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DRAFT

LAWRENCE COUNTY BICYCLE & PEDESTRIAN PLAN



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1 Introduction

The Kentucky Ohio West Virginia (KYOVA) Interstate Planning Commission is responsible for planning an orderly, cost-effective, multi-modal transportation system for all citizens of its service area. In 2016-17, KYOVA undertook a non-motorized study in the urbanized areas of Lawrence County, Ohio. As a result, the Lawrence County Bicycle and Pedestrian Plan was developed. The Plan evaluates and recommends active transportation connections throughout the County, including the rural areas and the more urbanized areas between the Ironton and Proctorville communities. This plan is the first comprehensive effort to study, evaluate, and recommend improvements for active transportation facilities in Lawrence County.

1.1 Active Transportation

Active transportation includes self-propelled, human-powered modes of transportation, such as walking or bicycling. The term active transportation is preferred over non-motorized transportation to present walking and bicycling in a positive and encouraging way. The terms active transportation, multi-modal transportation, and active modes are used interchangeably throughout this report to refer to bicycling and walking.

1.2 Plan Outline

Chapter 1 describes the Plan background, purpose, and Study Area.

Chapter 2 describes the public involvement conducted during the development of this plan, including an online survey and a public meeting.

Chapter 3 examines existing conditions in the Study Area, which are divided into three categories: a socioeconomic profile, a transportation system analysis, and an active transportation infrastructure analysis. The socioeconomic profile of the County reviews population trends, income and employment, and transportation-related data, such as commute patterns and vehicle availability. The analysis of the County's transportation system includes an inventory of state and U.S. routes, traffic volumes, and congestion levels. Lastly, an in-depth examination of the area's active transportation infrastructure focuses on bicycling and walking environments, public survey results on challenges and opportunities related to active

transportation, an inventory of bicycle and pedestrian-friendly trip generators, and bicycle and pedestrian crash history.

Chapter 4 presents a selection of best practices in active transportation infrastructure that may address some of the challenges identified in the existing conditions analysis. Treatments are categorized as follows: mixed traffic facilities, visually separated facilities, and physically separated facilities. Images and infographics display example facilities, cost, durability, and other considerations.

Chapter 5 applies the treatments discussed in the best practices section to the areas in need of improvement identified in the existing conditions analysis. Twenty proposed routes are included with maps and descriptions of each route. The proposed network would add more than 100 miles of active transportation facilities throughout Lawrence County.

Chapter 6 identifies the steps towards a successful implementation of the proposed network. Suggestions for multi-jurisdictional collaboration, funding resources, and policy changes are included. A list of Implementation Principles are enumerated to provide guidance as the Plan moves forward. A project prioritization process applies criteria in support of each principle when determining which project to pursue. This process assigns each proposed route to one of four phases, ranging from immediate (within a year) to long-term (greater than 15 years).

1.3 Study Area

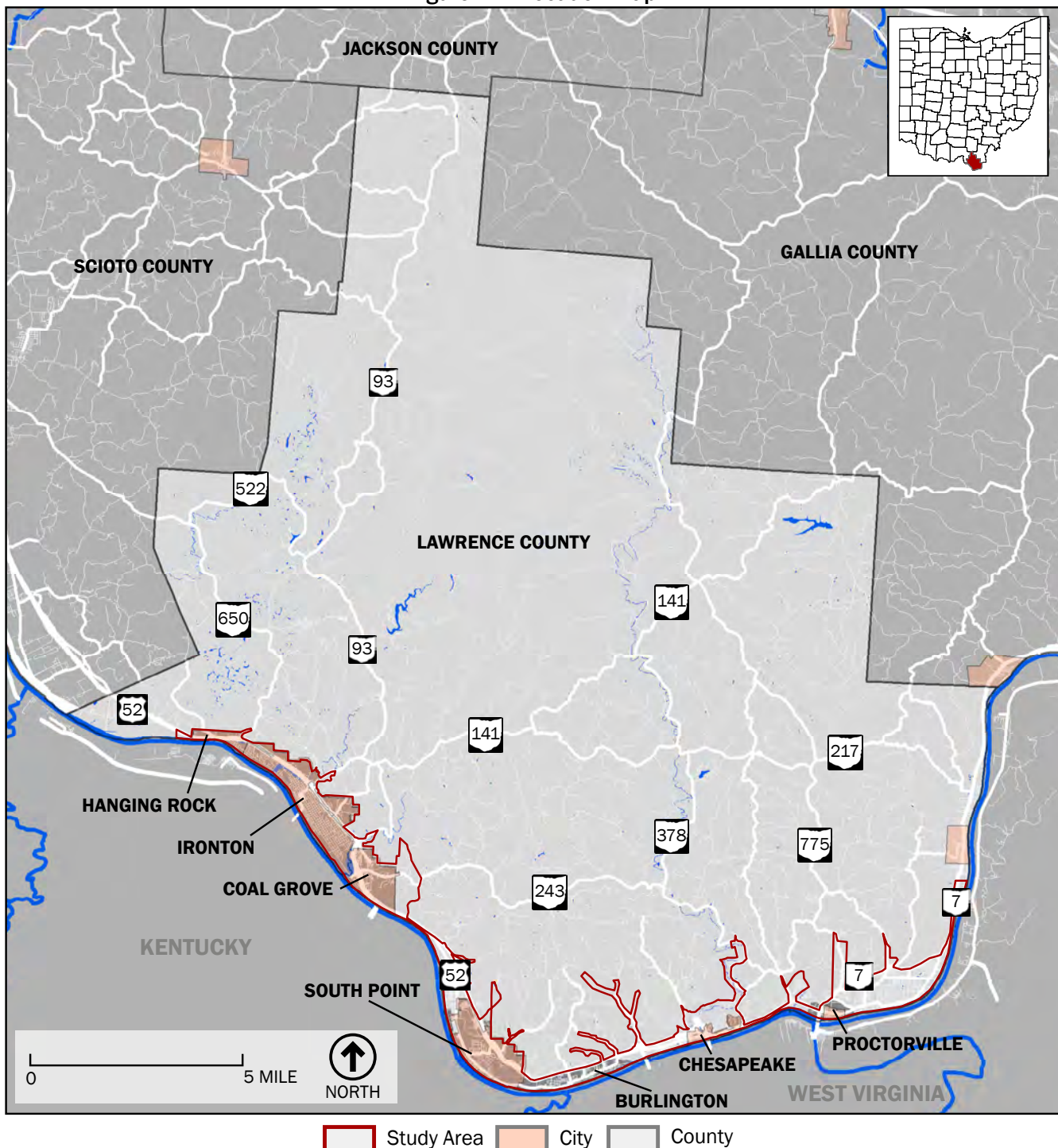
Lawrence County is located in Ohio's Appalachian region with a total area of 457 square miles, much of which includes hilly terrain. As the southernmost County in Ohio, its southern border is framed by the Ohio River, with Kentucky and West Virginia located on the other side. Lawrence County lies south of Wayne National Forest with Scioto County to the west, Jackson County to the north, and Gallia County to the east (**Figure 1.1**). The County includes one city (City of Ironton), six villages, one census-designated place, seven unincorporated communities, and 14 townships.

The KYOVA Interstate Planning Commission serves as the regional transportation planning commission for the tri-state area of southwestern West Virginia, eastern Kentucky and southeastern Ohio. Its coverage area in Ohio comprises the southern portion of Lawrence County, including the townships of Hamilton, Upper, Perry, Fayette, Union and the southern half of Rome. The Study Area for this project includes all urban areas and their surroundings within KYOVA's Ohio jurisdiction, including the City of Ironton, the villages of Hanging Rock, Coal Grove, South Point, Chesapeake and Proctorville, the community of Burlington, and the townships listed previously. The Plan includes an in-depth analysis of

existing conditions and detailed recommendations for these areas. To gain a comprehensive understanding of the transportation system, parts of the existing conditions analysis extend beyond the Study Area. Certain County-wide recommendations are also not confined to the Study Area.

Although the City of Ironton is included in the Study Area, analysis and recommendations for it are not provided in detail in this plan. Due to its importance as a major population center and transportation hub, a separate report was issued for the City of Ironton. Please refer to the Ironton Non-Motorized Study for more information.

Figure 1.1: Location Map



2 PUBLIC INVOLVEMENT

Including the public in planning and development is an important component of any transportation plan; this is especially true for a plan that affects multiple urbanized areas and modes of travel. Public involvement builds trust in the planning process and improves the overall quality of the findings. Two primary means of public involvement were used during plan development: an online survey and a public meeting.

2.1 Online Survey

In April and May 2017 a public survey was distributed to stakeholders throughout the region. The survey asked participants about walking and bicycling habits, popular destinations, best and worst areas to walk and bike, and other questions related to walking and bicycling in Lawrence County. An analysis of survey results related to bicycling and walking is included in Section 3.4. Refer to **Appendix A** for a copy of the survey instrument.

Methodology

The survey (**Figure 2.1**) was developed using surveymonkey.com. It included a brief explanation of the project and used a multiple choice format. Skip logic was used to show targeted questions based on participants'

responses. For example, if a respondent selected the “no interest in biking” answer, the survey skipped all remaining bicycling-related questions.

The survey was sent to groups and organizations in Lawrence County, including school districts, local governments, police and fire departments, universities, libraries, and the sheriff’s department. While there are no bicycle shops in Lawrence County, several shops in the City of Huntington, West Virginia, serve Ohio residents as well. Two bicycle shops in Huntington sent the survey link to their customers and followers.

Due to limited time and resources, the survey was not distributed to the general population beyond the methods listed above. While survey respondents may not be a representative sample of the general population, their experiences do shed light on challenges that bicyclists and pedestrians face in Lawrence County, and potential solutions.

Descriptive Statistics

Fifty-five people responded to the survey. A plurality of respondents live in Proctorville and South Point. The Ironton area is not heavily represented in the sample. Most

Figure 2.1: Example survey question

Lawrence County Bicycle & Pedestrian Plan Public Survey

The KYOVA Interstate Planning Commission is conducting a study that examines modes of travel other than motor vehicles for Lawrence County, Ohio. In response to the growing need for bicycle and pedestrian facilities, the purpose of this study is to examine connectivity and livability measures throughout the county for active forms of transportation. This survey will help identify issues and direct the recommendations of the study.

1. What community do you currently live in?

☐ Ironton

☐ Athalia

☐ Chesapeake

☐ Coal Grove

☐ Hanging Rock

☐ Proctorville

☐ South Point

Other (please specify)

respondents are long-term residents of Lawrence County: almost 60 percent of them have lived in the County for more than 15 years. With regards to bicycling experience, 43 percent of respondents describe themselves as advanced riders, and 39 percent are self-described intermediate riders. Only 13 percent identified as novice riders, and six percent have no interest in bicycling.

The majority of respondents, 65 percent, ride their bikes frequently (more than ten days a month) in good weather months. Nine percent ride their bikes every day. Eighteen percent of respondents ride only occasionally (four to 10 days a month), six percent ride not very often (one to three days a month), and only three percent never ride their bikes.

Given their long tenure in the area, comfort level in riding, and riding frequency, most respondents are likely very familiar with bicycling conditions in the Study Area (see Section 3.4). However, their responses may not be representative of the general population.

The survey also asked respondents about their walking habits. Eleven percent of respondents walk every day in good weather months. Forty-three percent of respondents walk frequently, 26 percent walk occasionally, 20 percent do not walk very often, and zero percent never walk.

Refer to Appendix A for detailed survey results.

2.2 Public Meetings

A meeting was held on July 17, 2017 at Ironton City Hall to introduce the initial findings of the study to the public. The project team developed a series of display boards (**Appendix B**) that conveyed key information from the existing conditions analysis, best practice research, and preliminary active transportation concept routes for the County. The public offered a number of comments and suggestions related to bicycling and walking in Lawrence County, including the following:

- Prioritize Proctorville – There is a nursing home and school that needs safe access to grocery and other amenities.
- Future riverfront path: This is the most important. #1 priority.
- County-wide routes- Talk to Julie Walcoff to connect with ODOT and ask how to fund. ODOT will be responsible for routes outside of municipal boundaries.

- Vernon Street (Ironton) – Should be a pedestrian only road with a golf cart lane.
- How do you get the bridge across the river, besides US-52? Ideas?
- Do not like ODOT's bike path on 141.
- Need bike facilities: bike racks, rental bikes.
- Get pedestrians across the river.
- Get families involved in biking – Huntington has organizations that organize bike events (ex: family rides).
- People like the facilities they have in Louisville.
- Connect destinations & destination sites should have bike amenities.
- People need bicycle education, they do not know the rules of how to ride safely.
- Create a bike path on Railroad STR, Moultons field to Ironton Hills Drive – This is a way to connect Ironton Hills Drive to Downtown without crossing dangerous US-52.
- Trails - excellent idea. Use of existing trail at Railroad St will increase current usage.
- Bridge traffic is horrible. Crosswalk sign is not long enough to cross street. Traffic off bridge doesn't stop when turning right.
- Crosswalk sign on 3rd street is not long enough to cross street. Traffic is an issue.
- Why is there not a bike lane on the new bridge?
- Damaged Sidewalks.

Many of these concerns and ideas are addressed in Chapter 5, Recommendations, and Chapter 6, Implementation. Some of them were directly incorporated into the recommendations, such as safety education, organized events to encourage bicycling, inter-state bridge connections, and trails.

Chapter 3 incorporates the public input into a comprehensive analysis of Lawrence County's existing transportation network and how it accommodates bicyclists and pedestrians. Findings corroborate many of the comments above, supported by various data sources, mapping, and field observations.

3 EXISTING CONDITIONS

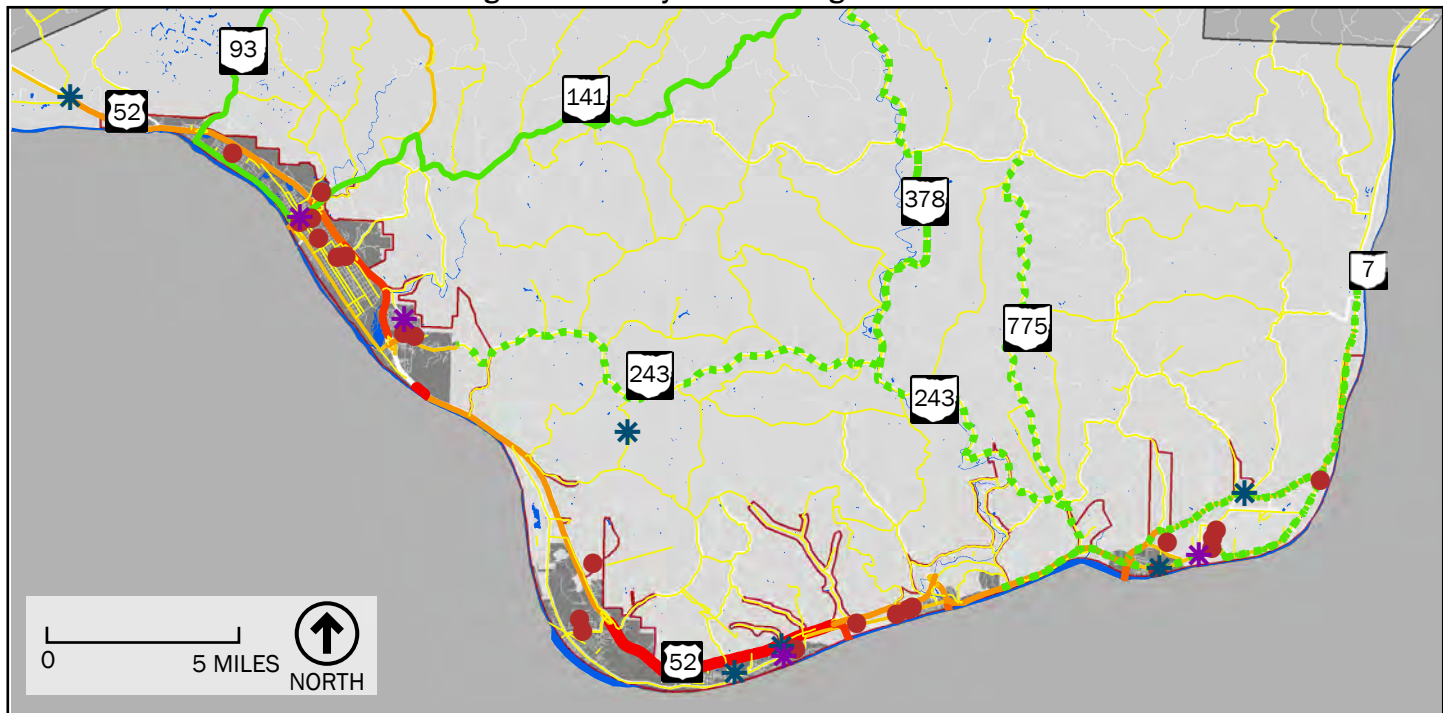
3.1 Introduction

Chapter 3 divides existing conditions in the Study Area (**Figure 3.1**) into three categories: a socioeconomic profile, a transportation system analysis, and an active transportation system analysis. The socioeconomic profile reviews County-wide population trends, income and employment, and transportation-related data, such as commute patterns and vehicle availability. The transportation system analysis provides an inventory of state and U.S. routes, traffic volumes, and congestion levels. Lastly, the active transportation system analysis offers an in-depth examination of the area's multi-modal infrastructure, including: bicycling and walking environments, public survey results on challenges and opportunities related to active transportation, and inventory of bicycle and pedestrian-friendly trip generators, and bicycle and pedestrian crash history. To develop a clear and accurate picture of the Study Area's existing conditions, the information in **Table 3.1** was collected and analyzed.

Table 3.1: Data Sources

Information	Source
Demographics – Population, Age, Income, Unemployment, Commute Times, Vehicle Availability	American Factfinder U.S. Census Bureau Bureau of Labor Statistics
Jurisdictional Boundaries	Ohio Department of Transportation's Transportation Information Mapping System
Transportation System	Field work, Google Maps, survey results, and GIS
Bicycle Facilities	
Pedestrian Facilities	
Major Trip Generators	KYOVA
Pedestrian & Bicycle Crash History	

Figure 3.1: Study Area Existing Conditions



---- Bicycle Friendly Roads
 * Pedestrian Crash
 * Bicycle Crash
 ● Trip Generator

---- ODOT Designated Bicycle Route

Study Area

City

County

AADT ---- ≤ 5,000
 ---- 5,001 - 10,000
 ---- 10,001 - 15,000
 ---- 15,001 - 20,000
 ---- 20,001 - 25,000
 ---- > 25,000

To further refine the collected information, in April and May 2017 a public survey was distributed to stakeholders in Lawrence County. The survey asked participants about walking and bicycling habits, popular destinations, best and worst areas to walk and bike, and other questions related to walking and bicycling in Lawrence County. Survey data analysis supplements descriptions of bicycle and pedestrian travel environments in Sections 3.4 and 3.5. General survey results are discussed in Chapter 2.

3.2 Socioeconomic Profile

Population

From 2000 to 2010, the population of Lawrence County increased to 62,450 people with a growth rate of 0.21 percent (**Table 3.2**). By 2015, Lawrence County experienced a population decrease to 61,109 people, resulting in an overall decrease of 1.94 percent from 2000 to 2015. However, during that same time range, Ohio's population increased by 2.17 percent and the country experienced an even higher growth rate of 14.85 percent. In Lawrence County, the median age range was 40 years in 2015, and 37 percent of the population was under the age of 30.

Table 3.2: Population Trends

Year	U.S.	Ohio	Lawrence County
2000	282,200,000	11,353,140	62,319
2010	309,300,000	11,536,504	62,450
2015	324,118,787	11,600,000	61,109
Net Change	+41,918,787	+246,860	-1,210
Percent Change	+14.85%	+2.17%	-1.94%

Source: U.S. Census Bureau

Income & Employment

The median household income of Lawrence County was \$42,874 in 2015, which was 13 percent lower than median household income in Ohio (**Table 3.3**); however, the median household income in Lawrence County increased by 47 percent from 2000 to 2015 whereas Ohio's decreased by 12 percent during the same time period. In Lawrence County, 86 percent of households were at or 150 percent above the poverty level.

Table 3.3: Median Household Income Trends (2000 – 2015)

Year	U.S.	Ohio	Lawrence County
2000	\$41,994	\$56,111	\$29,127
2010	\$49,445	\$47,333	\$36,461
2015	\$56,516	\$49,429	\$42,874
Net Change	+\$14,522	-\$6,682	+\$13,747
Percent Change	+34.58%	-11.91%	+47.20%

Source: U.S. Census Bureau

Lawrence County's unemployment rate was six percent in 2015, which was higher than Ohio's unemployment rate of five percent (**Table 3.4**). However, the County's unemployment rate did decrease by two percent from 2000 to 2015, whereas the unemployment rates at the state and national levels increased by one percent during the same time range.

Table 3.4: Unemployment Trends (2000 – 2015)

Year	U.S.	Ohio	Lawrence County
2000	4.0%	4.1%	8.5%
2010	9.8%	11.0%	11.3%
2015	5.0%	5.1%	6.4%

Source: U.S. Bureau of Labor Statistics

In 2015, the largest employment sector in Lawrence County was education, health care, and social assistance, employing 30 percent of Lawrence County residents. The manufacturing (14 percent) and retail (13 percent) sectors were the other predominant employment areas.

Commute Patterns

The distribution of Lawrence County's commute times were similar to Ohio in 2015, and Lawrence County and Ohio's mean travel times were also approximately the same (**Table 3.5**). In Lawrence County, a small percentage of commuters (5.6 percent) spent over 60 minutes traveling to work, but the largest percentage (40.1 percent) had commutes between 15 to 29 minutes long. The average public transportation commute time in the County was 54 minutes.

Table 3.5: Commute Times (2015)

Time	Ohio	Lawrence County
Total Labor Force	5,263,292	24,023
0 - 15 minutes	29.5%	27.9%
15 - 29 minutes	40.1%	44.2%
30 - 44 minutes	19.2%	17.2%
45 - 59 minutes	6.0%	5.1%
≥ 60 minutes	5.0%	5.6%
Mean Travel Time	23.2 min	23.7 min

Source: U.S. Census Bureau

A majority of workers in the County departed for work either between 6:00 AM and 9:00 AM (60 percent) or 9:00 AM and 12:00 PM (28 percent), and most of the County's labor force worked outside of Ohio (55 percent). Of the residents working in Ohio, 40 percent worked within Lawrence County.

Vehicle Availability

Most households in Lawrence County (98 percent) had one or more vehicles in 2015, which is expected in a rural County with an auto-oriented development pattern (Table 3.6). Only two percent of households did not have any personal vehicles, which was lower than Ohio's rate of three percent. The County had a higher rate of households with two or more vehicles in comparison to state rates.

Table 3.6: Vehicle Availability (2015)

Number of Vehicles	Ohio	Lawrence County
No vehicle	3.0%	1.9%
1 vehicle	20.1%	15.8%
2 vehicles	43.1%	44.7%
3 or more vehicles	33.7%	37.6%

Source: U.S. Census Bureau

3.3 Transportation System

Roadway Inventory

There are 13 state routes (SR) and one U.S. route (US) that traverse Lawrence County:

- SR-7 • SR-217 • SR-378 • SR-775
- SR-93 • SR-218 • SR-522 • US-52
- SR-140 • SR-243 • SR-607
- SR-141 • SR-373 • SR-650

Seven of these routes travel through the Study Area, although only US-52 and SR-7 cover a significant distance:

- SR-7 • SR-141 • SR-650 • US-52
- SR-93 • SR-243 • SR-775

Table 3.7 shows information on the major roadways in the Study Area. Overall, most primary routes are Major

Table 3.7: Study Area Major Roadway Inventory

Road	Local Name	Functional Class	Travel Lanes	Shoulders (feet)	Speed Limit (mph)	Community	Multimodal Facilities
SR-7	Ohio River Scenic Byway	Minor Arterial	2-4	5-10	55	Chesapeake, Proctorville	No
CR-107 (Old SR-7)	State/Market Streets	Minor Arterial	2	0	35	Proctorville	Sidewalks
SR-93	Park Avenue	Minor Arterial	2-4	0-10	25-55	Ironton	Some Sidewalks
SR-141	Campbell Drive	Major Collector	2	0	35	Ironton	No
SR-243	Marion Pike	Major Collector	2	0-8	40	Coal Grove, Proctorville	Some Sidewalks
SR-650	Old Castle Pike	Major Collector	2	0-3	35	Hanging Rock	No
SR-775	Walnut Street	Major Collector	2	0-3	45	Proctorville	No
US-52	Ohio River Scenic Byway	Freeway	4	10	60	Various	No

Collectors or Minor Arterials with speed limits 45 mph or less and with two lanes and intermittent shoulders. There are no bicycle facilities in the Study Area, but there are some sidewalks along the major roadways in Proctorville, Ironton and Coal Grove. Most roadways have little to no pedestrian facilities. Although many roads have lower speed limits in the Study Area, which is safer for pedestrians and bicyclists, the limited presence of multi-modal facilities as well as narrow or no shoulders essentially prohibits safe and comfortable bicycling and walking along the major routes in the Study Area.

The 32 mile-long US-52/SR-7 Corridor is the Study Area's primary east/west thoroughfare. It traverses all urban areas and provides four connections over state lines to Kentucky and West Virginia. ODOT designates the corridor as a Scenic Byway, meaning it holds significant scenic, natural, historic, archaeological, cultural or recreational values. Scenic Byway designations help communities preserve scenic areas and promote tourism. The entire length of US-52 is scheduled to be resurfaced by ODOT in 2018-2020 and 13 bridge maintenance projects are scheduled for 2017-2018.

The SR-93/Park Avenue Corridor is the main thoroughfare through the City of Ironton and connects to points north of the Study Area. While there is an abrupt change of character in the road—from an urban, slow speed main street to a four lane rural highway—the two segments create one continuous corridor through the Study Area.

