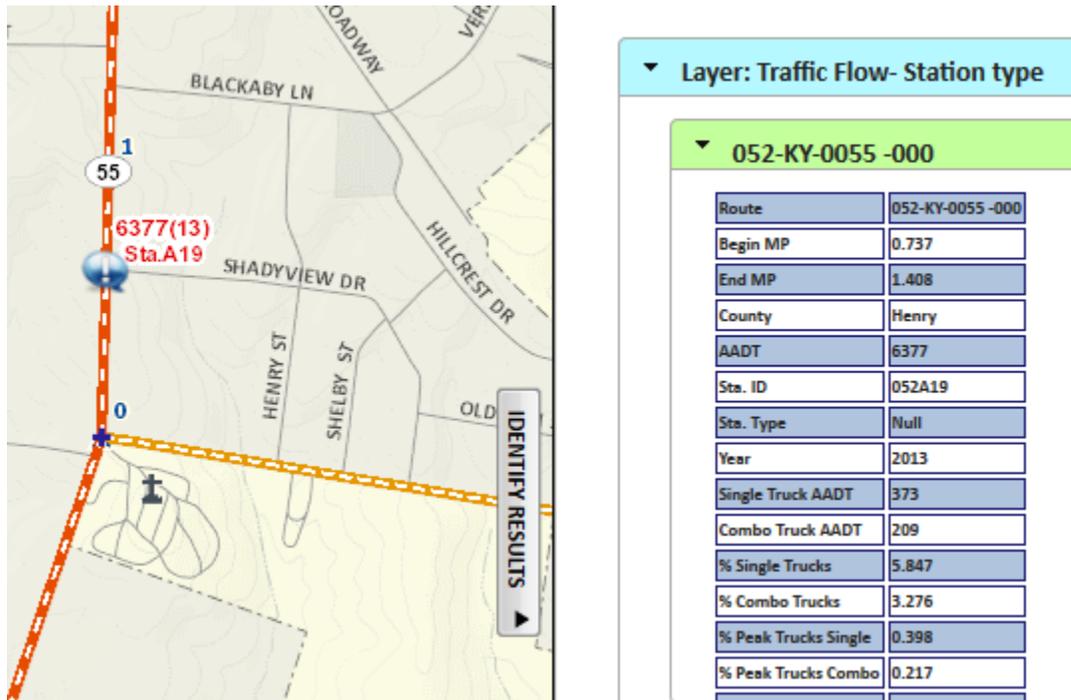
Process (for use with additional bicycle consideration for highway & roadway projects): Identify the current bicycle comfort index for a given roadway section with a quantitative assessment. This assessment can be used to show justification and examples for specific treatments that may improve the comfort level for bicyclists. Primary sources of information are highway districts, traffic forecasting and/or modeling, roadway project reviews, small urban transportation studies, and regional bicycle planning.

Data collection for each road segment for analysis of Bicyclists Comfort Index (BCI) rating:

- Primary factors:
 - ✓ Speed limit
 - ✓ Average daily traffic count (ADT)
 - ✓ Crash Rate (CRF)
 - ✓ Heavy Vehicle/Truck daily volume (HV)
 - ✓ Shoulder 6' or wider (allows for 4' of ride space with rumble)
- Secondary factors (can be used in urban areas)
 - ✓ Bike lane (add 1)
 - ✓ On Street Parking (subtract .5)

Publicly available sources of roadway data: Roadway information may be obtained from various KYTC websites.

- <http://maps.kytc.ky.gov/photolog/?config=TrafficCounts&MODE=APP> : Provides traffic counts and map view of selected roadway. Use the ID button (when zoomed in close enough) and you can get the data for heavy truck ADT%.



- <http://transportation.ky.gov/Planning/Pages/Centerlines.aspx>: Roadway centerline data (in shape file format) available for download. Data is updated on a weekly basis and can be used with the tables from the Highway Information System to create GIS shape files of the highway data. Information available in the shape file includes the following:
 - ✓ County - Franklin
 - ✓ Route type - US, KY, County Road - CR or City Street - CS
 - ✓ RT_Unique - 037-US-0421 -000
 - ✓ Begin Mile point of a segment from an intersection with another road to the next intersection with another road - 2.125
 - ✓ End Mile point of a segment - 2.125
 - ✓ Road Name where available - Pea Ridge Rd or Highway 60
 - ✓ Highway District – D2
- <http://maps.kytc.ky.gov/trafficcounts/>: Under Legend Tab > select point reference> turn on Route Log to show mile point at intersection.
 - ✓ County - Franklin
 - ✓ Route type - US, KY, County Road - CR or City Street - CS