There are seven interchanges in the Study Area, and they are all along US-52:

- SR-650/Old Castle Pike (Village of Hanging Rock)
- SR-93/Park Avenue (City of Ironton)
- SR-141/Campbell Drive (City of Ironton)
- SR-243/Marian Pike (Village of Coal Grove)
- 12th and 13th Street Bridges to Ashland, KY
- Solida Road (Village of South Point)
- SR-7 and US-52 Bridge to Huntington, WV

Traffic Volumes

Traffic volumes and congestion on roadways can negatively affect the safety and comfort of bicyclists and pedestrians. Level of service (LOS) is the designation typically used to describe how well a roadway operates. LOS ranges from "A" or perfect operation with little or no congestion to "F" which is failing with high congestion. The ideal LOS is typically C/D or better in the peak hour of the day. Vehicle travel time and delay increase as LOS

decreases. **Table 3.8** shows how the number of roadway travel lanes and traffic volumes are typically linked to LOS. The traffic volumes are given in Annual Average Daily Traffic (AADT) format. For planning purposes, using these ranges is acceptable, but detailed traffic engineering studies should be performed for specific projects to determine LOS.

Table 3.8: General Planning-Level Congestion Thresholds

Type of Facility	Max LOS C AADT	Max LOS D AADT	Max LOS E AADT
2-Lane Road	10,000	10,000 – 15,000	15,000
4/5-Lane Facility	20,000	25,000 – 35,000	33,000 – 41,000
6/7-Lane Facility	30,000	35,000 – 45,000	50,000+

Note: These classifications assume peak-hour traffic is approximately 9% of daily traffic with approximately a 60/40 directional split. These thresholds are given as general classifications, which can vary depending on further specifics, such as, turn lanes and crossroad traffic.

In **Table 3.9** on the following page, the major roadways in the Study Area are shown with their existing AADT volumes and the associated level of congestion. Some of the roadways were divided into multiple segments where there were major intersections/crossings. Overall, none of the major roadway segments in the Study Area experience high levels of congestion although five roadway segments do experience moderate levels of congestion.

US-52 carries the highest traffic volumes in the Study Area. It experiences moderate congestion (22,512 AADT) between SR-93 in Ironton and SR-243/Marian Pike in Coal Grove. This segment of US-52 travels through Ironton, the Study Area's most densely populated area. It sees even higher traffic volumes (26,391 AADT) in South Point and Burlington, before crossing the Ohio River to Huntington, WV. AADT on the remaining segments of US-52 is between 6,362 and 11,856. US-52 intersects with SR-7 at the bridge to Huntington, where SR-7 continues east to Proctorville. It then travels northeast around the village and surrounding developments before exiting the Study Area and continuing north towards Athalia. SR-7 has the second highest volumes in the Study Area after US-52, carrying from 5,396 to 14,495 AADT between the US-52 interchange and the Study Area's eastern boundary.

Table 3.9: Major Roadway Traffic Volumes & Levels of Congestion

Roadway	Segments	Year	AADT	Level of Congestion
SR-7	US-52 Bridge to SR-775	2016	10,495-14,495	Low
	East of SR-775	2016	5,396	Low
CR-107 (Old SR-7)	Apple Ave to SR-7	2016	3,305	Low
	SR-7 to SR-775/Walnut St	2016	12,333	Moderate
	SR-775/Walnut St to Apple Ave	2016	9,753	Low
SR-93	North of US-52	2016	6,616	Low
	US-52 to 5th St	2016	13,323-14,315	Moderate
	5th St to 2nd St	2016	6,069	Low
SR-141	North of US-52	2015	3,565	Low
SR-243	S 3rd St to US-52 (Coal Grove)	2015	7,936	Low
	US-52 Interchange (Coal Grove)	2015	10,295	Moderate
	East of US-52 (Coal Grove)	2015	5,950	Low
	South of SR-7 (Proctorville)	2015	3,758	Low
SR-650	2nd St to US-52	2015	2,467	Low
	North of US-52	2015	852	Low
SR-775	North of SR-7	2015	3,867	Low
	SR-7 to CR-107	2015	1,070-1,312	Low
US-52	West of SR-93	2016	11,856	Low
	SR-93 to SR-243	2014	22,512	Moderate
	SR-243 to 12th/13th St Bridges	2016	7,724	Low
	12th/13th St Bridges to Solida Rd	2016	6,362	Low
	Solida Rd to US-52 Bridge	2016	26,391	Moderate

SR-93 has the third highest volumes in the Study Area. It carried 6,616 AADT in 2016. The highway narrows from four to two travel lanes at Old SR-75, two miles northeast of the US-52 interchange. SR-93 continues onto Park Avenue southwest of the US-52 interchange. Park Avenue extends 0.6 mile into the City of Ironton before terminating at Bobby Bare Boulevard, adjacent to the Ohio River. It experiences moderate congestion near the US-52 interchange, carrying 14,315 AADT in 2016. Park Avenue is the most urban corridor within the Study Area. Mixed-use buildings with shallow setbacks line the avenue and sidewalks extend almost the entire length (ending before the US-52 interchange). There is a heavy multimodal presence in this area, with frequent pedestrians and occasional bicyclists along the road.

3.4 Active Transportation Infrastructure

Lawrence County residents travel primarily by private vehicles rather than walking or bicycling due to a variety of factors: low-density development patterns, rural setting,

hilly terrain, long distances between destinations, and lack of multi-modal facilities. However, there are opportunities to encourage active modes of travel, especially in the more urbanized areas of the County. Furthermore, multi-modal connections to rural parts of the County could also be added to develop an interconnected active transportation network in the Study Area. The following sections describe the existing conditions of the bicycle and pedestrian travel environments in the Study Area, focusing on the City of Ironton and Village Proctorville (**Figures 3.4 and 3.5**, respectively).

Bicycling Environment

There are no signed and marked bicycle facilities within the Study Area; however, ODOT has designated one bike route that traverses Lawrence County as part of the Statewide Bicycle Route System. State Bike Route 10 (**Figures 3.2-3**) travels east from the Scioto County line on SR-650, through the City of Ironton on 2nd Street, Park Avenue, and SR-93, and on SR-141 northeast to the County line, where it continues north into Gallia County. From

field observations on SR-141, there were no pavement markings, warning/regulatory signage, or wayfinding signage to indicate the presence of a bike route. A striped shoulder does exist on some parts of the route but is too narrow (less than six inches) to accommodate bicyclists. In addition, the roadways for this bike route include several tight horizontal curves due to the hilly terrain and poor sight distances. No bicyclists were observed on the route at the time of the field review.

In addition to the lack of bicycle facilities, most of the rural roadways have a combination of higher speeds, hilly terrain, poor sight distances, narrow or no shoulders, and long distances between destinations. All of these factors are strong deterrents to bicyclists. Most rural roadways in the Study Area are not bicycle-friendly; bicycle-friendly roads typically lack dedicated facilities but are still considered relatively safe and comfortable for most riders. However, in the more urban areas of the Study Area, slower speeds and compact development patterns exist, which are more

Figures 3.2-3: SR-141, ODOT-designated bike route

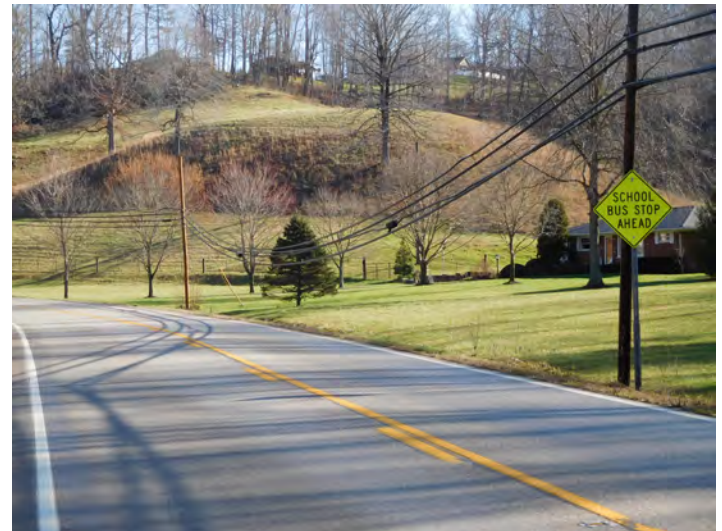


Figure 3.4: City of Ironton

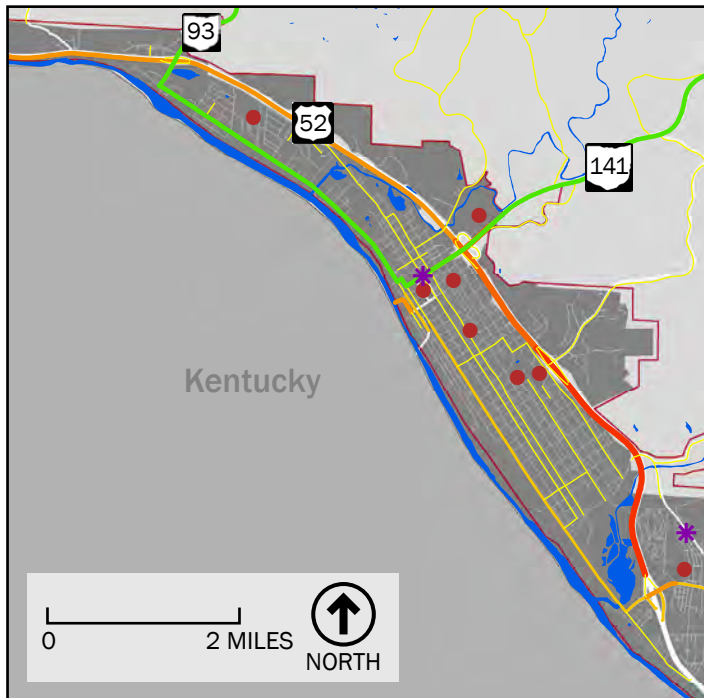
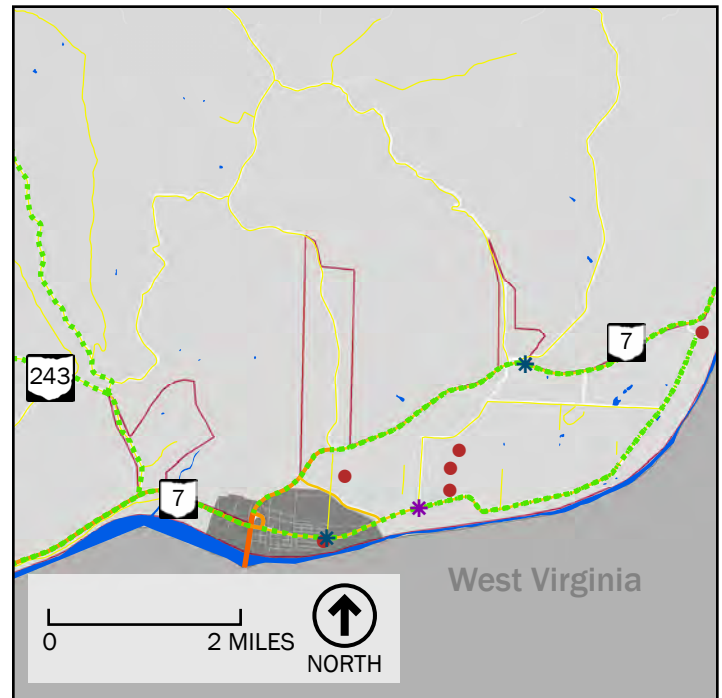


Figure 3.5: Village of Proctorville and environs



..... Bicycle Friendly Roads * Pedestrian Crash * Bicycle Crash ● Trip Generator

— ODOT Designated Bicycle Route

Study Area

City

County

AADT — ≤ 5,000 — 5,001 - 10,000 — 10,001 - 15,000 — 15,001 - 20,000 — 20,001 - 25,000 — > 25,000

amenable to bicyclists. These roadways are more bicycle-friendly but lack bicycle infrastructure: signage, pavement markings, and dedicated bicycle facilities.

A further review of bicycle-friendly roadways was performed using Google Maps. Google Maps has compiled information about bike lanes and paths to determine bicycle-friendly street routes for its cycling direction services. In a review of this online information, four roadway locations in the Study Area were identified as bicycle-friendly. This status relies on input from crowdsourced data, local bicycle advocates, and transportation agencies. All of the bicycle-friendly roadways in Lawrence County were identified in the vicinity of the Village of Proctorville, including:

- **SR-7 between Old SR-7 and WV SR-106 (west of Proctorville)**
This segment of SR-7, connecting Proctorville with points west, is heavily traveled. In 2015 it had an AADT of 11,346. Parts of this road feature narrow shoulders (five to six feet), which, given traffic speeds, would not leave enough room for most bicyclists to comfortably and safely navigate the road. Other parts closer to Proctorville feature wider shoulders.
- **SR-7 between SR-775 and Athalia (north and east of Proctorville)**
This segment of SR-7, which travels north around Proctorville, had a 2015 AADT of 5,285. It features 11-12 foot wide shoulders in both directions with rumble stripes. (Rumble stripes, combined with the

Figure 3.6: SR-7 between Old SR-7 and WV SR-106 (west of Proctorville)



Figure 3.7: SR-7 between SR-775 and Athalia (north and east of Proctorville)

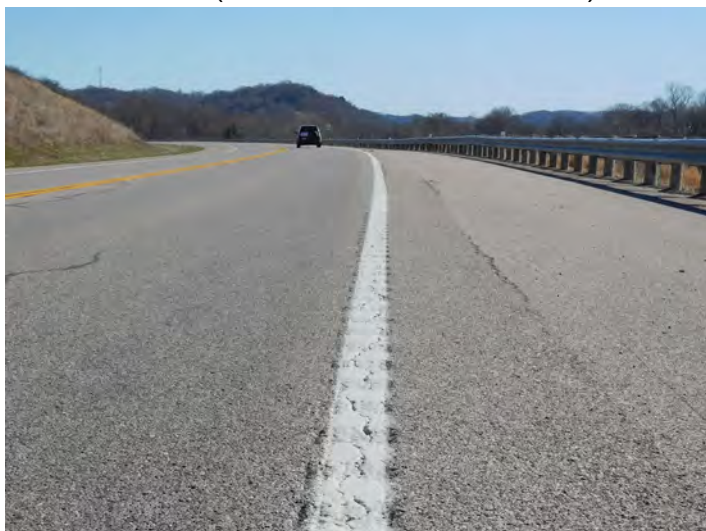


Figure 3.8: CR-107/Market Street between Cedar Street and SR-7/OH River Scenic Byway (Proctorville)



Figure 3.9: SR-411 between Cedar Street and Beulah Lane (Proctorville)



painted shoulder, are more narrow and shallower than the standard rumble strip. They achieve the same purpose of warning errant motorists and are gentler on bicycle tires). There is a 2.3 mile segment of this road with no traffic signals (between the intersections with SR-775 and Kinley Avenue), and traffic travels at high speeds. The speed limit is 55 mph. Survey respondents confirmed that this segment of SR-7 is a popular road for bicycling.

- **CR-107/Market Street between Cedar Street and SR-7/OH River Scenic Byway (Proctorville)**

This road features shoulders that are too narrow for bicycle travel. It had an AADT of 8,983 in 2015.

- **SR-411 between Cedar Street and Beulah Lane (Proctorville)**

This road features narrow shoulders. It serves Fairland High School.

Survey Results

Survey respondents identified additional bicycle friendly roads. The most popular roads, identified by two or more respondents, are described below and shown in **Figures 3.1 and 3.5**.

- **CR-2/Greasy Ridge Road**

Greasy Ridge Road is located between Brentwood and Proctorville. It had an AADT of 589 in 2016, which drops to only 65 AADT north of CR-65/Slate Run Road. It was the most frequently identified road by survey respondents. With slow speeds and low traffic volumes, Greasy Ridge Road is ideal for recreational bicyclists.

- **SR-243 between Ironton and Proctorville**

SR-243 is an alternate, more circuitous route between the two main urban areas in Lawrence County, Ironton and Proctorville. Although less direct than US-52/SR-7, it had a much lower AADT of 4,114 (2016). It has narrow shoulders and travels through hilly terrain. The speed limit on SR-243 is 40 mph.

- **SR-378 between SR-243 and Aid**

With a speed limit of 55 mph, SR-378 had a 2016 AADT of 1,074 between SR-243 and SR-217. North of SR-217, AADT drops to 734. It has narrow shoulders and travels and moderate terrain.

Survey respondents also identified the worst roads for bicycling in the Study Area, which included the following:

- SR-7, between Chesapeake and Proctorville
- CR-1
- US-52
- South Third Street, between Lorain Street and Coal Grove

Appendix A shows detailed survey results. A lack of dedicated bicycle facilities is the primary challenge for survey respondents in the Study Area. Ninety-four percent of respondents reported that no space for bicyclists to ride on the road was a challenge to bicycle safety. Sixty-four percent of respondents said that there was no space for bicyclists to ride safely on bridges. There are approximately 80 bridges in the Study Area. Thirty-two percent of respondents said that bicycle-friendly facilities, such as wide shoulders, that stop abruptly was another challenge.

In addition to a shortage of dedicated bicycle facilities, environmental factors also pose challenges to bicycle safety, according to survey respondents. Sixty-four percent reported heavy and/or fast-moving traffic as a challenge and one quarter of respondents cited too many trucks or other large vehicles as another obstacle to a safe bicycling environment. Ninety percent reported that drivers pass too close to bicyclists. While some drivers may simply be unaware that they are creating unsafe conditions for bicyclists by not allowing more space when passing, over half of respondents reported purposeful harassing behavior from drivers and being cut off by drivers.

Certain roadway conditions negatively affect bicycling in the Study Area. Potholes, cracked or broken pavement and debris were the primary concerns, followed by uneven surfaces or gaps, dangerous drain grates, utility covers, or metal plates, slippery surfaces when wet, rumble strips and uneven or skewed railroad tracks. Poorly lighted roadways are also an issue; an expected result given the Study Area's rural character. At intersections, respondents cited traffic signals that do not detect or change for bicycles as the main challenge, followed by a lack of convenient or safe places to wait for lights to change.

These problems are commonly cited by bicyclists as obstacles to safe and comfortable riding, especially in areas with high volumes of traffic or routes that see heavy freight traffic. A plurality of respondents—36 percent—live in Proctorville. However, survey questions focused on the Study Area as a whole and not on specific communities, so it is unclear whether the conditions described above are primarily confined to Proctorville or apply to the Study Area as a whole.

A majority of respondents have lived in Lawrence County for more than 15 years. Over 80 of respondents described their bicycling experience as either advanced (43 percent) or intermediate (39 percent). Sixty-five percent of respondents reported bicycling more than 10 days a month in good weather. Given their long tenure in the area, comfort level in riding and riding frequency, most respondents are likely very familiar with bicycling conditions in the Study Area. However, their responses may not be representative of the general population.

Walking Environment

Pedestrian facilities are lacking on most roadways in the Study Area, but sidewalks do exist in some parts of more urban areas, such as in the City of Ironton and the villages of Proctorville and Coal Grove. The following observations were collected during the field review of the Study Area.

Survey Results

Fifty-eight percent of survey respondents identified heavy and/or fast moving traffic as the main safety issue in the Study Area, followed by sidewalks or other pedestrian facilities that stop abruptly (47 percent); poorly lighted roadways (38 percent), environmental factors, such as vacant buildings, litter, fear of crime, etc. (29 percent); and roadway tunnels (2 percent). Thirteen percent of respondents cited no challenges as pedestrians.

Regarding roadway conditions, 85 percent of respondents cited a lack of sidewalks and/or pedestrian paths as negatively affecting walking in the Study Area, as well as a lack of designated and/or marked crosswalks (62 percent). Cracked or broken pavement (45 percent), uneven surfaces or gaps (38 percent), and debris (30 percent) were also reported. Four percent of respondents cited no road condition issues.

At intersections, 61 percent of respondents cited missing crosswalks and a lack of pedestrian crossing signals as challenges to navigating intersections. Other less prevalent issues at intersections include ADA accessibility issues (20 percent), traffic signal timing (20 percent), sight distance issues (15 percent), and long wait times for pedestrian signals (15 percent). Seventeen percent of respondents cited no intersection issues.

Interactions with motorists were also a concern for survey respondents. Fifty-five percent of respondents said that motorists drive too fast and pass too close and 48 percent said they do not yield to pedestrians in crosswalks. Other issues include motorists not using turn signals

(30 percent), harassing pedestrians (25 percent), and running red lights or stop signs (20 percent). Twenty-three percent of respondents cited no issues with motorists. **Appendix A** shows detailed survey results.

3.5 Trip Generators

Bicycle and pedestrian-friendly destinations attract people that are more likely to bike and walk, such as children and adults without personal vehicles. These destinations may also be in areas with dense development patterns that are more conducive to active modes and attract users of all backgrounds and types. Civic uses, such as schools and libraries, commercial districts, dense residential neighborhoods and institutional uses, such as universities and hospitals, are all included in this category. From review of existing information, there are many bicycle and pedestrian-friendly destinations in Lawrence County (see examples in **Figures 3.10-15**). Most of these destinations are accessible to pedestrians and bicyclists and are located in dense, urban areas that are conducive to active transportation. Trip generators are shown in the Study Area in **Figures 3.1, 3.4** and **3.5**. These destinations include:

City of Ironton

- Briggs Lawrence County Public Library
- Ohio University - Ironton Library
- Ironton Elementary and Middle School
- Ironton High School
- St Joseph Central High School
- St Lawrence School
- Downtown Ironton

Village of Proctorville

- Ohio University - Proctorville Center
- Briggs Library - Eastern Branch
- Fairland East and West Elementary Schools
- Fairland Middle School
- Fairland High School
- Lawrence County Fairgrounds

Village of Chesapeake

- Chesapeake Elementary School
- Chesapeake Middle School
- Chesapeake High School

Village of South Point

- South Point Elementary School
- Briggs Library - Souther Branch

Figure 3.10: Ohio University-Ironton Library



Figure 3.13: Briggs Library - Eastern Branch



Figure 3.11: Ironton High School



Figure 3.14: Chesapeake Elementary School



Figure 3.12: Fairland Middle School



Figure 3.15: Paul Porter Park (Coal Grove)



Village of Coal Grove

- Dawson Bryant High School
- Paul Porter Park

Community of Burlington

- Walmart Supercenter
- Burlington Elementary School

Survey respondents identified the following additional bicycle and pedestrian-friendly destinations :

- Aid Township
- Community of Scottown
- City of Huntington, WV
- CR-2/Greasy Ridge Road
- Lock 27
- Woodland Cemetery (Coal Grove)

3.6 Pedestrian & Bicycle Crash History

Between 2011 and 2013, the period for which data was most recently available, there were four pedestrian crashes and six bicycle crashes out of 3,306 total crashes recorded in Lawrence County. Crashes occurred on both urban and rural roads, mostly in daylight, and during clear weather. All crashes involved conflicts between pedestrians/bicyclists and motor vehicles. No clusters of bicycle or pedestrian crashes were identified in the Study Area. **Figures 3.1, 3.4 and 3.5** show crash locations in the Study Area.

Pedestrian Crash Locations

- Lane Street northwest of Cedar Street (Village of Coal Grove)
- 5th Street and Park Avenue (Village of Ironton)
- Old US-52/CR-1 and Sandusky Road (Fayette Township)
- Market Street east of Cedar Street (Village of Proctorville)

Bicycle Crash Locations

- Ohio Furnace Road east of Winkler Road (Hamilton Township)
- McKee-Ratcliff Road between Private Road 521 and Private 1086 (Perry Township)
- Lawrence Street and Franklin Street (Burlington community)
- Sandusky Road and TR-1429 E (south of US-52 underpass, Fayette Township)
- State Street and Walnut Street (Village of Proctorville)
- SR-7 east of Little Paddle Road (Rome Township)

3.7 Conclusion**Pedestrian Network Summary**

The Study Area is largely rural and, with the exception of the City of Ironton, is not easily accessible to pedestrians. Smaller, lower-density urban areas in the Study Area may require more extensive improvements to create a safe and comfortable environment for pedestrians.

Bicycle Network Summary

Although the Study Area lacks a bicycle network, there are many locations in more urban areas that could incorporate bicycle facilities into the existing roadway network. Off-street facilities are also possible due to the generous right-of-way in some rural areas. Active transportation connections between urban areas are lacking. These gaps could be filled with enhanced separated facilities such as shared use paths, sidepaths, cycle tracks, and roadway shoulder adaptations.

The next chapter examines these facilities in greater detail. It identifies which solutions are appropriate for specific types of roads and provides information on cost, durability, and other considerations.

4 BEST PRACTICES

4.1 Introduction

To create a safe and convenient active transportation network that provides access to key destinations while reducing potential conflicts with motor vehicles, planners and engineers must utilize a variety of facility types and treatments. The strategies in this report represent a sampling of some of the tools that are used to create safe and convenient multi-modal networks in rural areas. Evidence-based research and state-of-the-practice recognizes these treatments as the most effective tools in their respective categories. Which treatment is appropriate for a specific road depends on several factors that shape the roadway environment:

Motor Vehicle Speed and Volume

Motor vehicle speed and volume are two of the most important factors, as they impact the actual and perceived sense of safety and risk that bicyclists and pedestrians experience. As speeds and volumes increase, a greater degree of separation is needed to maintain a safe and comfortable travel environment.

In rural areas, speed and volume are not always correlated. For example, a two-lane rural highway may experience high speeds but very little traffic. Conversely, the main street of a small town could be congested with vehicles traveling at slow speeds. These factors should be considered while selecting the most appropriate multi-modal facility for a particular road.

Roadway Width

Roadway width is another important consideration. Most rural roads are narrow, and specific treatments can be used to maintain the rural character and visual appeal of a road while incorporating multi-modal accommodations.

Land Use

The land use adjacent to a roadway influences the type and intensity of use that the road experiences. For example, a rural school on an otherwise quiet road generates heavy traffic during peak hours of the day. Because the land use attracts vulnerable users (children), special attention should be paid to the type of multi-modal facility at this location.

There are a total of 12 facility types in this chapter. Each section begins with a description of facilities, including typical applications, benefits, and basic design guidance¹. Descriptions are followed by a quick-reference page for each section that shows images² of the facilities and includes the following information:

Protection Level: The level of protection that the facility provides for active transportation users from motorized traffic depends on the types of physical and visual barriers present.

Installation Cost: Installation costs vary widely depending on the design, site conditions, and whether the treatment can be added as part of a utility improvement or other street construction project. Costs shown in this chapter are averages for the standard version of the treatment in question. For example, lane narrowing costs only account for restriping and do not include additional features such as medians, widened sidewalks, etc. Costs are based primarily on data from pedbikesafe.org and bikepedinfo.org.

Durability: Durability refers to the longevity of the project (i.e. temporary vs. permanent) and the durability of the facility itself.

Aesthetics: Beautification improvements such as landscaping and streetscaping can be more easily included in certain facility types.

User: This category shows what type of user(s) the facility is intended to accommodate. Users are a combination of pedestrians, bicyclists, and/or motor vehicles.

Additional information is listed in **Table 4.1**. For more detailed materials on facilities, refer to the **Lawrence County Bicycle and Pedestrian Plan Design Guidelines**.

1. Some content was borrowed from the FHWA's Small Town and Rural Multi-modal Networks guide and the NACTO Urban Bikeway Design Guide.

2. All images are credited to BPS, unless otherwise noted.

The treatments in this report are divided into three categories:

① Mixed Traffic Facilities

Mixed traffic facilities do not separate different types of users; rather, all users share the same space and yield as necessary to accommodate other traffic. These facilities offer little protection for pedestrians and bicyclists from motor vehicles, and are generally appropriate on slow-speed, low-volume roads.

② Visually Separated Facilities

Visually separated facilities are directly adjacent to the motor vehicle travel area. Space is reserved within the right-of-way for exclusive use by pedestrians and/or bicyclists. Typically, facilities are designated with pavement markings and signage but lack physical barriers. These treatments are best utilized on moderately busy roads with medium to high speeds.

③ Physically Separated Facilities

Physically separated facilities completely remove bicyclists and pedestrians from the motor vehicle travel area. Some facilities, such as cycle tracks and side paths, remain part of the roadway network, while others, such as shared use paths, create a distinct network for active transportation users. These facilities are generally much safer, narrowing the potential for conflict with motor vehicles.

Many of the multi-modal treatments in this report are unique solutions for rural areas. For more details and design guidance on these concepts, refer to the Federal Highway Administration's Small Town and Rural Multi-modal Networks guide: <http://ruralsignguide.com/>.

Figure 4.1: Mixed Traffic Facility



Figure 4.2: Visually Separated Facility

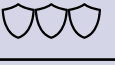
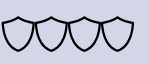
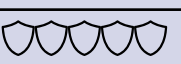
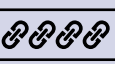
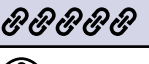
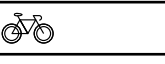
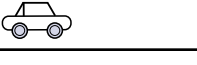


Figure 4.3: Physically Separated Facility



Table 4.1 explains the significance of each icon used to describe the facility types in the following pages. These definitions are also included in the **Lawrence County Bicycle and Pedestrian Plan Design Guidelines**.

Table 4.1: Definition of Terms

Category	Level	Definition
Protection Level		No protection for pedestrians and bicyclists (facility is shared with motor vehicles)
		Visual separation only (paint, signals)
		Permeable (may be breached by vehicles) physical separation (facility in roadway, separated from traffic by reboundable bollards, precast curb, elevation, etc.)
		Impermeable (difficult for vehicles to breach) physical separation (facility in roadway, separated from traffic by rigid bollards, parking lane, planters, etc.)
		Complete separation (removed from roadway)
Installation Cost	\$	\$0-999
	\$\$	\$1,000-9,999
	\$\$\$	\$10,000-49,999
	\$\$\$\$	\$50,000-99,999
	\$\$\$\$\$	> \$100,000
Durability		Temporary/experimental/unofficial treatment
		Official experimental/interim treatment
		Permanent treatment, needs frequent maintenance
		Permanent treatment, needs occasional maintenance
		Permanent treatment, rarely needs maintenance
Aesthetics		Difficult or impossible to include beautification
		May include beautification with major changes
		May include beautification with minor changes
		Always includes beautification
		Standalone beautification treatment
User		Pedestrian
		Bicyclist
		Motor Vehicle

4.2 Mixed Traffic Facilities

Shared Lane Marking (Figure 4.4)

Shared lane markings, or sharrows, are in-lane roadway markings indicating the proper positioning of bicyclists in the lane. The markings typically include a bike symbol topped with chevrons. While not a dedicated facility, these markings alert drivers to watch speeds as bicyclists may be using the road.

Sharrows are typically used on slow-speed, low-volume streets. However, this treatment may also be used on busier roads to bridge gaps between dedicated facilities in a bikeway network, such as bike lanes and a shared use path. They may also be used on roads whose width cannot accommodate bike lanes.

Signage (Figure 4.5)

Signage related to bicyclists and pedestrians falls into three categories:

- **Warning signs for motorists**
These signs alert motorists to the presence of active transportation users in the roadway and at potential conflict points, such as trail crossings and intersections. Examples include: “Share The Road” (Manual on Uniform Traffic Control Devices sign W16-1) and “Bikes/Ped Ahead” (W11-15/W16-9P).
- **Regulatory signs for motorists/bicyclists/pedestrians**
These signs instruct users how to operate in a given facility and list information about facilities on the road. Examples include: “Bikes May Use Full Lane” (R4-11), “Bike Lane Ahead” (R3-17a), and “Yield to Peds in Crosswalk” (R1-6).
- **Wayfinding signs for bicyclists/pedestrians**
These signs are placed at key decision points in bikeway and pedestrian networks. They list distances to destinations and may name the route and/or facility type on which they are placed. While the MUTCD does include directional signage for bicyclists (e.g. D11-1, M1-9), many communities customize wayfinding signage to reflect their unique character.

Intersection Treatment (Figure 4.6)

A variety of solutions can be employed to make intersections safer and more convenient for bicyclists and pedestrians. These treatments range from painted facilities, such as through bike lanes, bike boxes, and high visibility crosswalks, to lights and signals, such as pedestrian hybrid beacons (PHB), rectangular rapid flashing beacons (RRFB), and bicycle actuated signals.

Mixed Traffic Facilities Benefits

Shared Lane Marking

- » Encourages bicyclists to position themselves safely in lanes too narrow for a motor vehicle and a bicycle to comfortably travel side by side within the same traffic lane.
- » Encourages safe passing by motorists.
- » Provides motorists a visual cue to watch speeds.
- » Low cost and easy to adjust locations.
- » Can be used to fill gaps in a larger bicycle network.
- » Provides a wayfinding element along bike routes.
- » Advertises the presence of bikeway routes to all users.
- » Demonstrated to increase the distance between bicyclists and parked cars, keeping bicyclists out of the “door zone.”
- » Reduces the incidence of wrong-way bicycling.

Signage

- » Warns users of potential conflict points.
- » Familiarizes users with the bicycle/pedestrian network.
- » Identifies the best routes to destinations.
- » Clarifies the rules of the road for all users.
- » Validates the presence of bicyclists and pedestrians in the roadway.
- » Visually indicates to motorists that they are driving along a bicycle route and should use caution.
- » Passively markets the bicycle network by providing unique and consistent imagery throughout the jurisdiction.

Intersection Treatment

- » Warns users of potential conflict points.
- » Leads to more predictable bicyclist and motorist travel movements.
- » Bike boxes place bicyclists at the front of the queue so they are visible to others and may clear the intersection quickly.
- » Through bike lanes reduce conflicts between turning motorists and bicycle through traffic.
- » PHBs and RRFBs enhance user safety and convenience at crossing points when full signalization is not warranted.
- » Bicycle actuated signals reduce wait-time for bicyclists.

Yield Roadway (Figure 4.7)

Yield roadways accommodate pedestrians, bicyclists, and motor vehicles in slow-speed, low-volume shared travel areas. They are typically narrow (12 to 20 feet), unmarked, two-way streets found in residential neighborhoods, where most traffic is familiar with local road conditions. Paved or unpaved shoulders may be used by pedestrians, for motor vehicle parking, and as a yield zone to oncoming traffic. The lack of pavement markings creates an ambiguous travel environment, encouraging caution and slow operating speeds.

The MUTCD W11-1 and W11-15 warning signs can be used to inform motorists that they may encounter pedestrians and/or bicyclists sharing the road. Roadways used by pedestrians must meet the same accessibility guidelines for walkways, as required by the Americans with Disabilities Act (ADA).

Bicycle Boulevard (Figure 4.8)

Bicycle boulevards are a low-cost way to increase connectivity in a bikeway network by designating existing local streets for priority bicycle travel. They use quiet streets that parallel major roads and commercial corridors, providing safe and convenient facilities for less experienced bicyclists. Many traffic management elements can be used to create bicycle boulevards, including pavement markings, signage, traffic calming, and crossing treatments. Bicycle boulevards require branded signage and roadway markings to clearly define the route. They are typically used in urban or suburban neighborhoods.

Advisory Shoulder (Figure 4.9)

Similar to yield roadways, advisory shoulders offer slightly more separation, although they do not provide exclusive space for bicyclists. Bicyclists have priority over motor vehicles when using an advisory shoulder. Motor vehicles may only use the shoulder when no bicyclists are present. Advisory shoulders are delineated by dashed pavement markings and contrasting pavement surface and/or color. Advisory shoulders could be installed on state routes with low to moderate volumes and speeds as an interim measure, before upgrading them to paved shoulders.

Mixed Traffic Facilities Benefits**Yield Roadway**

- » Less costly to build and/or maintain than fully paved cross sections.
- » Connects local residential areas to destinations on the network.
- » Limits impermeable surface area and minimizes stormwater runoff.
- » Maintains aesthetic of narrow roads and uncurbed road edges.
- » Encourages slow travel speed when narrower than 20 ft.
- » Can support a larger tree canopy when located within wide unpaved roadside areas.
- » Supports on-street or shoulder parking for property access.
- » Low maintenance needs over time.

Bicycle Boulevard

- » Increases comfort for people bicycling by reducing motor vehicle operating speeds and volumes.
- » Connects local residential roads to commercial corridors and community services such as schools.
- » Improves conditions for pedestrians when implemented with sidewalks and enhanced pedestrian crossings.
- » May reduce the incidence of serious injuries through reduced travel speeds.
- » Improves the quality of life for residents through calmer traffic and safer crossings.
- » Less visually impactful than separated facilities.

Advisory Shoulder

- » Provides a delineated but nonexclusive space available for biking on a roadway otherwise too narrow for dedicated shoulders.
- » Minimizes potential impacts to visual or natural resources through efficient use of existing space.
- » Functions well within a rural and small town traffic and land use context.
- » May function as an interim measure where plans include shoulder widening in the future.
- » Supports the natural environment through reduced paved surface requirements.

Figure 4.4



SHARED LANE MARKING

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS	 				

Figure 4.5



SIGNAGE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS	  				

Figure 4.6



INTERSECTION TREATMENT

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.7



YIELD ROADWAY/SHARED STREET

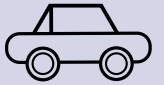
PROTECTION LEVEL					
INSTALLATION COST	\$	\$	\$	\$	\$
DURABILITY					
AESTHETICS					
USERS					

Figure 4.8



BICYCLE BOULEVARD

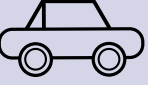
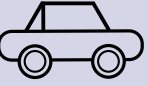
PROTECTION LEVEL					
INSTALLATION COST	\$	\$	\$	\$	\$
DURABILITY					
AESTHETICS					
USERS					

Figure 4.9



ADVISORY SHOULDER

PROTECTION LEVEL					
INSTALLATION COST	\$	\$	\$	\$	\$
DURABILITY					
AESTHETICS					
USERS					

4.3 Visually Separated Facilities

Paved Shoulder (Figure 4.10)

On uncurbed roads with moderate to high volumes and speeds, paved shoulders provide separated space for bicyclists and pedestrians. These users typically enjoy exclusive use of paved shoulders, except when they are occupied by emergency or disabled vehicles.

Solid edge lines with rumble strips delineate a paved shoulder from the travel lane. Contrasting or colored pavement materials may be used to further differentiate the shoulder from the adjacent travel lane. Paved shoulders vary in width depending on traffic volumes and speeds, but are generally five to eight feet. Signs may be used to identify a bicycle or pedestrian-accessible shoulder.

Shoulders use by pedestrians must meet the same accessibility guidelines for walkways, as required by the ADA.

Bike Lane (Figures 4.11-12)

Bike lanes provide dedicated space within the roadway reserved exclusively for bicyclists. They can be added as part of a road diet where vehicle travel lanes are reduced and/or narrowed, as part of a road widening project, or as a standalone project. Bike lanes form the backbone of most bikeway networks.

In built-up areas, curb cuts, pedestrian activity, and heavy traffic degrades the utility of nonexclusive bicycle facilities, such as shoulders. Bike lanes designate continuous and consistent space for bicycle travel removed from motor vehicle traffic.

The preferred minimum width of a bike lane is six feet to allow comfortable passing distance for motor vehicles. If space permits, a painted buffer can be used to provide more separation from the travel lane and/or from parked cars, if present.

Bike lane signs (MUTCD R3-17) may be used in addition to pavement markings to identify the facility.

Visually Separated Facilities Benefits

Paved Shoulder

- » Improves bicyclist experiences on roadways with higher speeds or traffic volumes.
- » Provides a stable surface off the roadway for pedestrians and bicyclists to use when sidewalks are not provided.
- » Reduces pedestrian “walking along roadway” crashes.
- » Can reduce “bicyclist struck from behind” crashes, which represent a significant portion of rural road crashes.
- » Provides advantages for all roadway users, by creating space for bicyclists, pedestrians, and motor vehicles.

Bike Lane

- » Provides additional separation distance between the sidewalk and motor vehicle travel area, if a sidewalk is present.
- » Connects and completes bikeway networks through built-up areas.
- » Provides a designated space on the roadway suitable for many skilled bicyclists within built-up areas of small communities.
- » Can support school access by bicycle when configured as a wide bike lane on lower-speed, lower-volume streets.
- » Provides additional visual cues to drivers that they should expect bicyclists on the roadway. This can be particularly useful when transitioning to a built-up area from a highway context.

Figure 4.10



PAVED SHOULDER

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS	 				

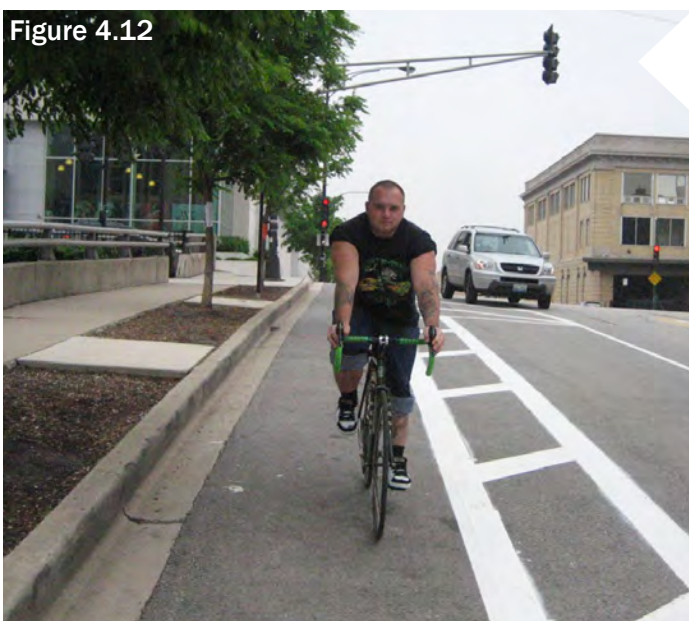
Figure 4.11



BIKE LANE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.12



BUFFERED BIKE LANE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

4.4 Physically Separated Facilities

Separated Bike Lane/Cycle Track (Figure 4.13)

Separated bike lanes, also known as cycle tracks, use space within the right-of-way to separate bicyclists from motor vehicles with barriers such as bollards, parked cars, landscaping, or grade-separation. They accommodate riders of all experience and comfort levels. One-way cycle tracks are typically used on streets with high bicycle volumes and high traffic volumes and speeds.

Shared Use Path (Figure 4.14)

A shared-use path accommodates bicyclists, pedestrians, and other active modes of transportation in the same space. Completely removed from traffic, shared use paths provide a low-stress and comfortable travel environment for users of all confidence levels. Paths often connect parks and follow features such as rivers, former or active railroad beds, and utility corridors.

A path's surface is typically asphalt or concrete. Signage, lane markings, and other symbols are used to designate space between different modes and directions of travel. Shared use paths are designed for use by pedestrians and must meet the same accessibility guidelines for walkways, as required by the ADA.

Sidepath (Figure 4.14)

When a shared use path runs parallel to a roadway, it is called a side path. Unlike shared use paths, sidepaths use road right-of-way. They require a wide roadside environment to provide for separation from the road and a vegetative or landscaped buffer.

Sidewalk (Figure 4.15)

Sidewalks are intended for exclusive use by pedestrians. They are adjacent to but separated from the roadway by a curb and/or buffer, such as a treelawn. As roadway speeds and volumes increase, a greater degree of separation is needed to maintain a safe and comfortable walking environment for pedestrians. Sidewalks are common in urban areas but they may also be necessary in rural areas with pedestrian generators, such as schools and businesses.

Physically Separated Facilities Benefits

Cycle Track Benefits

- » Eliminates risk and fear of collisions with overtaking vehicles.
- » Reduces risk of 'dooring' compared to a bike lane and eliminates the risk of a doored bicyclist being run over by a motor vehicle.
- » Prevents double-parking, unlike a bike lane.
- » Low implementation cost by making use of existing pavement and drainage and by using parking lane as a barrier.

Shared Use Path Benefits

- » Provides a dedicated facility for users of all ages and abilities.
- » Supports tourism through convenient access to natural areas or as an enjoyable recreational opportunity itself.
- » Provides non-motorized transportation access to natural and recreational areas, which can especially help low-income people obtain access to recreation.
- » Paths have a small footprint and can display a distinctly rural character.

Sidepath Benefits

- » Completes networks where high-speed roads provide the only corridors available.
- » Fills gaps in networks of low-stress local routes such as shared use paths and bicycle boulevards.
- » Provides a more appropriate facility for users of all ages and abilities than shoulders or mixed traffic facilities on roads with moderate or high traffic intensity.
- » Encourages bicycling and walking in areas where high-volume and high-speed motor vehicle traffic would otherwise discourage it.
- » Very supportive of rural character when combined with vegetation to visually and physically separate the sidepath from the roadway.

Sidewalk Benefits

- » Provides a dedicated place within the public right-of-way for pedestrians to safely travel and reduces pedestrian collisions in rural areas.
- » Reduces "walking along roadway" crashes.
- » May notably increase levels of walking in areas with high traffic speeds and/or volumes.

Figure 4.13



Source: NACTO

SEPARATED BIKE LANE/CYCLE TRACK

PROTECTION LEVEL	    
INSTALLATION COST	    
DURABILITY	    
AESTHETICS	    
USERS	

Figure 4.14



SHARED USED PATH/SIDEPATH

PROTECTION LEVEL	    
INSTALLATION COST	    
DURABILITY	    
AESTHETICS	    
USERS	 

Figure 4.15



SIDEWALK

PROTECTION LEVEL	    
INSTALLATION COST	    
DURABILITY	    
AESTHETICS	    
USERS	

5 RECOMMENDATIONS

5.1 Introduction

Infrastructure recommendations for the Lawrence County Bicycle and Pedestrian Plan are divided into two categories: “E” routes designate improvements to gaps in the existing bicycle/pedestrian network; “N” routes designate new bicycle/pedestrian facilities. The majority of the recommendations are “N” routes. Policy and program recommendations are addressed in Chapter 6.

All proposed routes were developed from information gathered during the Existing Conditions phase, including stakeholder comments, field visits, geospatial analysis, and other data sources. A primary goal of this plan is to increase active transportation connectivity throughout Lawrence County, particularly between Ironton and Proctorville. To this end, recommendations include a variety of route options and facility types for users of varying ability and experience level, with redundant

routes built into the network. These recommendations would add more than 100 miles of active transportation facilities throughout Lawrence County.

Table 5.1 lists all proposed routes. It includes information on proposed route locations, facility types, distances, project partners, and brief descriptions of each route.

Please note that in urbanized areas, sidewalks are recommended on all major roads (E-2) and are shown in the exhibits as shaded areas, not routes. The proposed bicycle and pedestrian network is shown in its entirety in **Appendix D, Exhibits 5.1-6**. Individual routes are shown in **Figures 5.1-9**, throughout the chapter. Destinations referred to in individual route descriptions are marked with this symbol in each figure: 

Table 5.1: Proposed Bicycle and Pedestrian Routes

ID	LOCATION	FACILITY TYPE	DISTANCE	PARTNERS	DESCRIPTION
E-1	County-wide	Bicycle/pedestrian route on-shoulder	17 miles	Ironton Lawrence County ODOT	Add bicycle (with pedestrians allowed) facilities along this route and adjust the existing designated route off of SR-93
E-2	Study Area	Sidewalks	Variable	Lawrence County Various communities	Existing sidewalks were identified in urbanized areas. Improve existing and add new sidewalks along priority roads in urbanized areas
N-1	County-wide	Bicycle/pedestrian route on-shoulder	47 miles	Lawrence County ODOT	Upgrade priority state routes (greater than 1,000 AADT) throughout the County to wider paved shoulders
N-2	Study Area	Bicycle/pedestrian facilities on and off-street	25 miles	Lawrence County ODOT Property Owners Various communities	See Table 5.3
N-3	Proctorville/ Coal Grove	Rural - Bicycle/pedestrian route on-shoulder; Urbanized - Bicycle on-street with sidewalks	18 miles	Lawrence County ODOT	Paved shoulders and bike lanes on SR-243 from Ironton/Coal Grove (3rd St) to Proctorville (SR-7)

Table 5.1, continued

ID	LOCATION	FACILITY TYPE	DISTANCE	PARTNERS	DESCRIPTION
N-4	Proctorville	Bicycle route on-shoulder	4 miles	Lawrence County ODOT	Signage and intersection treatments for existing paved shoulders along SR-7 Proctorville Bypass between State and Market Streets
N-5	Proctorville	Sidepath	600 ft	Fairland Local Schools Lawrence County ODOT Property Owners	Sidepath from Fairland East Elementary School north to Jewell Dr
N-6	Proctorville	Sidepath	1.5 mile	Lawrence County Proctorville	Sidepath in right-of-way on Cedar St, from CR-7 to Beulah Ln
N-7	Proctorville	Shared-use path	0.5 mile	Fairland Local Schools Property Owners	North-south shared use path through Fairland West Elementary, Middle, and High Schools, between Market St and CR-411
N-8	Proctorville	Sidepath	1.4 miles	Lawrence County Proctorville Property Owners	Sidepath on Beulah Ln from Big Paddy Rd to Market St; Alternate: sharrows and signage
N-9	Proctorville	Bicycle/pedestrian route on-shoulder	0.7 mile	Lawrence County Ohio University Proctorville	Paved shoulders on Walnut St/ CR-775, from State St/CR-107 to northern road terminus
N-10	Proctorville	Bicycle/pedestrian route on-shoulder	2 miles	Lawrence County Ohio University Proctorville	Paved shoulder on Irene Rd/ CR-403, from SR-7 to State St/ CR-107
N-11	Burlington	Bike lanes	0.4 mile	Burlington Lawrence County ODOT	Bike lanes on Court St from Washington St to US-52
N-12	South Point	Bike lanes	1.1 miles	South Point Lawrence County ODOT	Bike lanes on Ferry St/Solida Rd from 4th St/CR-1 to CR-60
N-13	South Point	Sidepath	1.7 miles	South Point Lawrence County ODOT	Sidepath on CR-60 from Central Ave to Solida Rd
N-14	South Point	Bicycle boulevard	0.7 mile	South Point Lawrence County ODOT	Bicycle boulevard on Winfield Dr/Dearfield Ave/Central Ave from railroad to CR-60
N-15	Coal Grove	Bicycle boulevard	1 Mile	Coal Grove Lawrence County ODOT	Bicycle boulevard on High St
N-16	Coal Grove/ Ironton	Bicycle boulevard	1.7	Coal Grove Ironton	Bicycle boulevard on Maddyville Pike/Adams Ln/Lorain St
N-17	Coal Grove/ Ironton	Bicycle boulevard/ shared street	2 miles	Coal Grove Ironton Property Owner	Bicycle boulevard/shared street through Woodland Cemetery
N-18	Study Area	Bicycle/pedestrian route and on- and off-street	2 miles	ODOT KYTC WVDOT	Various bicycle/pedestrian facilities on inter-state bridges

5.2 Proposed Routes

This section explains each of the 20 proposed routes. Longer and/or more complex routes include turn-by-turn accounts, with facility transitions, important destinations, and other special considerations described in detail.

E1: State Bike Route 10 (SBR-10), (see Exhibit 5.2)

This route, described in Section 3.4, is part of ODOT's Statewide Bicycle Route System. The on-road route travels from Cincinnati east through Clermont, Brown, Adams, and Scioto counties before entering Lawrence County and connecting with State Bike Route (SBR) 65. As one of four State Bike Routes in Southeastern Ohio, and the only route that connects the southeast and southwest parts of the state, SBR-10 is an important link in the Statewide Bicycle Route System. On the Lawrence County segment of SBR-10, there are no pavement markings, warning/regulatory signage, or wayfinding signage to indicate the presence of a bike route. A striped shoulder does exist on some parts of the bike route, but is too narrow (less than six inches) to accommodate bicyclists. In addition, the roadways for this bike route include several tight horizontal curves due to hilly terrain and poor sight distances. No bicyclists were observed on the bike route at the time of the field review.

With the exception of SR-93 and the segment in Ironton, SBR-10 travels on two-lane rural roads: SR-650 and SR-141. To create a more viable bike route that could accommodate users of varying comfort levels and experience on these roads, it is recommended to add paved shoulders to SBR-10 on SR-650 and SR-141 with wayfinding signage for bicyclists and warning signage for motorists. This recommendation aligns with ODOT's policy on accommodating bicycle traffic in rural areas: paved shoulders should be considered on roadways used by more than 1,000 vehicles per day.¹ Ten out of 15 roadway segments on SBR-10 in Lawrence County exceed 1,000 Average Annual Daily Traffic (AADT). Where SBR-10 passes through Ironton, it is recommended to install on-street bicycle facilities and/or side paths (N-2).