- ✓ RT_Unique - 037-US-0421 -000
 - ✓ Begin Mile point of a segment - 2.125
 - ✓ End Mile point of a segment - 2.125
 - ✓ Average Daily Traffic Count – ADT
 - ✓ The year the count was recorded
- <http://maps.kytc.ky.gov/>: Select local roads > Interactive map displays information on county roads (CR).
- ✓ Local Road Name - Pea Ridge Rd
 - ✓ Local Road Number - 037-CR-1237 -000
 - ✓ Local Road begin and end mile points
- <http://maps.kytc.ky.gov/>: Select photo log > Interactive map displays the most recent photographs taken of many, but not all, state-maintained highways. Photographs may be viewed for a particular location or viewed as “driven” from a specified point on the map. This video viewer is also helpful to note the road conditions, presence of shoulders (3 foot or more), speed limits signs and warning signs (sharp curves).
- ✓ Direction - North
 - ✓ Date the photo was taken - Collection date 06-30-2011
 - ✓ Road signs – share the road, school, speed limit, etc
- <http://crashinformationky.org/KCAP/Public/Home.aspx>: This site, hosted by the Kentucky State Police, provides information on collisions within the state, but **DOES NOT** show the actual crash/critical rate factor. This website is developed and maintained by the **Kentucky State Police** to give the public the ability to analyze data related to collisions occurring in the state of Kentucky. This repository contains information gathered from collision reports submitted by Kentucky law enforcement agencies. The integrity of the data is dependent upon both the accuracy and frequency with which the data is entered and user’s interpretation. Therefore, no warranty, either expressed or implied, is given to the accuracy, completeness, reliability, or suitability for any particular purpose of the information contained in this website.
- ✓ Help/instructions:
<http://crashinformationky.org/KCAP/Reports/Public%20Collision%20Website%20Manual%20.doc>
 - ✓ Specific crash rate data (CRF) data must be obtained from the KY Transportation Cabinet

Using a reference of known pre-existing routes and knowledge from local cyclists and bike clubs can be a valuable resource.

Analysis to determine KY BCI:

- Currently we use this analysis tool in KYTC forecast reviews for new or proposed highway & roadway work
- The data has been collected and the information is being organized in order to complete a statewide BCI interactive mapping tool

Route review and/or determination: For use with United States Bicycle Routes

- Locate a current map of the route for an existing route.
- Locate or create turn by turn directions for the route
- Enter or convert the turn by turn directions into a spreadsheet with columns for the route number, road name, county name mile points, and, any other information available on the directions.
- Collect the roadway data for each segment of the route
- Official Route Number: This is a 17-character identifier used by the Transportation Cabinet to store all roadway attribute information. The first 3 digits identify the county, the prefix (US, KY, CR, or CS) describes the ownership or maintenance of the route, the route number is a 4-digit number left-padded with zeroes. For example, the RT_UNIQUE 037-US-0060 -000 is made up of the following data:
 - 037 is Franklin County
 - US indicates a US-numbered highway
 - 0060 means the route is US 60
 - There are 2 spaces after the 60 – those are a place holder for routes with suffixes such as US31E or US31WX (US 31W Business)
 - -000 indicates this is the mainline route. Roadway information is currently only collected and stored for mainline routes as opposed to non-cardinal or divided highways, spurs, connectors or intersection “Y” legs. So, only use the routes that end in -000 because those are mainline routes

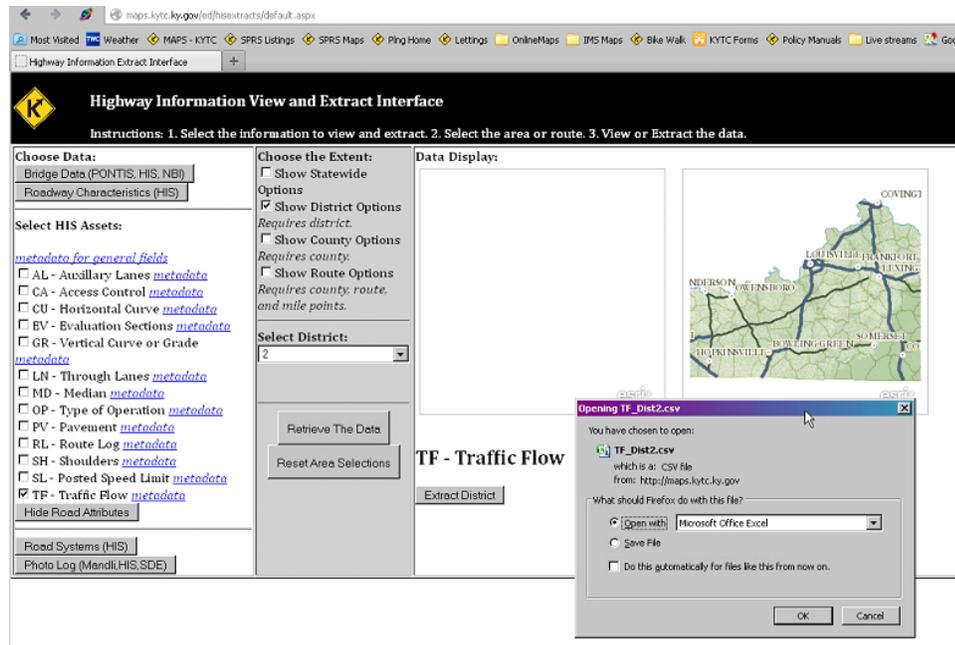
Begin mile point and End mile point: These mile points make up the Route Log and can be found on the traffic counts interactive map. (<http://maps.kytc.ky.gov/trafficcounts/>) Since the route should go from one intersection to another, you should **not** use the state .10 mile segments. Instead use the Route Log which shows the exact mile point at the intersection.) Using the legend tab on the left side of the map; click the arrow to the left of “Traffic Counts”, and then the arrow beside “Point Reference”. Then click the box to checkmark the Route Log layer. At every intersection, the map will label the route and its mile point (MP) at that location.