SBR-10 also uses SR-93 to travel north out of Ironton before turning east onto SR-141. This segment of SR-93 is a four-lane highway with narrow shoulders and heavy traffic volumes, especially around the US-52 interchange and the Ironton Hills Shopping Center. These roadway characteristics create uncomfortable and sometimes dangerous conditions for bicyclists.

To encourage use of this route, it is recommended that SBR-10 be relocated off of SR-93. Instead of traveling north on Park Avenue and continuing onto SR-93, SBR-10 would remain on 2nd and 3rd streets and turn onto SR-141 at the Ohio University-Ironton Library on Liberty Street. From there, it would travel on SR-141 joining the existing segment of SBR-10 2.5 miles north of Liberty Street (see Exhibit 5.3).

E-2: Sidewalks in Urban Areas

Many roads in the urbanized parts of the Study Area do include sidewalks, but there are significant gaps in both Ironton and surrounding communities. For recommendations pertaining to Ironton, refer to the Ironton Non-Motorized Study.

For people in rural areas, walking may not be their first or most convenient choice. However, providing a safe and attractive walking environment in the handful of urban centers within Lawrence County may encourage residents to shift their behavior and choose walking or driving when possible. For visitors to these areas, a robust sidewalk network will encourage a "park once" mentality; once in town they may park their vehicles and use sidewalks to navigate small distances rather than making multiple short trips in their cars and increasing congestion on city streets.

While recommendations for proposed shared use paths and side paths in this report would increase walkability for long trips between urban areas, walkability within these locations is arguably more important. Short trips make up the vast majority of most walking on a daily basis. Enabling trips to work, school, and other activities on foot would promote active living and improve health for those who choose to walk instead of drive.

Main roads with relatively high-density development and land uses that attract pedestrians (i.e. schools, parks, libraries, restaurants, and other retail) should be prioritized for sidewalks (Table 5.2). Once a complete sidewalk network is in place on these roads, the network should be expanded to secondary or neighborhood roads. Sidewalks should be installed on both sides of the road whenever possible. On certain neighborhood roads with very low traffic volumes, converting the roads to yield roadways/shared streets may provide sufficient safety and comfort to encourage pedestrian use.

1. Source: *Policy on Accommodating Bicycle and Pedestrian Travel on ODOT Owned or Maintained Facilities*

Table 5.2: Priority Sidewalk Locations

Location	Road	Recommendation
Ironton	See Ironton Non-Motorized Study	
Coal Grove	SR-243/ Marion Pike	Fill in gaps on both sides
South Point	CR-1/4th St	Add sidewalks on both sides
	Solida Rd	Add sidewalks on both sides
	Park Ave	Add sidewalks on both sides to serve South Point Elementary School
Burlington	CR-1/ Jefferson St	Add sidewalks on both sides
Chesapeake	CR-1/3rd Ave	Add sidewalks on both sides west of 5th St; improve existing sidewalks
Union Township	SR-7 from Symmes Creek to CR-3	Add sidewalks on both sides
Proctorville	State/ Market Sts	Construct proposed sidepath (N-2)

N-1: Paved Shoulders on Priority State Routes (County-wide, see Exhibit 5.1)

In addition to SBR-10, it is recommended that paved shoulders be added to state routes throughout the County to better accommodate bicycle and pedestrian traffic. As described above, ODOT's policy on accommodating bicycle traffic in rural areas recommends that paved shoulders should be considered on roadways used by more than 1,000 vehicles per day. In Lawrence County, the following State Routes meet this criteria:

- SR-7
- SR-93
- SR-243
- SR-378
- SR-775 south of SR-217

These roads should be prioritized when considering paved shoulders. Adding warning and wayfinding signage would further enhance these routes for bicycle travel.

Wide paved shoulders would also safely accommodate pedestrians in rural areas. Warning signage should indicate the possible presence of pedestrians to motorists, and regulatory signage should sanction the use of shoulders

as a valid pedestrian zone. The ADA requires that any facility intended for pedestrian use also accommodate people with disabilities. In rural areas, slope and roadway surface are the most pertinent factors in complying with ADA requirements.

If constrained right-of-way, terrain, or other obstacles may not allow for wider paved shoulders in certain areas, advisory shoulders should be considered as an interim measure. While advisory shoulders offer less protection than paved shoulders and are typically intended for use by bicyclists, not pedestrians, using advisory shoulders to fill gaps in the network is a reasonable and cost-effective solution. Advisory shoulders would more clearly define the bicycle/pedestrian zone than the current roadway markings. For more information on advisory shoulders refer to Chapter 4.

N-2: Ironton-Proctorville Bikeway (see Exhibits 5.2-6)

A primary goal of this plan is to connect via active transportation facilities the two main hubs of economic, social, and cultural activity in Lawrence County: Ironton and Proctorville. As a result, a bike route with proposed improvements to existing streets and construction of off-road facilities to connect the two areas was developed. For a detailed route description, refer to **Table 5.3**.

This recommendation faces several challenges. It passes through dense urban centers and existing transportation corridors with severe right-of-way constraints; the majority of the route uses roads which must be retrofitted to accommodate the proposed facilities; and it faces difficult terrain that diverts the route from a preferred course. The proposed route is the safest, most direct possible means of conveying active transportation users between Ironton and Proctorville given existing circumstances. It uses off-road and separated facilities where feasible. It is recommended to re-evaluate this route in the future, so that updates to the Plan may take advantage of any changes in the built and natural environments to optimize subsequent phases of the Ironton-Proctorville Bikeway.

At its western terminus, the route would connect to the proposed improved SBR-10 (E-1) on SR-650. Traveling east, the proposed route would go on-street through Ironton and Coal Grove. Eventually, this route could be supplemented by a shared use path along the Ironton riverfront.

Between Coal Grove and South Point, the route would transition to a shared use path. This segment of the route

passes through a choke point: a three-mile strip of land ranging from 300 to 400 feet in width that is constrained by the Ohio River to the south, US-52 to the north, and an active rail corridor that runs through the middle. While there is sufficient space for a rail-with-trail², Norfolk Southern, the railroad owner, does not participate in the rails-with-trails program and will not donate, sell, lease, or grant easements along its operating corridors for such use³.

The terrain north of US-52 is steep and densely forested, so there are no alternative routes around this choke point. Therefore, any shared use path in this area would use US-52 right-of-way to connect Ironton and Coal Grove to South Point. Because of the significant challenges posed by this segment, it is recommended to be constructed during Phase 4 to take advantage of any long-term changes in the existing conditions and to give the project owners time to negotiate and acquire any necessary right-of-way and easements. While this delay will perpetuate a critical gap in the network, another proposed route, the SR-243 Bike Route (N-3), would connect Ironton and Coal Grove to Proctorville during Phase 3.

A combination of on- and off-street facilities would carry the route through South Point, incorporating other proposed routes (N-12, N-13, and N-14). As an alternative for bicyclists who prefer less circuitous routes, sharrows and “Bikes May Use Full Lane” signage (Manual on Uniform Traffic Control Devices sign R4-11) could be installed on CR-1 through South Point.

Between South Point and Burlington, the route would convert to a shared use path along a utility corridor. In Burlington and Chesapeake, the proposed route would converge with CR-1, using a combination of bike lanes, sharrows, and signage. Between Chesapeake and Proctorville, the route would use SR-7, with bike lanes in the more developed, western leg of the corridor, and existing wide shoulders in the more rural, eastern leg of the corridor. In Proctorville, the proposed route would use sharrows and signage on downtown State Street, which is too narrow to accommodate bike lanes, followed by a sidepath along Market Street. At its eastern terminus, the route would connect with the proposed improvements to the Proctorville Bypass Bike Route (N-4) and the Fairland East Elementary School and Jewell Drive Connector (N-5).

Table 5.3: Ironton-Proctorville Bikeway Proposed Route

Location	Road	Facility Type
Ironton	2nd/3rd Sts	Bike Lanes
	Alternate: Shared Use Path along river	
Coal Grove	Pike St	Bicycle Boulevard
Between Coal Grove and South Point	Shared Use Path along US-52	
South Point	Lawrence Ave	Bicycle Boulevard
	CR-1	Sidepath
	Shared Use Path along Solida Creek from CR-1 to Winfield Dr	
	CR-508	Bicycle Boulevard (N-14)
	CR-60	Sidepath (N-13)
	Solida Rd	Bike Lanes (N-12)
	Kenova Rd, Scioto Ave	Bicycle Boulevard
Alternate: Sharrows/Signage on CR-1		
South Point to Burlington	Shared Use Path along utility corridor	
Burlington	Twp Rd 135	Bicycle Boulevard
	CR-1 from Twp Rd 135 to Pemberton Ave	Sharrows/Signage
Chesapeake	CR-1/3rd Ave to SR-7	Bike Lanes
Chesapeake to Proctorville	SR-7 from 3rd Ave to SR-243	Bike Lanes
	SR-7 from SR-243 to SR-775	Shoulders
Proctorville	State St from SR-775 to east of CR-775/Walnut St	Sharrows/Signage
	State/Market Sts from east of CR-775/Walnut St to SR-7	Sidepath

2. A rail-with-trail is a public pathway that runs parallel to an active rail line. As of 2015, there are more than 240 rails-with-trails in the United States (source: [Rails-to-Trails Conservancy](#)).

3. Source: [Norfolk Southern Corporation](#)

As the primary route of the proposed active transportation network for Lawrence County, the Ironton-Proctorville Bikeway would link the other proposed facilities into an easily navigable, interconnected, and accessible system for bicyclists and pedestrians throughout the County. The route would travel through the major population centers in the Study Area and serve numerous bicycle- and pedestrian-friendly destinations. It would offer a convenient alternative to driving for both short trips in urban areas and longer commutes. The scenic, rural, and off-street segments would attract recreational bicyclists, joggers, walkers, and other active transportation users, with the potential to increase physical activity, which would improve public health throughout the Study Area.

N-3: SR-243 Bike Route (see Exhibit 5.2)

Survey respondents identified SR-243 as a bicycle-friendly road. Although less direct than the proposed Ironton-Proctorville Bikeway (N-2), it has much lower traffic volumes, with an AADT of 4,114 (2016). Most bicyclists may choose to use the proposed Ironton-Proctorville Bikeway as their primary route, if constructed. However, bicyclists who prefer rural, less-traveled roadways may continue to use SR-243. Because this road is already a

popular bicycling route, it is recommended to prioritize paved shoulders on SR-243 (see **Figure 5.1**). The following improvements would further enhance this proposed bike route:

- Convert existing parking lanes in Coal Grove to standard and/or separated bike lanes.
- Introduce traffic calming measures on SR-243 in rural communities and near bicycle and pedestrian generators (e.g. Dawson Bryant Elementary School).
- Install intersection treatments (bicycle-actuated signals and bike boxes), at signalized intersections (at High Street in Coal Grove and at SR-7 west of Proctorville, eastern bike route terminus).
- Install wayfinding, regulatory, and warning signage.

To address pedestrian traffic along this route, it is recommended to:

- Maintain existing facilities, such as sidewalks and curb ramps (Coal Grove).
- Upgrade existing crosswalks to high visibility crosswalks with pavement markings, signage, and, if warranted, rectangular rapid flashing beacons or

Figure 5.1: SR-243 with proposed widened shoulders and bicycle signage (N-3)



pedestrian hybrid beacons (Coal Grove).

- Install streetscape improvements (Coal Grove).
- Construct sidewalks to connect rural communities and nearby bicycle and pedestrian generators (e.g. Dawson Bryant Elementary School).

N-4: SR-7 Proctorville Bypass Bike Route (see Exhibit 5.6)

This segment of SR-7, which travels north around Proctorville, was identified as a bicycle friendly road by Google Maps and survey respondents. It features 11-12 foot wide shoulders in both directions with rumble stripes. Rumble stripes, combined with the painted shoulder, are narrower and shallower than the standard rumble strip. They achieve the same purpose of warning motorists and are gentler on bicycle tires. There is a 2.3 mile segment of this road with no traffic lights (between the intersections with SR-775 and Kinley Avenue), and traffic travels at high speeds, with a speed limit of 55 miles per hour.

Few improvements are needed on this segment of SR-7 because its wide shoulders already accommodate bicyclists. The following treatments are recommended to enhance existing facilities:

- Install intersection treatments (bicycle-actuated signals on shoulder, pushbuttons, or bicycle signal heads for shoulder traffic), at signalized intersections (at SR-775 and at Kinley Avenue).
- Install wayfinding, regulatory, and warning signage.

Note: Although the SR-7 Bypass already has wide shoulders, it is shown in figures and exhibits as a priority shoulder route to illustrate the proposed network in its entirety.

Figure 5.2: Fairland East Elementary School and Jewell Drive Connector (N-5)



N-5: Fairland East Elementary School and Jewell Drive Connector (Figure 5.2)

This short sidepath would link Fairland East Elementary School with the neighborhood north of the school. Although a minor distance, it would create a much needed connection by moving student pedestrian and bicycle traffic off of SR-7 and establishing a safer and more direct route between the school and the neighborhood. An existing goat path on this segment of SR-7 indicates a need for improved active transportation facilities. Vegetation could be used to screen the path from the roadway.

N-6: Cedar Street Sidepath (Figure 5.3)

Cedar Street runs north-south between CR-107 and CR-411 in Proctorville. It is mostly residential and is within 1,300 feet of several bicycle and pedestrian generators:

- Fairland West Elementary School
- Fairland Middle School
- Fairland High School
- Lawrence County Fairgrounds

Cedar Street is a two-lane road with narrow paved shoulders and no sidewalks. To accommodate bicyclists and pedestrians going to and from the schools and fairgrounds, a sidepath is recommended on Cedar Street. Several changes would be needed for this treatment to fit in the existing right-of-way:

- Restripe the roadway, shifting motor vehicle lanes west.
- Consider reducing motor vehicle lane width.
- Install physical barrier (bollards, landscaping, or

Figure 5.3: Cedar Street Sidepath and Fairland Schools Shared Use Path (N-6 and N-7)



grade-separation) east of motor vehicle lanes.

- Mark and sign pavement east of physical barrier as a sidepath.

Locating the sidepath on the east side of the road would place it on the same side as the aforementioned bicycle and pedestrian generators. This siting would allow for future connections on smaller residential streets that provide access to the schools (e.g. Ice Avenue). The sidepath could be extended onto CR-411 to the Fairland High School entrance, connecting with the Beulah Lane Sidepath (N-8).

N-7: Fairland Schools Shared Use Path (Figure 5.3)

Due to their close proximity and shared facilities, such as parking lots and athletic fields, it is likely that students already cut across school property to and from adjacent neighborhoods. Single-family homes, mobile homes, and apartment buildings abut school property, but there is no marked or standardized access from these neighborhoods to the schools.

A shared use path running north-south between CR-107 and CR-411 would indicate the safest and most convenient way to travel between schools and into surrounding areas. The path would connect all three schools in the area and provide access to the fair grounds. It would enhance active transportation connectivity by offering an alternative to the proposed Cedar Street Sidepath (N-6), with the opportunity to construct spurs into the neighborhoods on both sides of the schools.

N-8: Beulah Lane Sidepath (Figure 5.4)

Beulah Lane is a linear east-west road that bisects the neighborhoods east of Proctorville. Installing a sidepath on this road would connect the proposed facilities in Proctorville (N-6 and N-7) to the eastern terminus of the Ironton-Proctorville Bikeway (N-2) on Market Street. If a sidepath is unfeasible, marking Beulah Lane with sharrows and “Bikes May Use Full Lane” signage would still accommodate bicyclists, although the route would lack pedestrian facilities.

To increase network connectivity, it is recommended to convert the existing wide shoulders on Kinley Ave to bike lanes. This segment would join the Beulah Lane Sidepath to the SR-7 Proctorville Bypass Bike Route (N-4).

N-9: Walnut Street Shoulders (Figure 5.5)

Walnut Street/CR-775 provides access to the Ohio University Proctorville Center. It connects this destination to downtown Proctorville and has narrow lanes and no shoulders. Almost all of the surrounding land use is undeveloped/agricultural with only one signalized intersection at Irene Road/CR-403. Adding wide paved shoulders would accommodate bicycle and pedestrian traffic along Walnut Street, encouraging OU-Proctorville students, faculty, and staff to use active forms of transportation.

Walnut Street dead-ends roughly 150 feet south of the SR-7/SR-775 intersection. Connecting Walnut Street to the SR-7 Proctorville Bypass Bike Route (N-4) at this intersection with a short shared use path to fill in the gap would increase connectivity, providing an alternative to a circuitous route to and from OU-Proctorville via SR-7 and Irene Road.

Figure 5.4: Beulah Lane Sidepath (N-8)

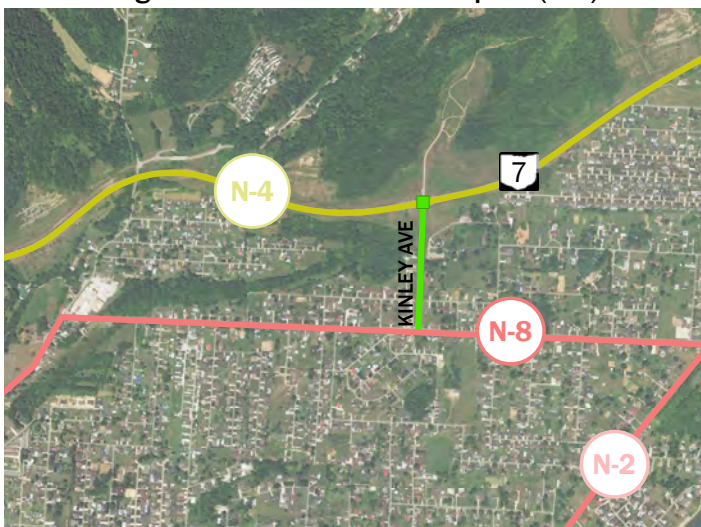


Figure 5.5: Walnut Street/Irene Road Shoulders (N-9/10)



N-10: Irene Road Shoulders (Figure 5.5)

Irene Road/CR-403 runs diagonally east-west between SR-7 and State Street/CR-107. After the approach to SR-7, the road is reduced to two lanes and either narrow or no shoulders. It has three signalized intersections at either end and at Walnut Street/CR-775, which provides access to OU-Proctorville.

Adding wide paved shoulders would accommodate bicycle and pedestrian traffic along Irene Road, encouraging OU-Proctorville students, faculty, staff, and others to use active forms of transportation.

N-11: Court Street Bike Lanes (Figure 5.6)

Court Street runs north-south through the center of Burlington, connecting Jefferson Street/CR-1 with US-52. It is mostly residential, although it does provide access to major retail sites, such as the Lowe's Home Improvements store off of US-52. The roadway is narrow with two lanes and either narrow or no shoulders. Bicyclists were recorded using the road during field observations. Due to its more suburban character and high traffic volumes, standard or separated bike lanes are recommended for Court Street between Washington Street and US-52. Court Street would need to be widened to accommodate bike lanes.

N-12: Solida Road Bike Lanes (Figure 5.7)

Solida Road provides access to important community destinations in South Point, including a grocery store, library, churches, and other retail. Although parts of it are residential, its high traffic volumes (over 6,000 AADT in 2016) preclude any mixed traffic facilities, such as a bicycle boulevard or advisory shoulder, from being installed.

Figure 5.6: Court Street Bike Lane (N-11)



Instead, visually separated facilities, such as bike lanes, could be added to improve rider comfort and safety. The road would need to be widened to accommodate these improvements.

The bike lanes should extend across the US-52 overpass to connect with the proposed CR-60 Sidepath (N-13). Warning signage for motorists exiting US-52 onto Solida Road should be installed to alert them to the possible presence of bicyclists. The Solida Road bike lanes would form one segment of the proposed Ironton-Proctorville Bikeway (N-2).

N-13: CR-60 Sidepath (Figure 5.7)

Delta Lane/Sand Road/CR-60 runs parallel to US-52. It serves South Point High School and a small neighborhood south of the school. Although there are few other developed areas along this route, its proximity to the high school merits some multi-modal additions to the roadway, as students may have limited access to private vehicles.

Figure 5.7: Solida Road Bike Lanes, CR-60 Sidepath, and CR-508 Bicycle Boulevard (N-12, N-13, and N-14)



Installing a sidepath along CR-60 would provide active transportation users access to the school and other destinations on the route. The CR-60 sidepath would also form one segment of the proposed Ironton-Proctorville Bikeway (N-2).

N-14: CR-508 Bicycle Boulevard (Figure 5.7)

CR-508 comprises Winfield Drive, Dearfield Avenue, and Central Avenue. It is a narrow, linear, residential street with slow speeds and low traffic volumes. These features make it an ideal candidate for a bicycle boulevard. To convert this roadway to a bicycle boulevard, it would need several modifications:

- Install bicycle boulevard wayfinding signage and pavement markings.
- Convert CR-508/S 1st Street intersection from all-way stop to two-way stop-controlled to accommodate continuous bicycle travel on CR-508.
- Consider traffic calming measures, such as chicanes or mini traffic circles, to deter cut-through vehicular traffic.

The bicycle boulevard should be extended across US-52 to provide access to important community destinations, including a medical center and daycare. This extension would also connect it to the CR-60 Sidepath, completing the South Point portion of the proposed Ironton-Proctorville Bikeway (N-2). Along with the CR-60 Sidepath and the Solida Road Bike Lanes, the CR-508 Bicycle Boulevard would enhance active transportation connectivity throughout South Point and provide two locations across US-52 for safe and convenient pedestrian and bicycle travel.

N-15: High Street Bicycle Boulevard (Figure 5.8)

High Street runs north-south through the center of Coal Grove. It serves compact development with high-density blocks of single family homes lining the street, and it is one block away from Dawson-Bryant High School. High Street has one signalized intersection at Marian Pike/SR-243, where it passes a grocery store, restaurants, and other businesses. High Street is a narrow, linear street with slow speeds and low traffic volumes. These features make it an ideal candidate for a bicycle boulevard. To convert this roadway to a bicycle boulevard, it would need several modifications:

- Install bicycle boulevard wayfinding signage and pavement markings.
- Convert High Street/Memorial Street intersection

from all-way stop to two-way stop-controlled to accommodate continuous bicycle travel on High Street.

- Install bike boxes, bicycle-actuated signals, and intersection crossing treatments at Marian Pike/SR-243.
- Consider traffic calming measures, such as chicanes or mini traffic circles, to deter cut-through vehicular traffic.

It is recommended to extend the southern portion of the High Street Bicycle Boulevard onto Ridgeway Street and Lane Street, connecting with the Pike Street Bicycle Boulevard and shared use path, which is part of the proposed Ironton-Proctorville Bikeway (N-2). The northern portion of the High Street Bicycle Boulevard could also be elongated using Long Alley and Cedar Street to connect it to the proposed Maddyville Pike Bicycle Boulevard (N-16).

Figure 5.8: High Street, Maddyville Pike, and Woodland Cemetery Bicycle Boulevards (N-15, N-16, and N-17)



N-16: Maddyville Pike Bicycle Boulevard (Figure 5.8)

Maddyville Pike is a circuitous route that connects Ironton and Coal Grove via a US-52 underpass. It is a narrow, quiet street with low traffic volumes and a 20 mile per hour speed limit.

Installing a bicycle boulevard on Maddyville Pike is a logical extension of the proposed High Street Bicycle Boulevard (N-15). It would offer a quieter, alternative connection between Coal Grove and Ironton for active transportation users who prefer to avoid the busier Ironton-Proctorville Bikeway (N-2) on 3rd Street and the Marian Pike/SR-243 bike lanes (N-3). To convert this roadway to a bicycle boulevard, it would need several modifications:

- Install bicycle boulevard wayfinding signage and pavement markings.
- Consider traffic calming measures, such as chicanes or speed humps, to slow traffic on the downhill approach and curve to the US-52 underpass.

The bicycle boulevard could be extended into Ironton on Adams Lane/Lorain Street to connect with the proposed Woodland Cemetery Bicycle Boulevard (N-17) and Ironton-Proctorville Bikeway.

N-17: Woodland Cemetery Bicycle Boulevard (Figure 5.8)

Woodland Cemetery is a popular bicycling destination, according to survey results. It connects to Ironton via its 9th Street entrance and to Coal Grove via its Carlton Davidson Lane entrance. Creating an active transportation route through the cemetery would give bicyclists and pedestrians a quieter and more scenic alternative to using the proposed Ironton-Proctorville Bikeway (N-2) on 3rd Street.

It is recommended that bicycle boulevard pavement markings and wayfinding signage be installed on 9th Street, Carlton Davidson Lane, and internal cemetery roads. These roads carry very little traffic and could likely function as shared streets for pedestrians as well.

Extending the bicycle boulevard south on Carlton Davidson Lane to Marian Pike/SR-243 would increase connectivity, linking to the SR-243 Bike Route (N-3) and bringing it closer to the High Street Bicycle Boulevard (N-15). The Coal Grove Police and Fire departments are located on Carlton Davidson Lane, so steps should be taken to mitigate any potential issues between active transportation users and emergency vehicles. For example, if restricted vehicular access or road closures are considered in the future on

certain segments of the bicycle boulevard, they should be made permeable to emergency vehicles.

The bicycle boulevard could also continue north on Carlton Davidson Lane to connect with the proposed High Street/Maddyville Turnpike Bicycle Boulevards (N-15/N-16).

N-18: Inter-State Bridge Bicycle and Pedestrian Facilities

During public involvement efforts, there were many comments about the lack of bicycle and pedestrian facilities on bridges over the Ohio River. Inter-state active transportation connections were another stated focus of this study.

It may take decades for older bridges to be replaced, as a constrained fiscal environment puts more emphasis on extending service life of existing infrastructure. As such, older bridges that do not accommodate pedestrians and bicyclists can remain serious obstacles in an otherwise developed multi-modal network. There are opportunities during regular bridge deck maintenance to incorporate active transportation facilities. Furthermore, the FHWA requires that these opportunities be pursued when feasible:

In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations (23 U.S.C.217(e)).

State and local governments are encouraged to apply this policy to pedestrian facilities as well. There are six inter-state bridges in the Study Area for vehicular traffic; two of them accommodate non-motorized modes (see **Table 5.4**). The following recommendations for bridge improvements in the Study Area use a number of strategies. Some of them are interim measures that could be employed immediately to improve bicycle and pedestrian access on bridges until more robust facilities are able to be constructed; others are long-term solutions that would require significant modifications to existing bridge decks.