- Segment length: Add a column to the spreadsheet to calculate the difference between the mile points at the beginning and ending of the segment. For greater ease and accuracy in data collection and analysis, please define route

segments that are between 4 and 7 miles long. You may break a route segment between intersections if necessary and feasible to stay within this guideline. If possible, break the route segment at a change in traffic count or speed limit.

- Average daily traffic (ADT): This information is displayed on the traffic count interactive map referenced above or is available by download from the Highway Information Extract Interface. On the map, the count section begins and ends at a blue cross symbol. Between those symbols, there is a label in red text that shows:
 - The current traffic count
 - In parenthesis to the right of the count is the date that count was taken (generally each section is counted on a 3-year schedule)
 - The bottom line of text in the label indicates the KYTC identifier of the road section for traffic count purposes
- Speed limit: This information is only available for download from the Highway Information System View and Extract Interface. Under Roadway Characteristics (HIS), select SL – Posted Speed Limit. This information may also be found by viewing the photographs of the segment on the roadway photograph viewer and find the posted speed limit sign.
- Road name (Big Eddy Road): Match the road name in the turn by turn directions with the road name in the highway information. This information is available either on the traffic count interactive map or on the Local Roads interactive map. However, only the Local Roads interactive map allows identification of the local road and shows its unique route identifier. Add the RT_UNIQUE (route identifier) to the spreadsheet. (Note that the road name often changes when going into city limits and or another county. Also be aware that when riding the route, the road name sign may be missing or hidden.) The road name may also be viewed on the State Primary Road System maps in PDF format at <http://transportation.ky.gov/Planning/Pages/State-Primary-Road-System-Maps.aspx>
- Heavy Vehicle/Trucks Daily Volume (HV)/ Primary Factor: Below is a screen shot of how to query for count data of heavy truck volume (called Traffic Flow). It creates a comma-delimited file that you can open in Excel or retrieve data from page

(See below the image for how to calculate the truck volume from the data in the table)



If you use the HIS table; the fields PCSINGOP and PCCOMBOP contain percent single operation trucks and percent combo operation trucks in whole numbers (such as 10.2). You add those then multiply the percent times, LASTCNT (last count), to get the actual truck volume.

Example: 117-KY-0109 -000

LASTCNT: 3257

PCSINGOP: 3.3 PCCOMBOP: 5.7 Sum: 9.0 percent or 0.09

Truck Volume: $3257 * .09 = 293$

Final data organization:

- Enter and save the selected data into the excel template
- Request crash and pavement data from KYTC as desired or required
- Apply the ratings listed below for ADT, Speed, CACT and HV
- For quality control, map data and see if there are any gaps in information on the route. Review map to verify initial draft determination of optimum route. Change draft/proposed route as indicated and collect further data as necessary
- Provide data and mapping to KYTC for further review and evaluation

$$(\text{ADT Rating} * .25) + (\text{Speed Rating} * .25) + (\text{CRF Rating} * .25) + (\text{HV rating} * .25) = (\text{BLOS}) / \text{full rating values located on the metadata sheet}$$

BCI A+	Dedicated bicycle facility (buffered or
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	separated)
BCI A	3-2.5
BCI B	2.49-2.0
BCI C	1.99-1.5
BCI D	1.49-1.0
BCI E	.99 and below

Attachments (upon request):

- A: BCI formula sheet (Meta data for rating values)
- B: Excel data sheet that has been completed and has rating system analysis done (Ohio and Davies Counties)
- C: Map shows which segments bypassed, which are new proposed (Ohio and Davies Counties)
- D: Map shows the new LOS using truck volume with BLOS rating (Ohio and Davies Counties)

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