Table 5.4: Inter-State Bridge Inventory

Bridge	Location	Lanes	AADT (2016)	Bike/Ped Facilities
Oakley Clark Collins Memorial	Ironton	2	N/A	None
12th Street	Coal Grove	2	N/A	Sidewalk
13th Street	Coal Grove	3	30,351 (2014)	None
US-52/ Nick Joe Rahall II	Chesapeake	2	21,769	None
WV SR-527/ Robert C Byrd	Chesapeake	4	15,597	Sidewalk
SR-775/ Frank Gatski Memorial	Proctorville	2	14,407	None

- Oakley Clark Collins Memorial Bridge**

The newly constructed Oakley Clark Collins Memorial Bridge, completed in 2016, connects downtown Ironton to Russel, KY. It does not feature any bicycle or pedestrian facilities. The existing shoulders on the bridge may be wide enough to accommodate bike lanes. It is recommended that the shoulders be converted to bike lanes, or, lacking sufficient width, that a road diet be used to narrow the vehicle travel lanes to include bike lanes in both directions (see **Figure 5.9**). The addition of bike lanes could fill a critical gap in the active transportation network between Ironton, a regional hub, and Kentucky.

- 12th Street Bridge**

The 12th Street Bridge is a two lane, one-way road from Coal Grove to Ashland, KY. The existing sidewalk should be sufficient to accommodate pedestrian traffic for both the 12th and 13th Street Bridges, due to their proximity.

The 12th Street Bridge is too narrow to include separated bicycle facilities without removing one of the two existing travel lanes. It is recommended that sharrows be added to the right travel lane, accompanied by “Bikes May Use Full Lane” signage. Reduced speed limits and active warning beacons to indicate bicyclists’ presence on the bridge would increase rider safety.

- 13th Street Bridge**

The 13th Street Bridge is a three lane, one-way road from Ashland, KY to Coal Grove. Due to its high traffic volumes, it may not be desirable to remove one of the three travel lanes on the bridge to install separated bicycle facilities. However, despite its high traffic volumes, it is recommended that sharrows be added to the right lane, accompanied by “Bikes May Use Full Lane” signage, because it is the only connection from Ashland to Coal Grove. Reduced speed limits and active warning beacons to indicate bicyclists’ presence on the bridge would increase rider safety.

- US-52/Nick Joe Rahall II Bridge**

The US-52 Bridge is one of three bridges connecting Lawrence County to Huntington, WV. It has high traffic volumes and speeds, lacks connectivity to surface streets (US-52 is an overpass through Huntington, terminating at the I-64 interchange south of the city), and has complex interchanges on either side of the bridge. Because of these factors, it may be more desirable to use one of the other bridges in the area as a conduit for inter-state bicycle and pedestrian traffic. Therefore no bicycle and pedestrian improvements are recommended for the US-52 Bridge.

- WV SR-527/Robert C Byrd Bridge**

The WV SR-527 Bridge is more accessible to non-motorized users because it connects to surface streets on both sides of the Ohio River. Furthermore, any facility added to the bridge would also connect to the proposed Ironton-Proctorville Bikeway (N-2) in Chesapeake. It is recommended to either expand the existing sidewalk on the east side of the bridge to accommodate a shared use path or construct a new, cantilevered sidepath on the west side of the bridge. Because there is already a pedestrian connection across the bridge, on-street bicycle facilities could be added instead of a shared use path. To add bicycle facilities to the WV SR-527 Bridge, the following restriping changes would be needed:

- » Narrow existing four travel lanes to 10 feet each.
- » Add two separated bike lanes (one northbound, one southbound, 9 feet each).

Locating new or expanded active transportation facilities on the WV SR-527 Bridge would deposit bicyclists and pedestrians in the center of downtown Huntington, bringing them in close proximity to

the 4th Avenue Bike Lanes, Pullman Square, the Greyhound Bus Station, and Marshall University. Wayfinding signage should be added to funnel active transportation users towards the WV SR-527 Bridge and away from the remaining bridges to and from Huntington.

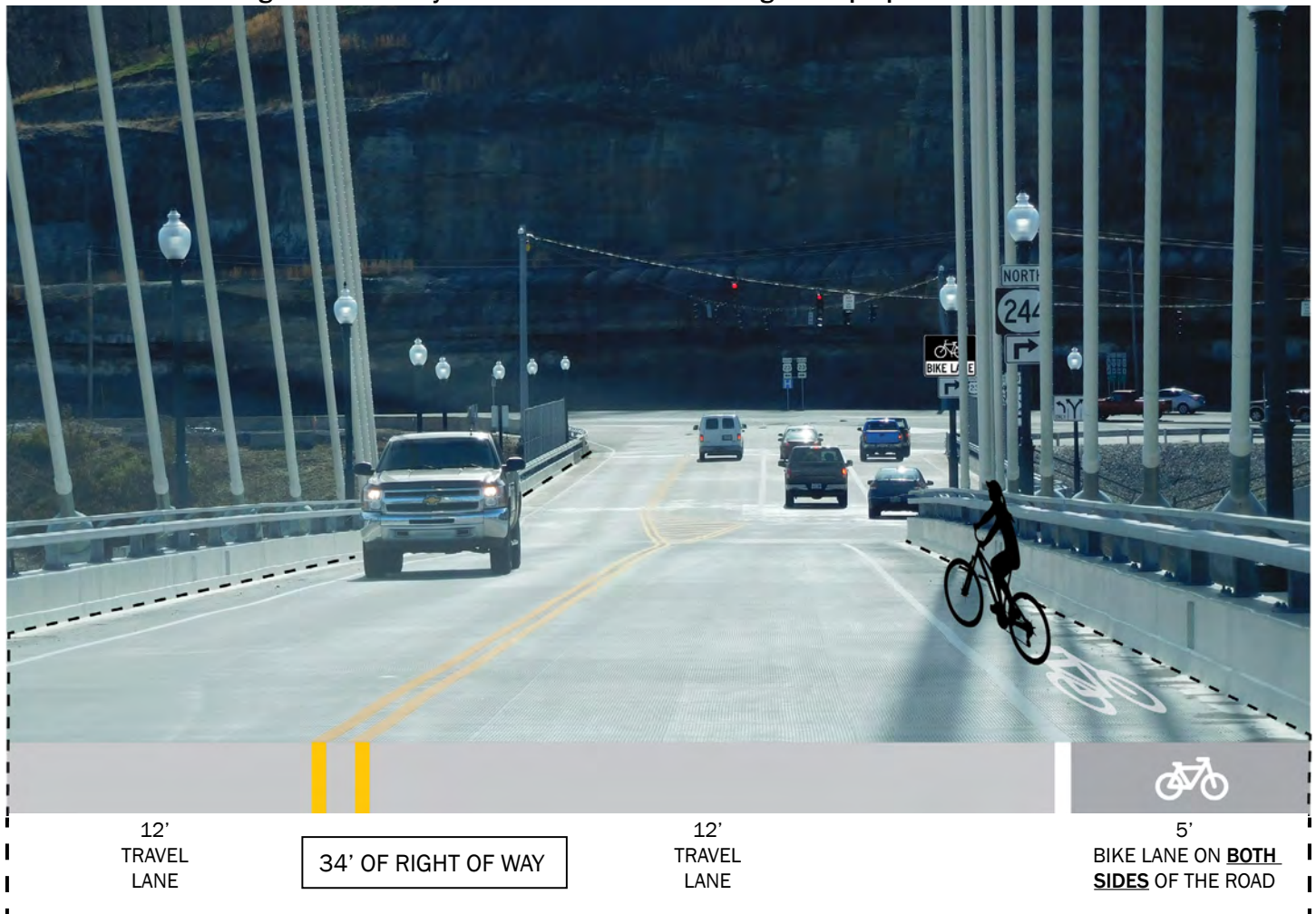
- **SR-775/Frank Gatski Memorial Bridge**

The SR-775 Bridge connects Proctorville to the eastern part of Huntington. It is too narrow to add dedicated bicycle facilities while maintaining vehicular traffic in both directions. Sharrows and “Bikes May Use Full Lane” signage could be added to both existing travel lanes; however, with a speed limit of 35 miles per hour, most bicyclists would not feel comfortable riding in mixed traffic. Instead, bicyclists should be routed four miles west on the Ironton-Proctorville Bikeway to the proposed active transportation facilities on the WV SR-527 Bridge. While less direct for trips between Proctorville and Huntington, these facilities could more safely accommodate bicyclists. Therefore, no bicycle or pedestrian improvements are recommended for the SR-775 Bridge at this time. If increased bicycle

activity in the future merits a more direct connection between Proctorville and Huntington, the bridge could be restriped to include advisory shoulders.

The next chapter divides network design and construction into phased tasks, with step-by-step guides for implementing the Lawrence County Bicycle and Pedestrian Plan.

Figure 5.9: Oakley Clark Collins Memorial Bridge with proposed bike lanes



6 IMPLEMENTATION

6.1 Introduction

This chapter describes the major factors involved in plan implementation. It defines the central role that KYOVA will play in any multi-jurisdictional planning effort for active transportation. Funding resources and a list of Implementation Principles are enumerated to provide guidance as the Plan moves forward. A project prioritization process applies criteria in support of each principle when determining which projects to pursue. Finally, policy and program recommendations cover a range of topics, from active transportation education to enforcement and evaluation. A flow chart at the end of the chapter synthesizes these items into an overall planning process for implementing the proposed recommendations.

6.2 Collaboration

As the gateway to southeastern Ohio, Lawrence County sits at the center of a tri-state area, also comprising southwestern West Virginia and northeastern Kentucky. As such, any regional planning effort in the area must be coordinated across a number of state, local, and regional organizations. A concerted effort in inter-jurisdictional collaboration is the first step towards successful implementation of the Lawrence County Bicycle and Pedestrian Plan. While KYOVA will take a leadership role in project development, many other organizations will be involved as well. Primary stakeholders identified in the following list will be collectively responsible for the design, funding, construction, maintenance, monitoring, and evaluation of the network; secondary stakeholders will generate and attract network users.

Primary Stakeholders

- KYOVA
- Lawrence County Engineer
- ODOT District 9
- City of Ironton
- Community of Burlington
- Village of Chesapeake
- Village of Coal Grove
- Village of Hanging Rock
- Village of Proctorville
- Village of South Point
- Lawrence County Sheriff
- Local law enforcement and emergency departments
- KYTC
- WVDOT

Secondary Stakeholders

- Briggs Lawrence County Public Library
- Chesapeake Union Exempted Village Schools
- Citizens
- City of Ashland, KY
- City of Huntington, WV
- City of Russell, KY
- Dawson-Bryant Local Schools
- Fairland Local Schools
- Ironton City Schools
- Ohio University
- South Point Local Schools

The proposed network would add over 70 miles of improvements to ODOT-owned roads and over ten miles of improvements on County-owned roads. Cooperation with ODOT and Lawrence County will be critical during project implementation. Emphasizing collaboration will help ensure consistent adherence to the Implementation Principles, described in Section 6.4, across jurisdictions.

In some cases KYOVA may need to take a leading role in coordinating planning efforts with local agencies. For example, the Fairland Local Schools District would likely need technical assistance with design and construction of the proposed shared use path network connecting public schools in Proctorville (N-7). For other projects, KYOVA's role may be limited to that of a funding agency, providing Transportation Improvement Program (TIP) dollars to ODOT for improved shoulders on priority state routes (N-1), for instance.

The proposed network also offers opportunities for public private partnerships. Approximately six miles of the proposed Ironton-Proctorville Bikeway (N-2) follow rail and utility corridors. The overhead electric corridor between South Point and Burlington is a good occasion for such a partnership. The land beneath the overhead power cables is mowed and maintained for access, but otherwise unused. Obtaining an easement to build a trail on this land would complete an important connection in the proposed network. The Rails-to-Trails Conservancy has more information on utility corridor agreements for trails: <https://www.railstotrails.org/build-trails/trail-building-toolbox/planning/utilities/>

6.3 Funding

Governmental agencies across many sectors are facing a constrained fiscal environment. As a result, public works projects often rely on creative problem-solving and collaboration across sectors and levels of government to succeed. This is especially true when a regional transportation network spans jurisdictional boundaries across multiple states.

All federally-funded projects in KYOVA's Kentucky-Ohio-West Virginia planning area are authorized through its Transportation Improvement Program (TIP). The TIP is a federally mandated requirement for all metropolitan planning organizations. Updating the TIP requires intensive collaboration with member governments and other stakeholders to determine which projects have support and which projects to defer to ensure funding sources are not exceeded. The document is updated every four years and KYOVA's current TIP authorizes projects from 2018 through 2021. The current TIP does not include any pedestrian or bicycle-related projects for Lawrence County.

Active transportation projects comprise a fraction of overall transportation network construction and maintenance. While they generally do not serve as many users as highways, bridges, and other critical infrastructure, they can have a substantial positive effect on local economies. For example, several studies¹ have exposed the strong correlation between recreational trails and increased property values, tourism, and economic development, especially in rural communities through which major trails pass. Furthermore, providing opportunities for active living promotes public health and may reduce the burden on tax-payer funded healthcare systems over time. In this light, active transportation infrastructure is a critical component of a complete transportation network and results in a positive return on investment for communities that fund such projects.

Table 6.1 on the following page lists federal funding sources for bicycle and pedestrian infrastructure projects based on project type and eligibility. Additional funding resources are listed in **Appendix C**.

1. *The Impact of Central Ohio Trails (2015)*, Mid-Ohio Regional Planning Commission
Economic Impact of Trails web page, National Trails Training Partnership

6.4 Implementation Principles

A series of Implementation Principles was developed to guide the Plan's progress. The principles address several important factors that should be considered before, during, and after implementation.

1. Access

Creating better access to destinations by means of active transportation is the primary goal of most bicycle and pedestrian plans. Each proposed project should further active transportation opportunities for residents of Lawrence County. Projects that serve population centers should be prioritized, especially when those areas include bicycle and pedestrian generators.

2. Safety

Ensuring a safe environment for active transportation users is one of the guiding principles of plan implementation. While recorded crashes involving bicyclists and pedestrians are low throughout the County (see Section 3.6), near misses and actual crashes may go unreported if law enforcement is not involved. Furthermore, the safety issues caused by sharing the road with motorists may deter many would-be active transportation users from bicycling or walking.

Proposed projects, especially on-street routes, should be thoroughly vetted for potential safety issues during project selection. Tools such as bike and walk audits, safety studies, and public engagement can help clarify safety concerns around a particular project. If existing safety issues are identified early in the planning process, the project can be modified (i.e. facility design or route changes) to enhance safety benefits.

3. Connectivity

There is more than one way to reach a destination. While this maxim is truer in urban areas than in rural ones, most major destinations in Lawrence County are accessible by multiple routes when traveling by car. The same should be true for active transportation users.

Recommendations, described in Chapter 5, include a variety of route options and facility types for users of

varying ability and experience level, with redundant routes built into the proposed network. For example, the proposed bicycle boulevards on Maddyville Pike (N-16) and through Woodlands Cemetery (N-17) connect Ironton and Coal Grove via routes on quiet streets. These routes offer an alternative to the proposed bike lanes on 3rd Street and Marian Pike/SR-243 (N-2 and N-3, respectively), which use higher volume roads to connect Ironton and Coal Grove. By offering multiple routes between the same destinations, the proposed network can accommodate users of varying experience and comfort level.

4. Synergy

It is typically more cost-effective to include active transportation improvements in larger transportation projects or as part of routine maintenance, such as resurfacing. The majority of the proposed network is on-street or in the right-of-way, which provides many opportunities for leveraging resources with other agencies.

Including the proposed bicycle and pedestrian facilities in other projects should be pursued whenever possible, even if they do not coincide with this plan's timeline or other criteria. Furthermore, additional

Table 6.1: Federal Funding Sources for Bicycle and Pedestrian Projects

Project Type	Funding Source										
	TIGER	TIFIA	FTA	ATI	CMAQ	HSIP	NHPP	STBG	TA	RTP	SRTS
Bicycle and pedestrian overpasses	●	●	●	●	●	●	●	●	●	●	●
Bicycle parking	●	●	●	●	●	●	●	●	●	●	●
Bicycle and pedestrian scale lighting	●	●	●	●	●	●	●	●	●	●	●
Crosswalks (new or retrofit)	●	●	●	●	●	●	●	●	●	●	●
Curb ramps	●	●	●	●	●	●	●	●	●	●	●
Bike lanes	●	●	●	●	●	●	●	●	●	●	●
Paved shoulders	●	●	●	●	●	●	●	●	●	●	●
Separated bike lanes	●	●	●	●	●	●	●	●	●	●	●
Shared use paths	●	●	●	●	●	●	●	●	●	●	●
Sidewalks (new or retrofit)	●	●	●	●	●	●	●	●	●	●	●
Signed routes	●	●	●	●	●	●	●	●	●	●	●
Signs and signals	●	●	●	●	●	●	●	●	●	●	●
Streetscaping	●	●	●	●	●	●	●	●	●	●	●
Traffic calming	●	●	●	●	●	●	●	●	●	●	●
Trail bridges	●	●	●	●	●	●	●	●	●	●	●
Trail crossings	●	●	●	●	●	●	●	●	●	●	●
Trail facilities (e.g. restrooms)	●	●	●	●	●	●	●	●	●	●	●
Tunnels/underpasses	●	●	●	●	●	●	●	●	●	●	●

● Funds may be used for this activity ● See program-specific notes for restrictions ● Eligible, but not competitive unless part of a larger project ● Not eligible

Program Abbreviations

TIGER: Transportation Investment Generating Economic Recovery Discretionary Grant program
TIFIA: Transportation Infrastructure Finance and Innovation Act (loans)
FTA: Federal Transit Administration Capital Funds
ATI: Associated Transit Improvement (1% set-aside of FTA)
CMAQ: Congestion Mitigation and Air Quality Improvement Program
HSIP: Highway Safety Improvement Program

NHPP: National Highway Performance Program
STBG: Surface Transportation Block Grant Program
TA: Transportation Alternatives Set-Aside (formerly Transportation Alternatives Program)
RTP: Recreational Trails Program
SRTS: Safe Routes to School Program / Activities

improvements that are not part of this plan should also be considered as circumstances permit (for example, if bike lanes are able to be installed during a resurfacing project on a road that is not part of the proposed network but connects to a proposed facility). Any improvement that enhances connectivity and convenience for active transportation users, whether or not it is part of this plan, should be pursued.

5. Incremental Integrity

The ability of the network to provide a system of value at each step of completion is an important attribute. Upon completion of Phases 1 and 2, users should note a marked increase in safe and accessible facilities throughout the Study Area.

While the long-term vision of the Plan is to create a unified network of bicycle and pedestrian facilities connected by the proposed Ironton-Proctorville Bikeway (N-2), each urban area within the network can begin incremental improvements immediately. Until they are connected, the proposed network segments in Hanging Rock, Ironton, Coal Grove, South Point, Burlington, Chesapeake, and Proctorville should function as complete and self-contained networks.

Maintaining network integrity during each phase of implementation and in each community that the network serves will ensure that improvements of lasting value are made years before the long-term vision is realized.

6. Equity

As with any transportation project, access for underserved populations must be a consideration. While walking or biking may be a form of recreation for some, for those without access to private transportation, it may be their primary means of travel for their entire trip or to and from transit access. Minority and/or low-income residents, the elderly, zero vehicle households, and people with disabilities tend to rely on alternative modes more than the general population. A safe, convenient, and efficient active transportation network can expand access for these groups, connecting them to essential needs, such as jobs and healthcare, as well as providing recreational opportunities.

7. Sustainable Growth

New bicycle and pedestrian-friendly destinations, such as schools, libraries, community centers, and

other civic uses, should be developed along existing or planned network segments, or connected to the network by extensions.

6.5 Project Prioritization Process

The infrastructure recommendations in Chapter 5 are conceptual routes, meant to show the potential of a comprehensive active transportation network in Lawrence County. While they are detailed in scope, they are not necessarily constrained by existing challenges. Funding, land use, property rights, terrain, and other project-specific factors may make certain recommendations less practicable than others. The Project Prioritization Process uses measurable data to determine which projects are both feasible, given real-world constraints, and adhere to the Implementation Principles.

Table 6.2 on the following page shows the criteria used to rank each proposed project. Each criterion supports one of the Implementation Principles. Certain criteria are weighted more heavily than others based on their significance to implementation. For example, if a project is within 1/4 mile of a bicycle and pedestrian generator, it receives three points because providing access is one of the primary goals of any transportation network; whereas a project on a roadway whose speed limit is over 40 miles per hour receives no points because high speeds create dangerous conditions for bicyclists and pedestrians. For scoring purposes, larger projects are divided into segments and each segment is ranked individually to provide a more nuanced approach to implementation. Projects are scored based on 11 criteria for a total of 32 possible points. Proposed projects should be assigned to a phase based on the following point system shown in **Table 6.3**.

Analysis of Project Prioritization Results

The project prioritization process was applied to all segments of the proposed network. **Figure 6.1** on page 46 shows the scores for each project. It should be noted that the Sustainable Growth criterion (supports planned development) was omitted due to lack of available data. This category should be included in the future for specific projects.

Based on the resulting scores, only one project qualified for Phase 1 implementation. Nineteen projects qualify for Phase 2, 16 projects qualify for Phase 3, and 5 projects qualify for Phase 4. **Exhibits 6.1-6** in **Appendix D** show phase maps.

Table 6.2: Project Prioritization Criteria

Principle Supported	Criteria		Points
Access	Within 1/4 mile of bicycle and pedestrian generator ¹		4
	Within 1/4 mile of population center ²		4
Safety	Within 100 feet of recorded bicycle/pedestrian crash site		3
	Traffic volumes	Under 3,000 AADT	3
		3,001-10,000 AADT	2
		10,001-15,000 AADT	1
		Great than 15,000 AADT	0
	Posted speed	Not on road ³	3
		25 mph	2
		30-35 mph	1
		40 mph or greater	0
Connectivity	Within 500 feet of existing active transportation facility (includes sidewalks) or completes a critical link in the proposed network (i.e. no alternative route)		3
Synergy	Shares ROW with programmed ODOT and/or Lawrence County projects		4
Incremental Integrity	Functions as standalone facility until connected with larger network ⁴		3
Equity ⁵	Majority of the route travels through or adjacent to census blocks with:	Median household income less than \$43,000 ⁶	2
		More than 20 zero vehicle households	2
Sustainable Growth	Supports planned development		2

Definitions of Terms and Assumptions

1. A bicycle and pedestrian generator is defined as a civic/institutional use (school, university, church, library, hospital, etc.), park and/or recreational site, tourist attraction, job center, or retail center.
2. A population center is defined as a census block with a population density of 1,000 persons per square mile or greater.
3. Shared use paths are considered off-road. Sidepaths are treated as on-road facilities because they are in the right-of-way and must cross conflict points at intersections. For posted speed scores, they receive 0.5 extra points above the regular scoring due to their increased separation. For example, a sidepath on a 40 mph road would receive 0.5 points.
4. A standalone facility is defined as a piece of bicycle or pedestrian infrastructure that serves at least one bicycle and pedestrian generator, as defined above, with clear start and end points and no gaps.
5. Minority and elderly populations were also considered as equity criteria, but all census blocks in the County are majority white and there are no elderly groupings; therefore this criterion would not alter scoring results.
6. The 2015 median household income for Lawrence County was approximately \$43,000 (see Table 3.3).

Table 6.3: Project Point System

Points	Phase	Timeline
24 - 32	1	Immediate (< 1 year)
16 - 23	2	Near-term (1-5 years)
8 - 15	3	Mid-term (6-15 years)
0 - 7	4	Long-term (> 15 years)

Phase 1 — Immediate (< 1 year)

The High Street Bicycle Boulevard (N-15) is the only Phase 1 project, meaning it would be complete within one year of adoption of this plan. The project prioritization process identified High Street as an ideal pilot project because:

- It runs through a high-density area, with multiple bicycle and pedestrian generators.
- It has low traffic volumes and speeds.
- It has a recorded pedestrian crash, indicating a possible need for safety improvements.
- It enhances network connectivity, linking with three other proposed routes and provides an alternative route for less experienced bicyclists.
- It functions as a standalone project with a clear start and end point and no breaks.
- It serves a low-income area, increasing active transportation access for underserved communities.

To convert High Street to a bicycle boulevard, the road would need several modifications, also discussed in Chapter 5:

- Install bicycle boulevard wayfinding signage and pavement markings.
- Convert High Street/Memorial Street intersection from all-way stop to two-way stop-controlled to accommodate continuous bicycle travel on High Street.
- Install bike boxes, bicycle-actuated signals, and intersection crossing treatments at Marian Pike/SR-243.
- Consider traffic calming measures, such as chicanes or mini traffic circles, to deter cut-through vehicular traffic.

Pavement markings and signage could be installed first, followed by more complex changes in subsequent phases. the suggested intersection treatment at Marian Pike/SR-243 could coincide with the Phase 2 SR-243 Bike Route upgrades.

This Phase 1 project could serve as the pilot implementation project for this Plan, familiarizing Lawrence County residents with certain types of active transportation infrastructure before the projects are deployed throughout the County.

Phase 2 — Near-term (1-5 years)

The majority of Phase 2 routes travel through the communities along the Ohio River between Ironton and Proctorville. After Phase 2, most of the proposed Ironton-Proctorville Bikeway (N-2) would be complete through South Point, Burlington, and Chesapeake. Proctorville's recommended network would also be complete, except for the SR-7 Proctorville Bypass Bike Route. Recommendations for Coal Grove would also be complete, as well as the 2nd/3rd Street Bike Lanes in Ironton (N-2).

Phase 3 — Mid-term (6-15 years)

In Phase 3, all paved shoulders on priority state routes (N-1) would be completed. This timing allows for long-term coordination with ODOT and inclusion of shoulder upgrades on KYOVA's future TIPS. Gaps in the Ironton-Proctorville Bikeway would be filled in, such as the improved shoulders on SR-7 east of Proctorville, and the shared use path from South Point to Burlington (which would offer an alternative route to the Phase 2 sharrows and signage on CR-1). Improvements to the Oakley Clark Collins Memorial Bridge and the WV SR-527/Robert C Byrd Bridge (N-18) would also be completed during Phase 3.

Phase 4 — Long-term (> 15 years)

In Phase 4, the final critical gap in the Ironton-Proctorville Bikeway would be filled in. The shared use path from Coal Grove to South Point would complete the cross-county trail and offer an alternative route between Ironton/Coal Grove and Proctorville to the Phase 3 SR-243 Bike Route (N-3). Improvements to the 12th and 13th Street Bridges (N-18) would take place, as well as widened paved shoulders on SR-655 as part of State Bike Route 10 (E-1). Because this upgrade is part of an existing route, SBR-10, it may be prudent to schedule it during Phase 2 or 3 even though the project prioritization process placed it in Phase 4.

6.6 Policy and Program Actions

Recommended policy and program actions are included with other steps in the implementation process because they will likely occur in tandem. Certain actions may take effect immediately while others depend upon the successful implementation of this plan. The proposed network would significantly increase active transportation, but there are still existing opportunities for bicycling and walking in Lawrence County. These policy actions can maintain and encourage active transportation, and pursuing them now will ensure a strong policy framework once the proposed network is in place.

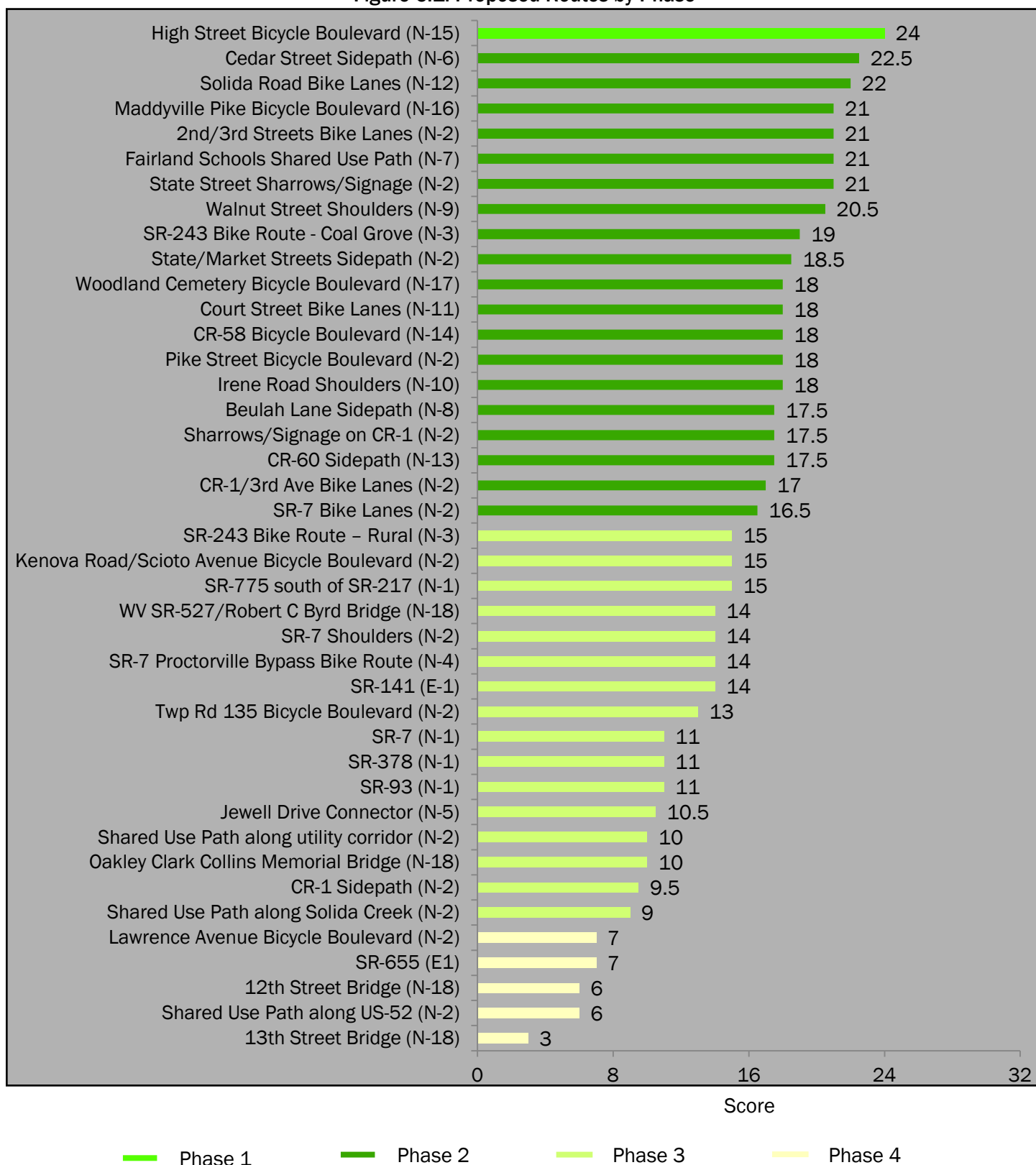
There are several essential elements in active transportation planning, known collectively as the "Five E's":

1. **Engineering:** Creating safe and convenient places to ride and walk.
2. **Education:** Giving people of all ages and abilities the skills and confidence to ride.
3. **Encouragement:** Creating a strong active transportation culture that welcomes and celebrates bicycling and walking.
4. **Enforcement:** Ensuring safe roads for all users.
5. **Evaluation & Planning:** Planning for active transportation as a safe and viable transportation option.

Engineering

The infrastructure recommendations outlined in Chapter 5 fall under the first E, engineering. The following policy and program recommendations address the four remaining E's. **Table 6.4** lists recommended policy and program actions and responsible parties for each action.

Figure 6.1: Proposed Routes by Phase



Education

Active transportation users that are aware of their rights and responsibilities can act as role models to other road users.

- *Offer Pedestrian and Bicycle Safety Education*
Education on how to walk and ride safely can be incorporated into grade school curricula through a variety of means, including Safe Routes to School programming, physical education, and visits and demonstrations from law enforcement officers and active transportation advocates.

For adults, this same information can be conveyed via open classes at recreation and community centers, libraries, universities, and faith centers. Marketing tools are another effective means of public education. For example, communities across the country have adopted the Share the Road campaign to encourage safe driving and bicycling.

- *Include Active Transportation in Driver's Education*
Some states require driver education classroom curricula to include instruction on duties of a driver when encountering a bicycle or a pedestrian. Advocacy groups in Ohio are lobbying to make these changes. This includes information about relevant legislation, such as laws that require three feet of clearance when passing a bicyclist (Ohio adopted this law in 2017).

During public outreach, survey respondents reported aggressive and harassing behavior from motorists towards bicyclists and pedestrians in Lawrence County. While this issue may need further study to verify the prevalence of such encounters, it emphasizes the importance of educating motorists on safe behavior when sharing the road with more vulnerable users.

- *Participate in ODOT's Active Transportation Academy*
ODOT's Local Technical Assistance Program offers a variety of courses related to active

Table 6.4: Recommended Policy and Program Actions

Category	Recommendation	Responsible Party
Education	Offer Pedestrian and Bicycle Safety Education	Local Governments School Districts Nonprofits
	Include Active Transportation in Driver's Education	State Government Advocacy Groups
	Participate in ODOT's Active Transportation Academy	Local Governments
Encouragement	Participate in National Bike Month and Bike to Work Day	Local Governments
	Establish Bike Friendly Business Programs	Local Governments
	Establish Bikeshare Programs	MPO (funding) Local Governments Community Groups
	Establish Walking Programs	Local Governments (Health, Parks, Recreation Departments) Community Groups
Enforcement	Include Active Transportation in Law Enforcement Training	Local Governments (Law Enforcement)
	Form Bicycle Patrols	
	Enlist Community Liaisons	
Evaluation and Planning	Participate in the National Bicycle and Pedestrian Documentation Project	MPO Local Governments Community Groups
	Add Proposed Projects to TIP	MPO
	Perform Regular Plan Updates	MPO

transportation free of charge. Communities may request a training or workshop, which is held locally and taught by experienced active transportation professionals. Topics include:

- » Non-Infrastructure Implementation
- » Safety in Active Transportation: School & Community Planning
- » Safe Routes to Schools for Educators and Administrators
- » Creating a Vision Zero Action Plan
- » Connected/Autonomous Vehicles & Active Transportation
- » Community Traffic Calming Programs
- » How to Conduct Walk and Bike Audits
- » Advocating for Active Transportation
- » Health in Active Transportation

Encouragement

Encouragement plays a critical role in validating walking and bicycling as safe, convenient, and feasible transportation options.

- *Participate in National Bike Month/Bike to Work Day*
Every May, hundreds of cities host events on Bike to Work Day, including group rides, concerts, contests, and other celebrations of bicycling as a means of commuting.
- *Establish Bicycle Friendly Business Programs*
Businesses can encourage their employees to bike to work by providing secure bike parking, lockers, showers, changing rooms, implementing incentive programs, and offering safety classes through local partnerships. The League of American Bicyclists has a national program that recognizes bicycle friendly businesses.
- *Establish Bikeshare Programs*
Bike share programs take many forms, and a privately operated program using the latest technology may not be the best fit for rural communities. Instead, low-cost programs can begin with donated bikes and volunteer host sites. Partnering with bicycle and pedestrian destinations and providing a convenient and easy way to rent bicycles are important components of a bikeshare program. Siting bikeshare stations at new facilities, such as trail heads, will encourage more use.

- *Establish Walking Programs*

Some communities offer organized walking programs on a regular basis. Others partner with nonprofits to lead the effort. For example, *Walk With A Doc* is an international nonprofit based in Columbus, Ohio that pairs local physicians with residents eager to walk and learn about healthy living. Local governments can also encourage citizen-led, neighborhood walking programs by donating snacks and water, providing security if needed, and encouraging public park and trail use.

Enforcement

Having law enforcement officers who are sensitive to bicycle and pedestrian issues is an important component of a successful active transportation program.

- *Include Active Transportation in Law Enforcement Training*

A good relationship between law enforcement and bicyclists is essential to create a safe and inviting environment for walking and riding. Police officers should be aware of the rights and responsibilities of pedestrians and bicyclists, and police academies should incorporate active transportation education into their training.

- *Form Bicycle Patrols*

Police bicycle patrols are an effective means of improving community relations, with the added benefit of reducing operating costs. Bicycle officers are more approachable and less threatening than patrol vehicles and are more able to understand a bicyclist's point of view.

- *Enlist Community Liaisons*

Officers that volunteer as community liaisons maintain dialogue between the active transportation community and local governmental agencies. They may serve on bicycle and pedestrian advisory committees or meet informally with stakeholders. A confident working relationship with community members allows officers to stay informed of current and potential issues and respond proactively.

Evaluation and Planning

Measuring the performance of active transportation networks is essential. Bicycle and pedestrian counts, crash records, Level of Service metrics, and other data contribute to a business case for continued improvement of and investment in multi-modal infrastructure.

- *Participate in the National Bicycle and Pedestrian Documentation Project*

This nationwide effort provides a consistent model of data collection and analysis to evaluate network usage. It occurs twice a year, in the Spring and Fall, although communities are encouraged to conduct counts at any time. Governmental agencies, such as metropolitan planning organizations, coordinate the effort locally and recruit volunteers. This recommendation should be implemented as soon as possible to obtain baseline data before the proposed network is constructed.

- *Add proposed projects to TIP*

To guarantee funding for the proposed network, projects should be included on KYOVA's future TIP updates.

- *Perform Regular Plan Updates*

Revisiting and updating this plan on a regular basis will maintain momentum for active transportation in Lawrence County. As funding, political, and community circumstances evolve, updating the Plan to reflect such changes will ensure its continued relevance. Updates every four to six years should achieve this goal.

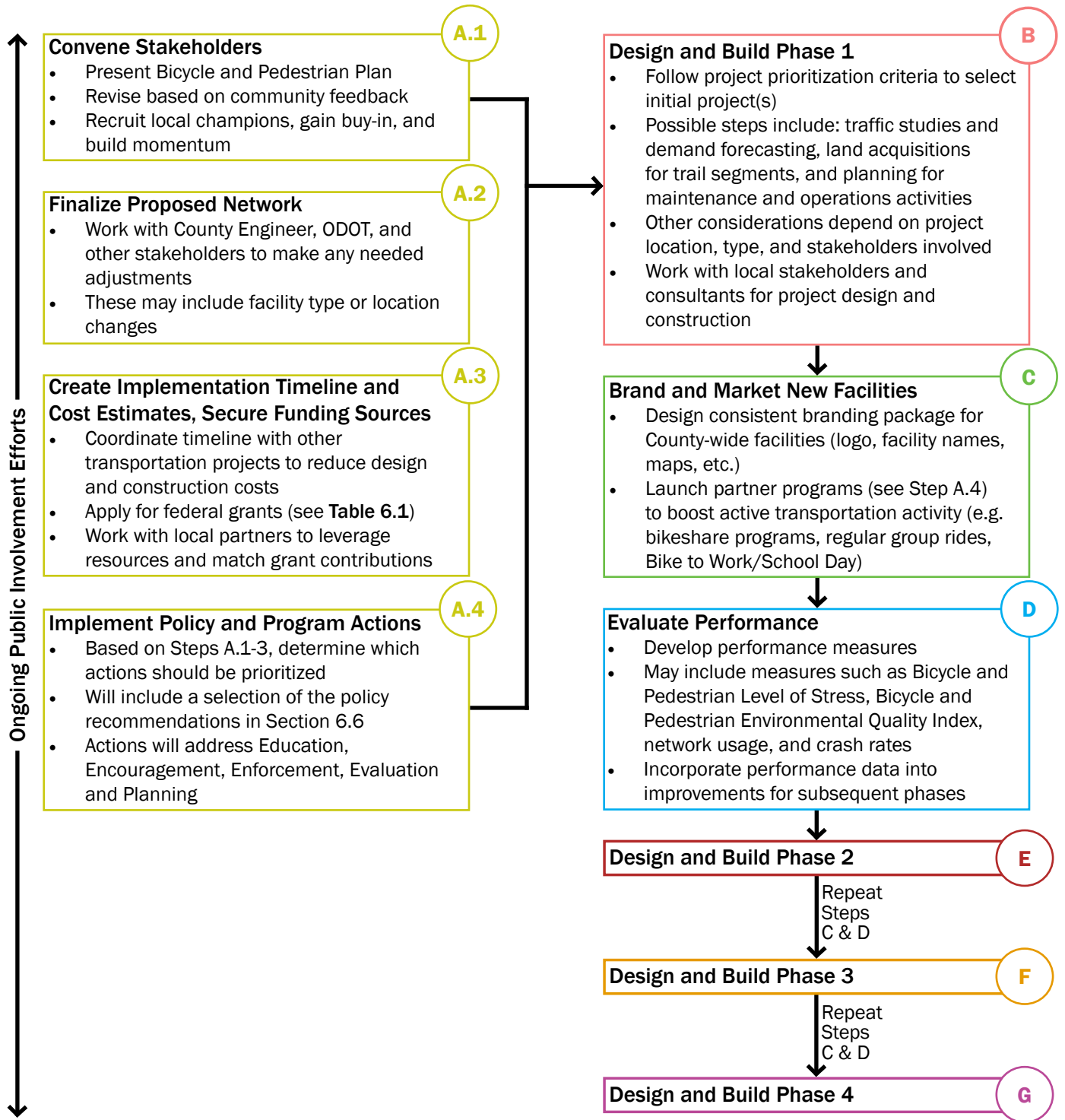
Building a County-wide and inter-state active transportation system involves numerous stakeholders and must balance the competing priorities of multiple travel modes. While maintaining space for motor vehicles is vital for the region, considering the needs of active transportation users is also an important factor. Bicycle and pedestrian facilities enhance quality of life, encourage physical activity, improve public health, and foster a sense of community. They provide alternative means of travel for those without access to private vehicles, and create safer, more livable places that attract and retain residents, businesses, and visitors.

6.7 Conclusion

Creating an active transportation network along with supportive policy changes is an iterative process. Applying lessons learned from initial infrastructure and policy improvements will inform and enhance the Plan's progress during subsequent phases. **Figure 6.2** synthesizes the different components of implementation into a flow chart. While steps are shown sequentially, actual implementation will involve simultaneous actions as well.

With over 100 miles of proposed improvements and a variety of accommodations for both bicyclists and pedestrians, these recommendations would establish a comprehensive and inter-connected active transportation network throughout Lawrence County. The network would link urban hubs within the Study Area and serve rural communities across the County. Furthermore, it would provide access to destinations in West Virginia and Kentucky, creating safe and convenient accommodations that address critical gaps in the existing network.

Figure 6.1: Implementation Flow Chart
Step-by-Step Process to Implement Four Phases of Recommended Projects



APPENDIX A

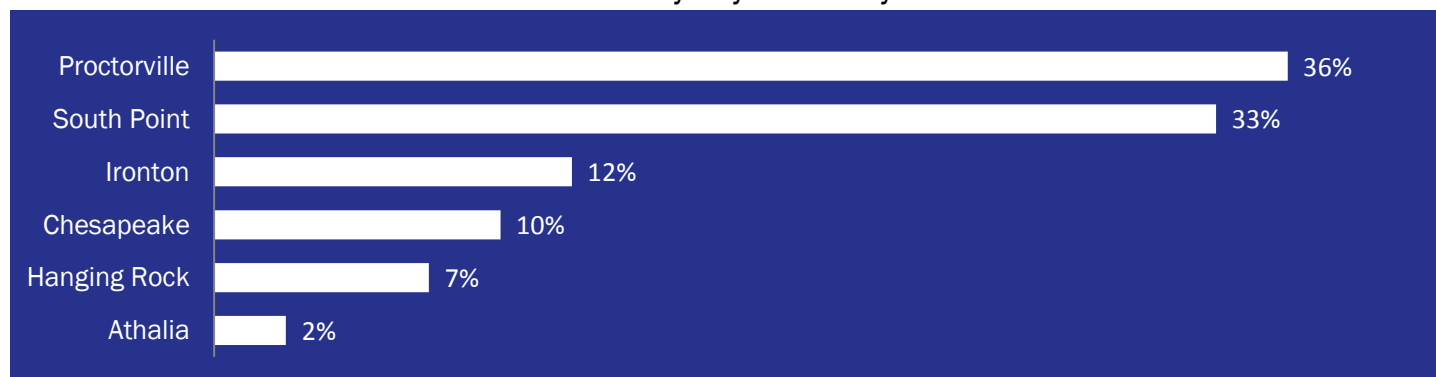
SURVEY MATERIALS

Survey Distribution List

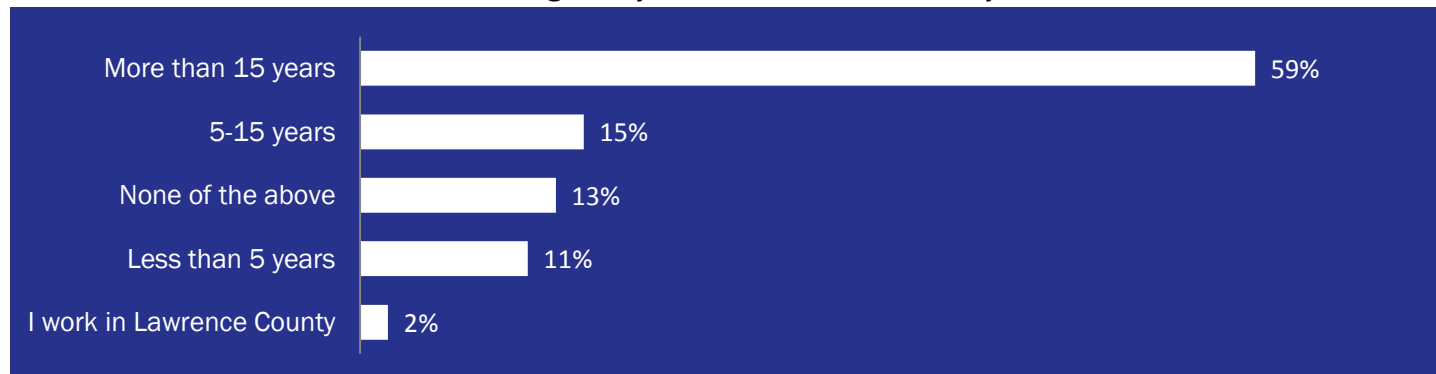
- Briggs Lawrence County Public Library
- Chesapeake Elementary/Middle/High Schools
- Dawson Bryant High School
- Fairland Elementary/Middle/High Schools
- Greater Lawrence County Area Chamber of Commerce
- Huntington Cycle & Sport
- Ironton Elementary/Middle School
- Ironton Fire
- Ironton Police
- Ironton Recreation
- Ironton Zoning
- Jeff's Bike Shop
- Lawrence County Sheriff
- Loops for Hoops
- Ohio University Southern
- Ohio University-Ironton Library
- Planning
- St. Joseph Central High School
- Village of Hanging Rock
- Village of Proctorville
- Village of South Point

Survey Results

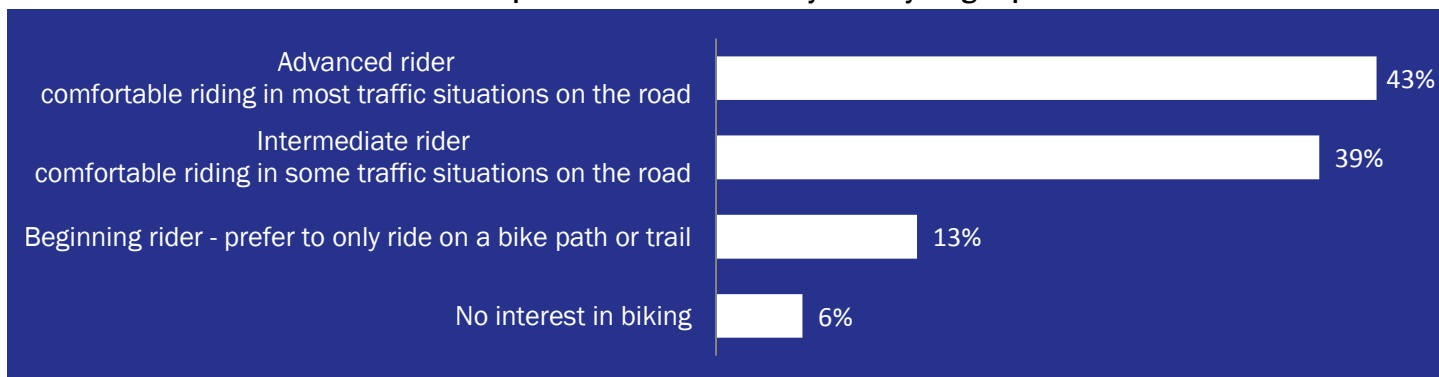
What community do you currently live in?



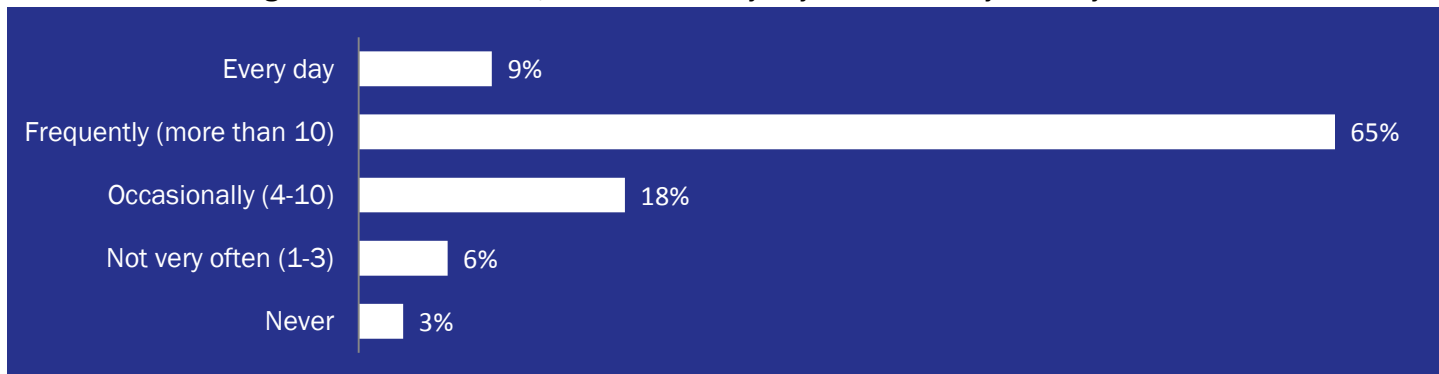
How long have you lived in Lawrence County?



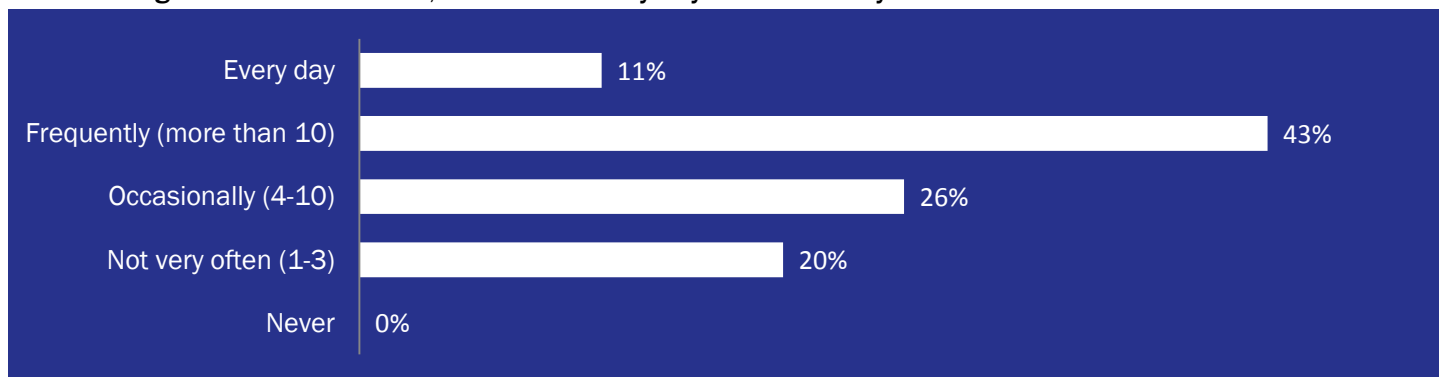
Which of these phrases best describes your bicycling experience?



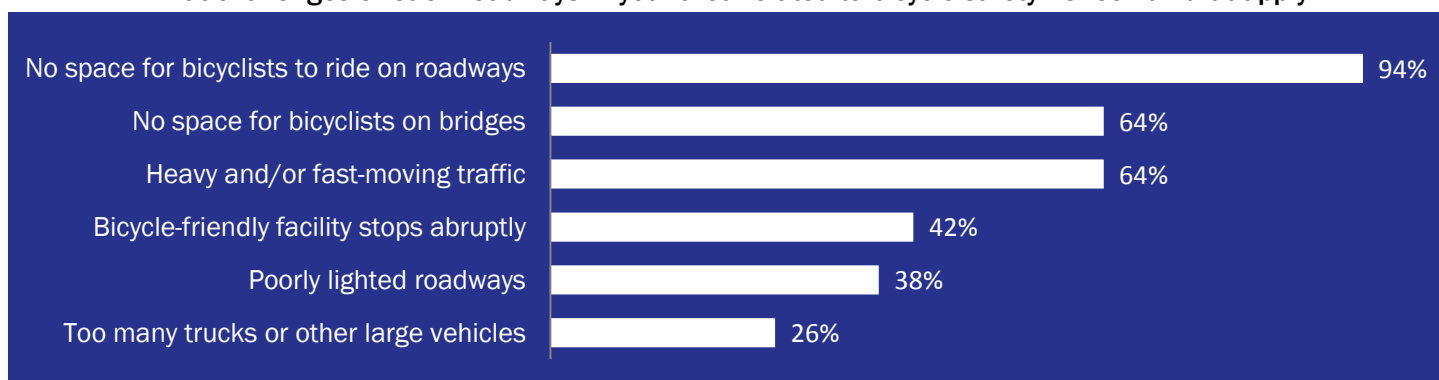
In good weather months, about how many days a month do you ride your bike?



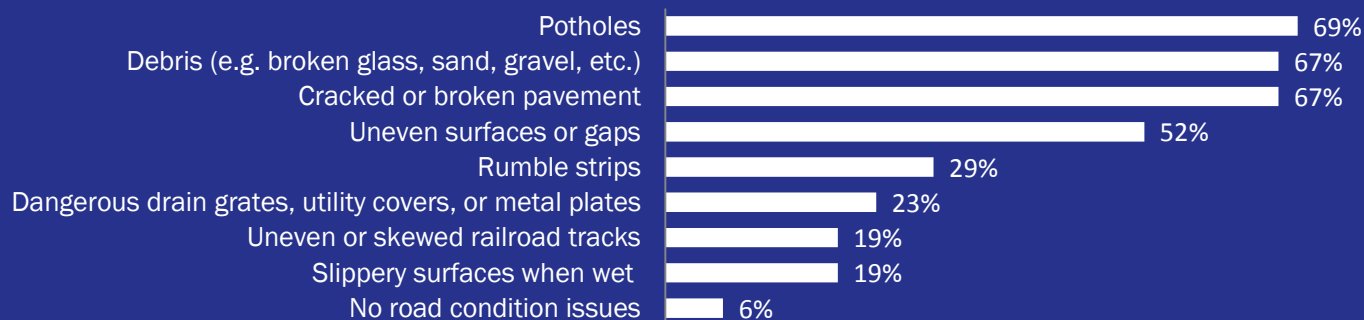
In good weather months, about how many days a month do you walk for more than 30 minutes?



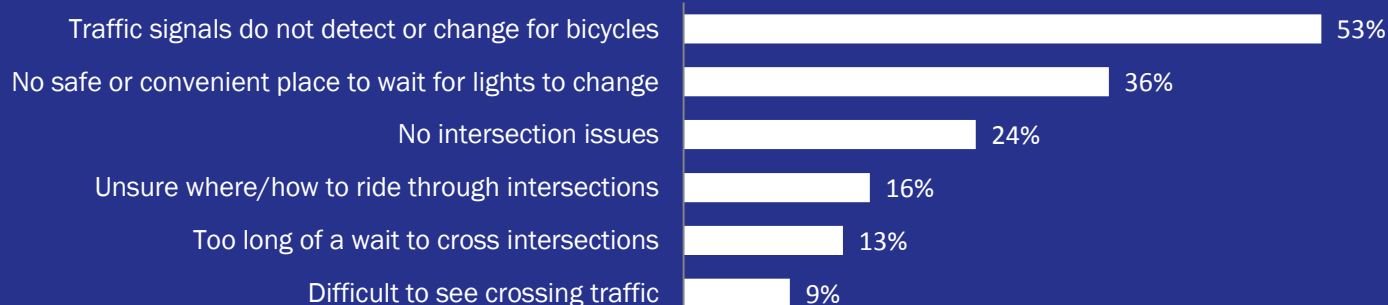
What challenges exist on roadways in your area related to bicycle safety? Check all that apply.



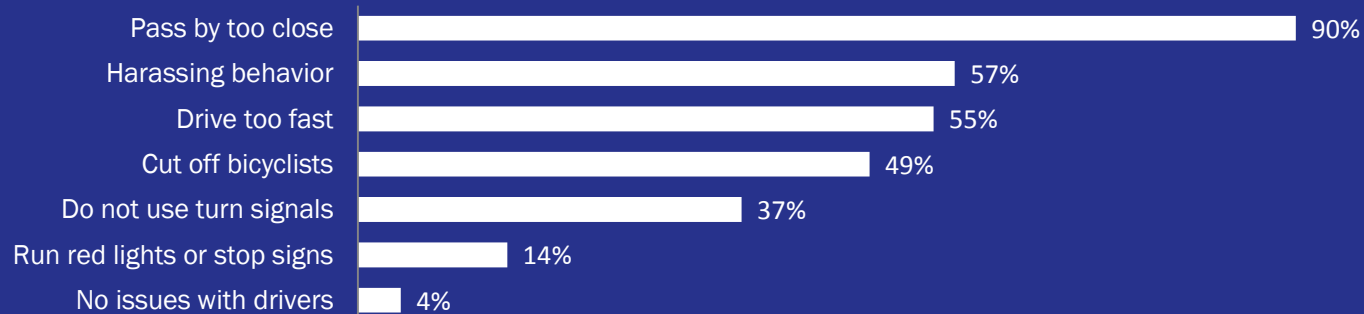
Are there any road condition issues in your area that negatively affect bicycling? Check all that apply.



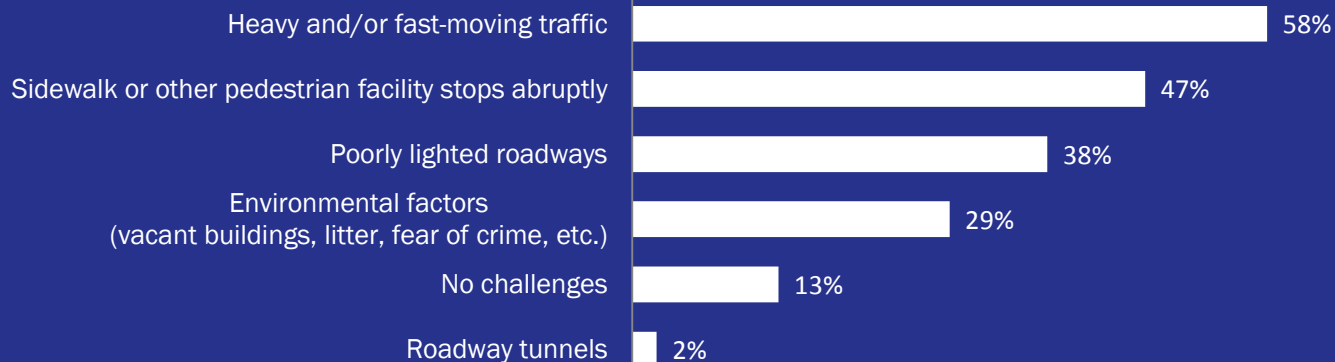
Are there any challenges to navigating intersections as a bicyclist in your community? Check all that apply.



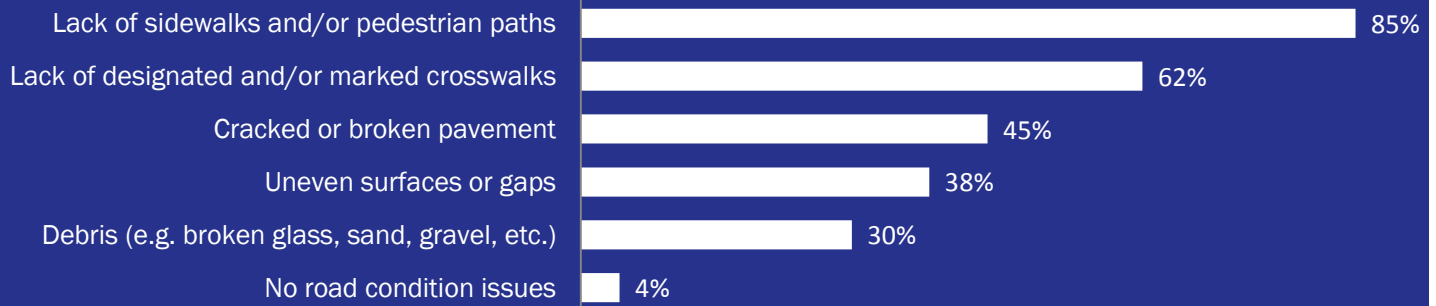
How do drivers interact with bicyclists in your area? Check all that apply.



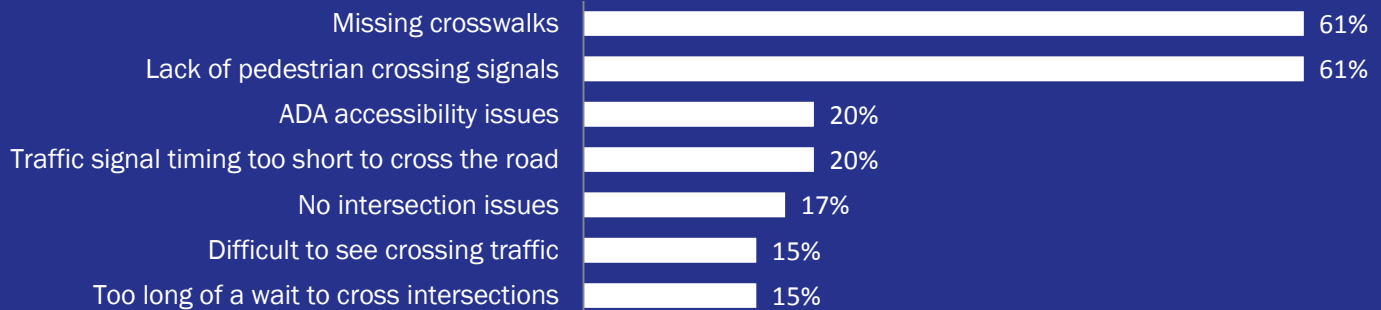
What challenges exist on roadways in your area related to pedestrian safety? Check all that apply.



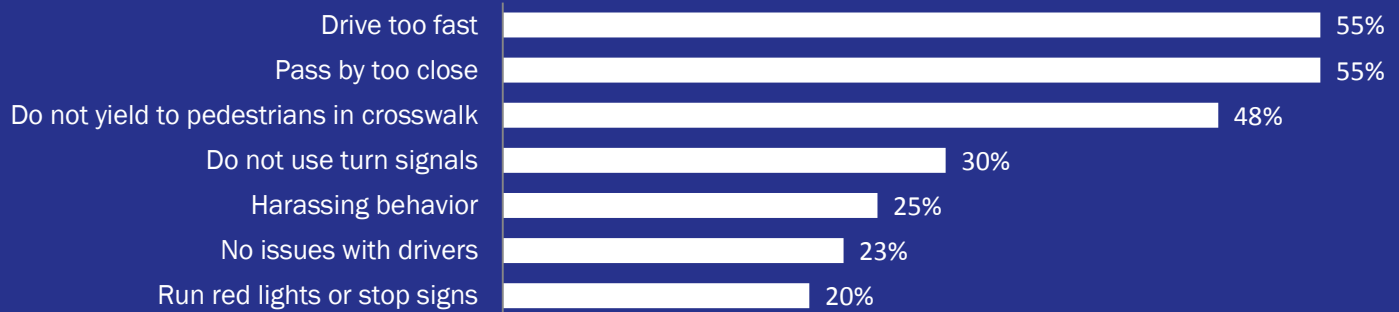
Are there any road condition issues in your area that negatively affect walking? Check all that apply.



Are there any challenges to navigating intersections as a pedestrian in your community? Check all that apply.



How do drivers interact with pedestrians in your area? Check all that apply.



Survey Instrument

The KYOVA Interstate Planning Commission is conducting a study that examines modes of travel other than motor vehicles for Lawrence County, Ohio. In response to the growing need for bicycle and pedestrian facilities, the purpose of this study is to examine connectivity and livability measures throughout the county for active forms of transportation. This survey will help identify issues and direct the recommendations of the study.

1. What community do you currently live in?

- ☐ Ironton
- ☐ Athalia
- ☐ Chesapeake
- ☐ Coal Grove
- ☐ Hanging Rock
- ☐ Proctorville
- ☐ South Point

Other (please specify)

2. How long have you lived in Lawrence County?

- ☐ Less than 5 years
- ☐ 5-15 years
- ☐ More than 15 years
- ☐ I work in Lawrence County
- ☐ None of the above

3. What intersection is nearest to your home? (e.g. 9th St and Wyanoke St, Ironton)

4. Which of these phrases best describes your bicycling experience?

- ☐ Advanced rider - comfortable riding in most traffic situations on the road
- ☐ Intermediate rider - comfortable riding in some traffic situations on the road
- ☐ Beginning rider - prefer to only ride on a bike path or trail
- ☐ No interest in biking

5. What challenges exist on roadways in your area related to **bicycle** safety? Check all that apply.

- ☐ No space for bicyclists to ride on roadways
- ☐ Paved shoulder or other bicycle-friendly facility stops abruptly
- ☐ Heavy and/or fast-moving traffic
- ☐ Too many trucks or other large vehicles
- ☐ No space for bicyclists on bridges
- ☐ Roadway tunnels
- ☐ Poorly lighted roadways
- ☐ No challenges

Other (please specify)

6. Are there any road condition issues in your area that negatively affect **bicycling**? Check all that apply.

- ☐ Potholes
- ☐ Cracked or broken pavement
- ☐ Debris (e.g. broken glass, sand, gravel, etc.)
- ☐ Dangerous drain grates, utility covers, or metal plates
- ☐ Uneven surfaces or gaps
- ☐ Slippery surfaces when wet (e.g. bridge decks, construction plates, road markings)
- ☐ Uneven or skewed railroad tracks
- ☐ Rumble strips
- ☐ No road condition issues

Other (please specify)

7. Are there any challenges to navigating intersections as a **bicyclist** in your community? Check all that apply.

- ☐ Too long of a wait to cross intersections
- ☐ Difficult to see crossing traffic
- ☐ Traffic signals do not detect or change for bicycles
- ☐ Unsure where/how to ride through intersections
- ☐ No safe or convenient place to wait for lights to change
- ☐ No intersection issues

Other (please specify)

8. How do drivers interact with **bicyclists** in your area? Check all that apply.

- ☐ Pass by too close
- ☐ Do not use turn signals
- ☐ Harassing behavior
- ☐ Cut off bicyclists
- ☐ Run red lights or stop signs
- ☐ Drive too fast
- ☐ No issues with drivers

Other (please specify)

9. What challenges exist on roadways in your area related to **pedestrian** safety? Check all that apply.

- ☐ Sidewalk or other pedestrian facility stops abruptly
- ☐ Heavy and/or fast-moving traffic
- ☐ Roadway tunnels
- ☐ Poorly lighted roadways
- ☐ Environmental factors such as vacant buildings, litter, fear of crime, etc.
- ☐ No challenges

Other (please specify)

10. Are there any road condition issues in your area that negatively affect **walking**? Check all that apply.

- ☐ Lack of designated and/or marked crosswalks
- ☐ Lack of sidewalks and/or pedestrian paths
- ☐ Cracked or broken pavement
- ☐ Debris (e.g. broken glass, sand, gravel, etc.)
- ☐ Uneven surfaces or gaps
- ☐ No road condition issues

Other (please specify)

11. Are there any challenges to navigating intersections as a **pedestrian** in your community?

Check all that apply.

- ☐ Too long of a wait to cross intersections
- ☐ Difficult to see crossing traffic
- ☐ Traffic signal timing not long enough time to cross the road
- ☐ Lack of pedestrian crossing signals
- ☐ Missing crosswalks
- ☐ ADA accessibility issues
- ☐ No intersection issues

Other (please specify)

12. How do drivers interact with **pedestrians** in your area? Check all that apply.

- ☐ Pass by too close
- ☐ Do not use turn signals
- ☐ Harassing behavior
- ☐ Do not yield to pedestrians in crosswalk
- ☐ Run red lights or stop signs
- ☐ Drive too fast
- ☐ No issues with drivers

Other (please specify)

13. List the three best roads for bicycling in your community.

(e.g. State Route 7 between Proctorville and Chesapeake, South 3rd St in Ironton, between Pine St and Lorain St)

Road Location 1

Road Location 2

Road Location 3

14. List the three worst roads for bicycling in your community.

Road Location 1

Road Location 2

Road Location 3

15. Where are your three favorite bicycling destinations?

(e.g. Ohio University Proctorville Center, Downtown Ironton, Briggs Lawrence County Public Library, etc.)

Destination 1

Destination 2

Destination 3

16. Where should bike lanes be added to roads in your community?

(e.g. State Route 7 between Proctorville and Chesapeake, South 3rd St in Ironton, between Pine St and Lorain St)

Road Location 1

Road Location 2

Road Location 3

17. List the top three most popular destinations that need a bike trail connection.

Destination 1

Destination 2

Destination 3

18. List the top three locations where bicycle parking should be added in your community.

Location 1

Location 2

Location 3

19. List the top three locations where sidewalks (or walking/biking trails) should be added in your community.

Road Location 1

Road Location 2

Road Location 3

20. Where are your three favorite walking destinations?

(e.g. Ohio University Proctorville Center, Downtown Ironton, Briggs Lawrence County Public Library, etc.)

Destination 1

Destination 2

Destination 3

21. In good weather months, about how many days a month do you ride your bike?

- ☐ Never
- ☐ Not very often (1-3)
- ☐ Occasionally (4-10)
- ☐ Frequently (more than 10)
- ☐ Every day

22. In good weather months, about how many days a month do you walk for more than 30 minutes?

- ☐ Never
 - ☐ Not very often (1-3)
 - ☐ Occasionally (4-10)
 - ☐ Frequently (more than 10)
 - ☐ Every day
-

23. Please provide any general comments you would like to share regarding bicycling or walking in your area.

24. If you are interested in receiving updates on the project, including notices to public meetings, please enter your email address here.

APPENDIX B

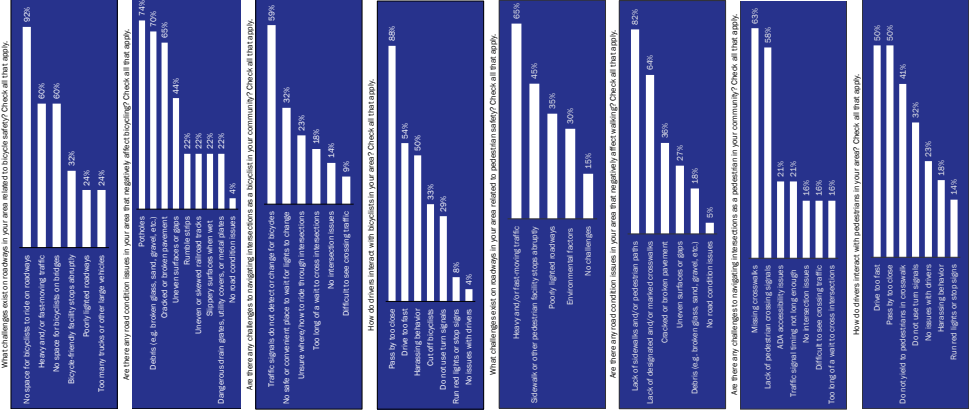
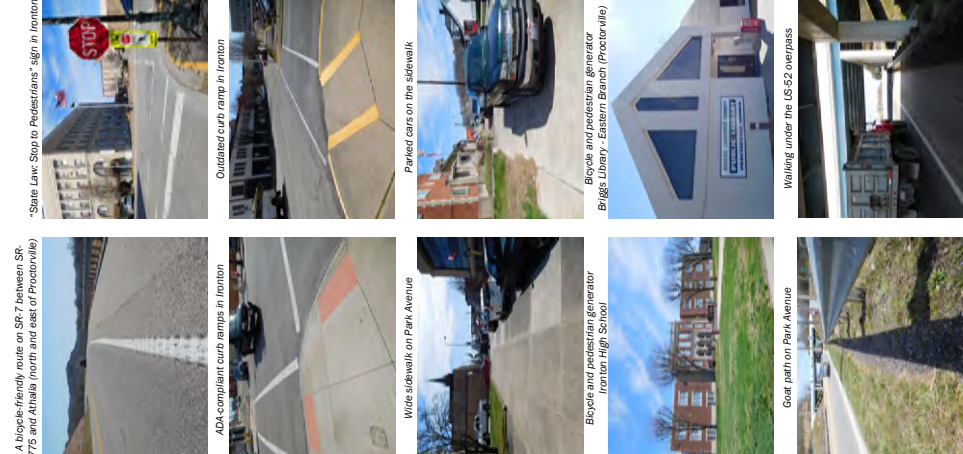
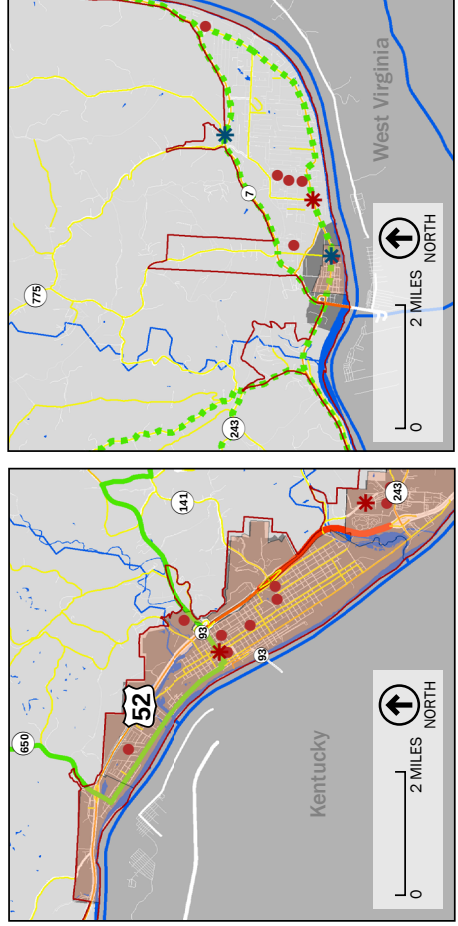
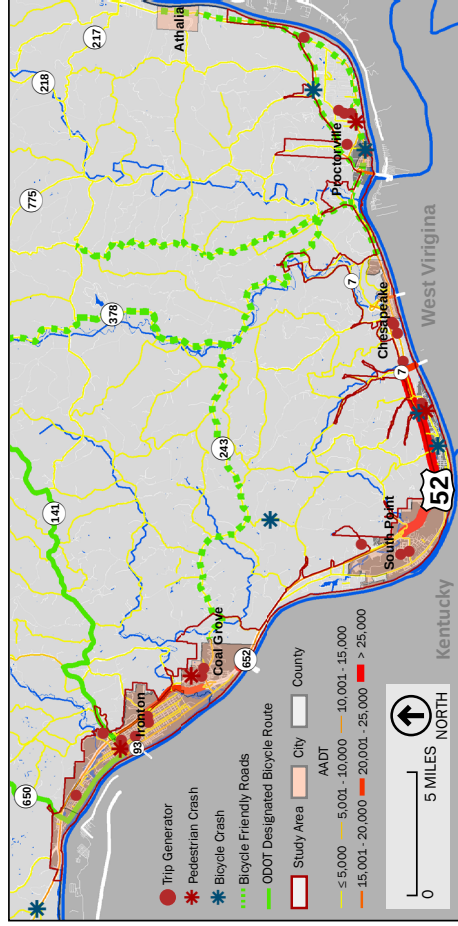
PUBLIC MEETING MATERIALS

Lawrence County Bicycle & Pedestrian Plan | Existing Conditions



Walking Environment: Pedestrian facilities are lacking **Bicycling Environment:** There are no signed and marked on most roadways in the study area, but sidewalks do bicycle facilities within the study area.

exist in some parts of more urban areas, such as in the City of Ironton and the villages of Proctorville and Coal Run. Ironton has a robust sidewalk network, especially in the downtown area around Park Avenue. Residential neighborhoods east of Downtown also feature sidewalks.



Lawrence County Bicycle & Pedestrian Plan | Recommended Facilities

The facility treatments shown here represent a sampling of some of the tools that are used to create safe and convenient multimodal networks in rural areas. Facility types are divided into three categories:

① Mixed Traffic Facilities ② Visually Separated Facilities ③ Physically Separated Facilities

Visually separated facilities are directly adjacent to the facilities completely remove motor vehicle travel area. bicyclists, pedestrians, and they reserve space within other non-motorized users the right-of-way for exclusive from the motor vehicle travel use by pedestrians and/or area. Some facilities, such as bicyclists. Typically, they are cycle tracks and side paths, designated with pavement remain part of the roadway markings and signage but network, while others, such lack physical barriers. These as shared use paths, create facilities are best utilized on a distinct network for non-moderately busy roads with motorized users. These facilities are generally much safer, narrowing the potential for conflict with motor vehicles.



YIELD ROADWAY/SHARED STREET

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚶🚴🚲🛴🛹

Yield Roadway/Shared Street Benefits

- Less costly to build and/or maintain than fully paved cross sections.
- Connects local residential areas to destinations on the network.
- Limits impermeable surface area and minimizes stormwater runoff.
- Maintains aesthetic of narrow roads and uncurbed road edges.
- Encourages slow travel speed when narrower than 20 ft.
- Can support a larger tree canopy when located within wide unpaved roadside areas.
- Supports on-street or shoulder parking for property access.
- Low maintenance needs over time.

Application: In Lawrence County, yield roadways could be used in built-up urban areas on quiet streets, such as residential neighborhoods in Hinton and Proctorville.



BICYCLE BOULEVARD

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚴🚲🛴🛹

Bicycle Bouleward Benefits

- Increases comfort for people bicycling by reducing motor vehicle operating speeds and volumes.
- Connects local residential roads to commercial corridors and community services such as schools.
- Improves conditions for pedestrians when implemented with sidewalks and enhanced pedestrian crossings.
- May reduce the incidence of serious injuries through reduced travel speeds.
- Improves the quality of the residential neighborhood through quieter traffic and safer crossings.
- Supports the use of the network for all modes of travel.

Application: In Lawrence County, bicycle boulevards could be used in built-up urban areas on quiet streets, such as residential neighborhoods in Hinton and Proctorville.



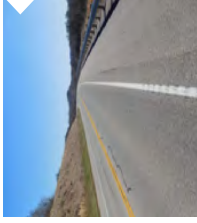
ADVISORY SHOULDER

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚴🚲🛴🛹

Advisory Shoulder Benefits

- Provides a delineated but nonexclusive space available for biking on a roadway otherwise too narrow for dedicated shoulders.
- Minimizes potential impacts to visual or natural resources through efficient use of existing space.
- Functions well within a rural and small town traffic and land use context.
- May function as an interim measure where plans include shoulder widening in the future.
- Supports the rural environment through reduced paved surface requirements.

Application: Advisory shoulders could be installed on state routes with low to moderate volume and speeds as an interim measure, before upgrading them to paved shoulders.



PAVED SHOULDER

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚶🚴🚲🛴🛹

Paved Shoulder Benefits

- Improves bicyclist experiences on roadways with higher speeds or traffic volumes.
- Provides a dedicated space for the roadway for pedestrians and bicyclists to use when sidewalks are not provided.
- Reduces pedestrian "walking along roadway" crashes.
- Can reduce "bicyclist struck from behind" crashes, which represent a significant portion of rural road crashes.
- Provides advantages for all roadway users, by creating space for bicyclists, pedestrians, and motor vehicles.

Application: Variable and bikeable shoulders should be provided on all state routes in Lawrence County where no other facilities exist, especially those routes routinely used by pedestrians and bicyclists.



BIKE LANE

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚴🚲🛴🛹

Bike Lane Benefits

- Provides additional separation between the sidewalk and motor vehicle travel area, if a sidewalk is present.
- Connects and completes bikeway networks through built-up areas.
- Provides a designated space on the roadway suitable for many skilled bicyclists within built-up areas of small communities.
- Can support school access by bicycle when configured as a wide blue line on low-speed, low-volume streets.
- Provides additional visual cues to drivers that they should expect bicyclists on the roadway, and particularly useful when transitioning to a built-up area from a highway context.

Application: Bike lanes are recommended for urbanized areas in Lawrence County.



CYCLE TRACK

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚴🚲🛴🛹

Cycle Track Benefits

- Dedicates and protects space for bicyclists in order to improve perceived comfort and safety.
- Eliminates risk and fear of collisions with overtaking vehicles.
- Reduces risk of "dooring" compared to a bike line and eliminates the risk of a doored bicyclist being run over by a motor vehicle.
- Prevents double-parking, unlike a bike lane.
- Low implementation cost by making use of existing pavement and drainage and by using parking area as a barrier.
- Provides a barrier between bicyclists of all confidence levels.

Application: In Lawrence County, cycle tracks could be used on major roads in heavy-traffic urban areas.



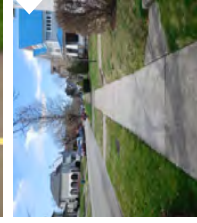
SHARED USED PATH/SIDEPATH

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚴🚲🛴🛹

Shared Use Path Benefits

- Provides a dedicated facility for users of all ages and abilities.
- Provides, in some cases, access to areas that are otherwise served only by limited access roadways.
- Provides a safe, comfortable, and convenient travel option for users of all ages and abilities, including those with disabilities.
- Provides an opportunity for recreation.
- Provides an opportunity for transportation access to local destinations.
- Helps low-income people obtain access to recreation.
- Provides a small footprint and can display a variety of creative designs.

Application: In Lawrence County, shared use paths and side paths are recommended for long-distance rural corridors between urban areas.



SIDEWALK

PROTECTION LEVEL	INSTALLATION COST	DURABILITY	AESTHETICS	USERS
✓	\$	⊗	⊗	🚶🚴🚲🛴🛹

Sidewalk Benefits

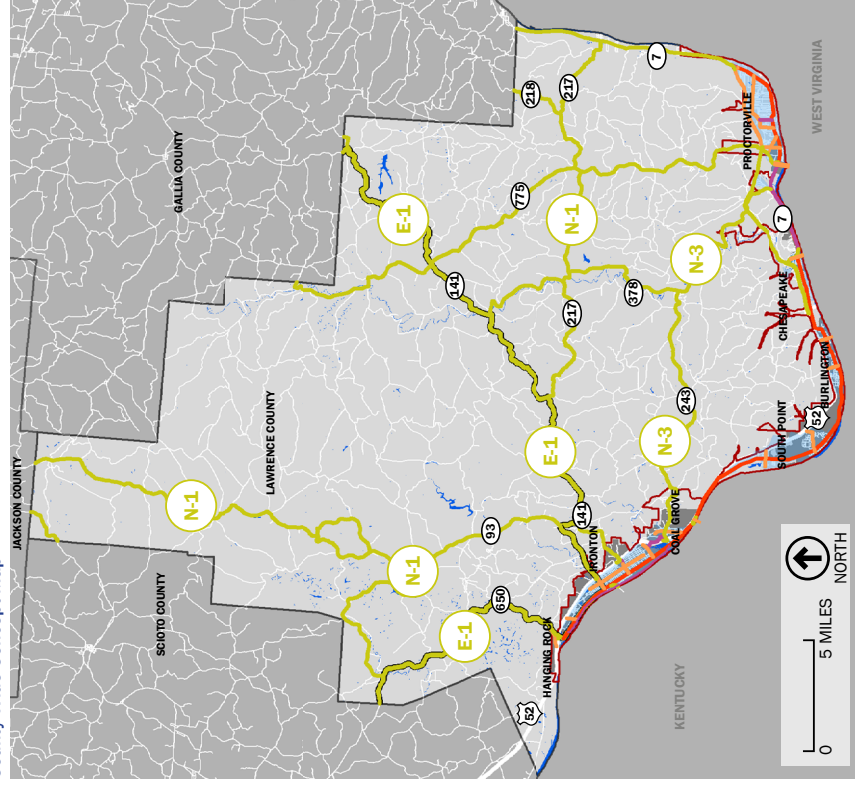
- Provides a dedicated place within the public right of way for pedestrians to safely travel and reduces pedestrian collisions in rural areas.
- Reduces "walking along roadway" crashes.
- May notably increase levels of walking in areas with high traffic speeds and/or volumes.

Application: Sidewalks are recommended for all streets in urban areas of Lawrence County.

Concept Routes

The table to the right lists the draft bicycle and pedestrian routes for the Lawrence County for Ironton, the routes are preliminary at this time, pending results of a more detailed study of the Ironton Non-Motorized Plan. The "E" routes designate connecting gaps in the network, "N" routes designate new bicycle/pedestrian network facilities. Existing recommended bicycle facilities are specifically recommended in urbanized areas, missing sidewalks should be prioritized in these locations. In addition, the routes are preliminary at this time.

County Wide Concept Map

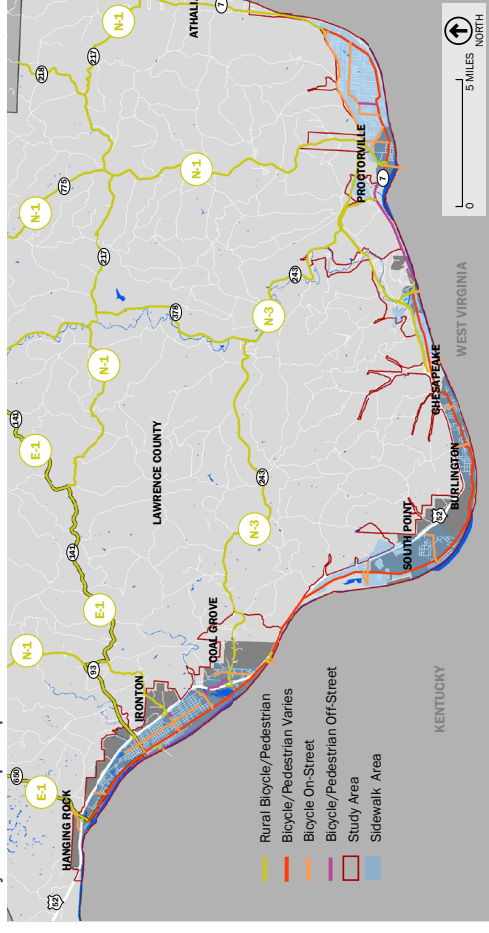


Concept Routes

ID	LOCATION	FACILITY TYPE	DESCRIPTION
E-1	County-wide	Bicycle/pedestrian route on shoulder	Add bicycle (with shoulders allowed) facilities along this route and adjust the existing
E-2	Study Area	Steeplewheels	Existing steeplewheels were identified in urban areas of Proctorville, Ironton and Coal Grove. Add
E-3	Ironton	Bicycle/Pedestrian Route	Complete the pedestrian connection between the existing steeplewheels in Ironton and bicy
N-1	County-wide	Bicycle/pedestrian route on shoulder	Upgrade all state routes throughout the County to well paved shoulders for biking/walking
N-2	Study Area Chillicothe, Chesapeake, Burlington, South Point, Coal Grove, Ironton, Hanging Rock	Unpaved areas, bicycle/pedestrian facilities on off - street; Rural areas or bicycle facilities on off - street.	Route: (E to W) SR 7, Old SR 7, Market St/S/Otho Spring Run Bypass, (W to SR 7) Jefferson St/S/Otho St/Old US 52, 2nd/3rd/2nd St continuous route, SR 66/S6500 Hanging Rock (west end) to Jewell Drive in Proctorville (east end)
N-3	Proctorville/Coal Grove	Rural - Bicycle/pedestrian route on shoulder - Bicycle on-street with shoulders	SR 62 to Bicyclo/pedestrian shoulder connection from Coal Grove (East St) to Proctorville (Market St)
N-4	Proctorville	Bicycle route on-street	Bicycle route along SR 65 (SR 7 turn Market Street west of town to Market Street east of town)
N-5	Proctorville	Shared-use path	SUP from Fairview East Elementary School north to Jewell Drive
N-6	Proctorville	Bicycle route on-street	On-Street Bicycle facilities along Cedar Street to Beulah Lane
N-7	Proctorville	Shared-use path	Northernmost SUP through Fairview West Elementary, Middle, and High schools, between Market Street and Cedar Street
N-8	Proctorville	Bicycle route on-street	On-Street Bicycle facilities along Walnut Street
N-9	Proctorville	Bicycle route on-street	On-Street Bicycle facilities Irene Road

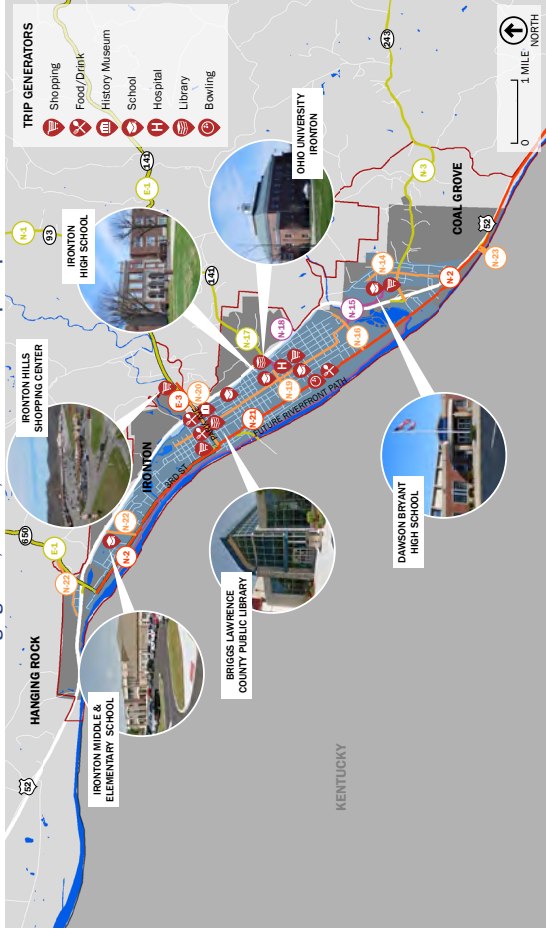
ID	LOCATION	FACILITY TYPE	DESCRIPTION
N-10	Burlington	Bicycle route on-street	On-Street Bicycle facilities along 8th Avenue from River Drive through Third to Sixth Avenue
N-11	Burlington	Bicycle route on-street	On-Street Bicycle facilities along Court St from Washington to US-52
N-12	South Point	Bicycle route on-street	On-Street Bicycle facilities along Ferry St/5600a from RR to 2nd St
N-13	South Point	Bicycle route on-street	On-Street Bicycle facilities along Danfield Ave from RR to 2nd St
N-14	Coal Grove	Bicycle route on-street	On-Street Bicycle facilities along High St
N-15	Coal Grove/Ironton	Bicycle/pedestrian boulevard or Shared street	Convert 9th St. Overpass to US-52 to bicycle/pedestrian only, between Adams Ln/Coast St, and 10th St and Cemetery to Carlton Boulevard St. SR-243
N-16	Ironton	Bicycle route on-street	On-Street Bicycle facilities along Levan St/Adams Ln from 3rd St to 9th to 12th St
N-17	Ironton	Bicycle/pedestrian route on-shoulder	SR-141, east of US-52 - B/P on shoulder, connect to existing private sidewalks north of Adams St to 1st St to Adams St (1 mile from Ironton corner (part of E-3))
N-18	Ironton	Shared-use path	SR-141, west of US-52 - B/P connection through OH campus
N-19	Ironton	Bicycle route on-street	SR-141, west of US-52 - On-Street Bicycle facilities from OH campus to Third St
N-20	Ironton	Bicycle route on-street	On-Street Bicycle facilities on Park Ave to shopping center (see E-3)
N-21	Ironton	Bicycle route on-street	On-Street Bicycle facilities on 7th St
N-22	Hanging Rock	Bicycle route on-street	On-Street Bicycle facilities on Delaware St
N-23	Study Area	Bicycle route on-street	On-Street Bicycle facilities on all interstate highways

Study Area Concept Map

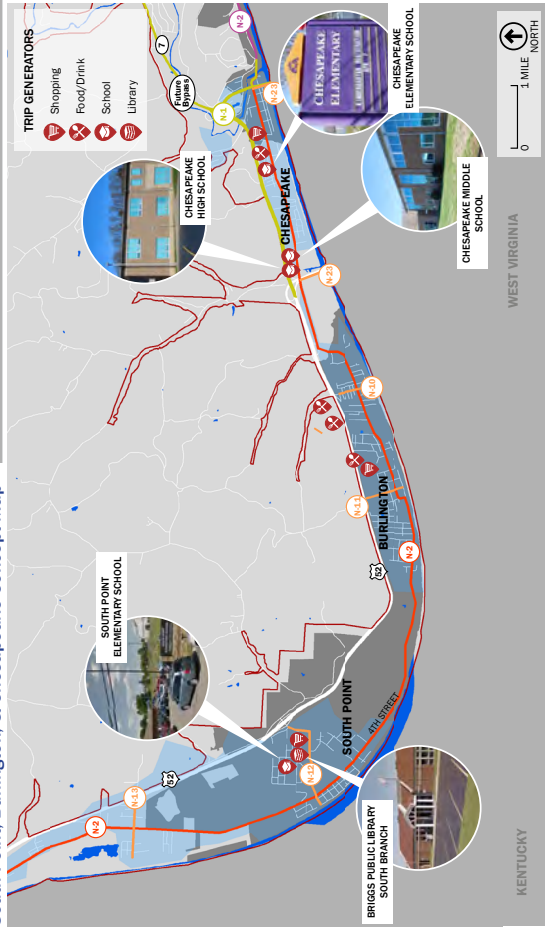


Lawrence County Bicycle & Pedestrian Plan | Preliminary Concept Routes

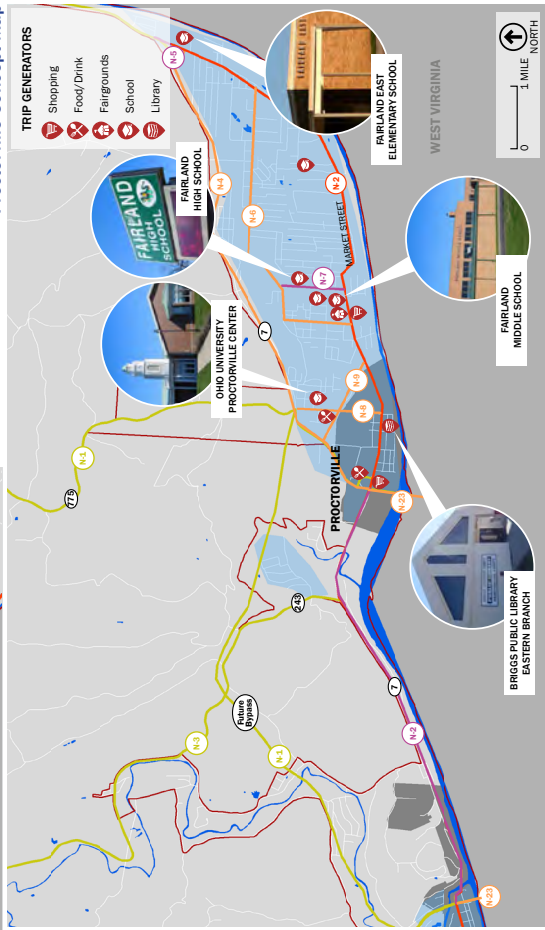
Hanging Rock, Ironton, & Coal Grove Concept Map



South Point, Burlington, & Chesapeake Concept Map



Proctorville Concept Map



APPENDIX C

ADDITIONAL RESOURCES

Funding

The following websites provide additional information on active transportation project funding, including links to a variety of resources that address funding issues.

FHWA Pedestrian and Bicycle Funding Opportunities

The Federal Highway Administration maintains a comprehensive database of pedestrian and bicycle funding opportunities through surface transportation funding programs. Many of these programs are administered through metropolitan planning organizations and state departments of transportation.

https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm

FHWA Bicycle and Pedestrian Funding, Design, and Environmental Review: Addressing Common Misconceptions

Through its Safer People, Safe Streets Initiative, the Federal Highway Administration has identified a number of misconceptions about the use of federal funding for bicycle and pedestrian projects. This brief document addresses common misconceptions, including:

- Federal funding is not available for non-infrastructure projects (false).
- Road diets and separated bike lanes cannot be built with federal funds (false).
- Bicycle and pedestrian projects must be within the existing right-of-way to be eligible for a Categorical Exclusion (false).

https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/misconceptions.cfm

Ohio Department of Natural Resources Funding for Bicycle and Pedestrian Facilities

The Ohio Department of Natural Resources administers several funds for bicycle and pedestrian facilities:

- Clean Ohio Trails Fund (COTF): Improves outdoor recreational opportunities for Ohioans by funding trails for outdoor pursuits of all kinds. The program emphasizes certain priorities that align with the Lawrence County Bicycle and Pedestrian Plan's Implementation Principles:
 - » Complete regional trail systems and links to the statewide trail plan.
 - » Link population centers with outdoor recreation area and facilities.
 - » Provide links in urban areas to support commuter access and provide economic benefit.
- Recreational Trails Program (RTP): More than 200 local trail projects across Ohio have received more than \$26.5 million in federal funds through ODNR since RTP began in 1993.
- Land and Water Conservation Fund (LWCF): Up to 50 percent reimbursement for outdoor recreation projects.
- Natureworks: Up to 75 percent reimbursement grants (state funding) for acquisition, development, or rehabilitation of public park and recreation areas

<http://ohiodnr.gov/grants>

Ohio Department of Transportation Funding for Bicycle and Pedestrian Facilities

This document lists frequently asked questions about the Ohio Department of Transportation's funding programs for bicycle and pedestrian facilities. It provides an overview funding mechanisms and the application process and lists approximate cost per mile for common bicycle facilities.

<https://www.dot.state.oh.us/Divisions/Planning/SPR/bicycle/Funding/FAQs%20on%20Funding.PDF>

Ohio Department of Transportation Safe Routes to School Funding

This website explains how to apply for Ohio Department of Transportation Safe Routes to School funding for School Travel Plan Development.

<http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/ActiveTransportation/Pages/Funds.aspx>

National Trails Training Partnership

The National Trails Training Partnership has a number of funding-related tools on its website, including a list of grant programs, grant writing guidelines, innovative funding ideas and case studies, and federal funding for recreational trails.

<http://www.americantrails.org/resources/funding/>

Pedestrian and Bicycle Information Center

Pedestrian and Bicycle Information Center is housed in the UNC Highway Safety Research Center and supported by the Federal Highway Administration and the National Highway Traffic Safety Administration. It provides a number of active transportation planning and design tools, including a list of funding resources.

http://www.pedbikeinfo.org/planning/funding_resources.cfm

Rails-to-Trails Conservancy

The Rails-to-Trails Conservancy is a nonprofit organization dedicated to creating a nationwide network of trails from former rail lines and connecting corridors to build healthier places for healthier people. Their financing and funding page lists federal, state, local, and private funding sources for land acquisition, trail design, and construction.

<https://www.railstotrails.org/build-trails/trail-building-toolbox/acquisition/financing-and-funding/>

Policy Recommendations

The following websites offer additional resources for the policy recommendations in Section 6.6.

Complete Streets Coalition

<https://smartgrowthamerica.org/program/national-complete-streets-coalition/>

Columbus Public Health Healthy Places Program

<https://www.columbus.gov/publichealth/programs/healthy-places/>

International Police Mountain Bike Association

<http://ipmba.org/blog/comments/10-advantages-of-bicycle-patrol>

League of American Bicyclists

<http://bikeleague.org/content/5-es>

National Bicycle and Pedestrian Documentation Project

<http://bikepeddocumentation.org/>

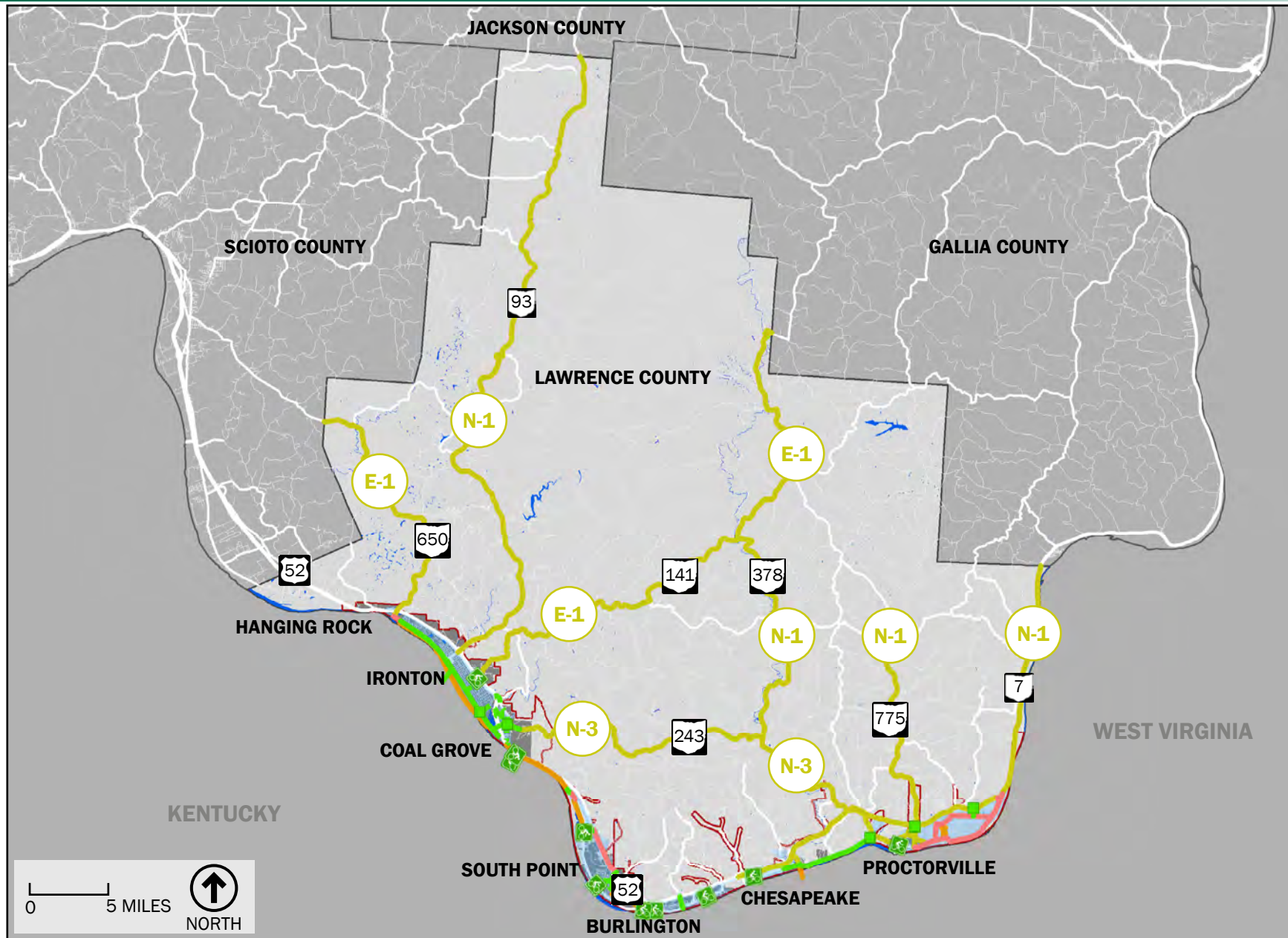
Walk With A Doc

<http://walkwithadoc.org/>

APPENDIX D: EXHIBIT MAPS

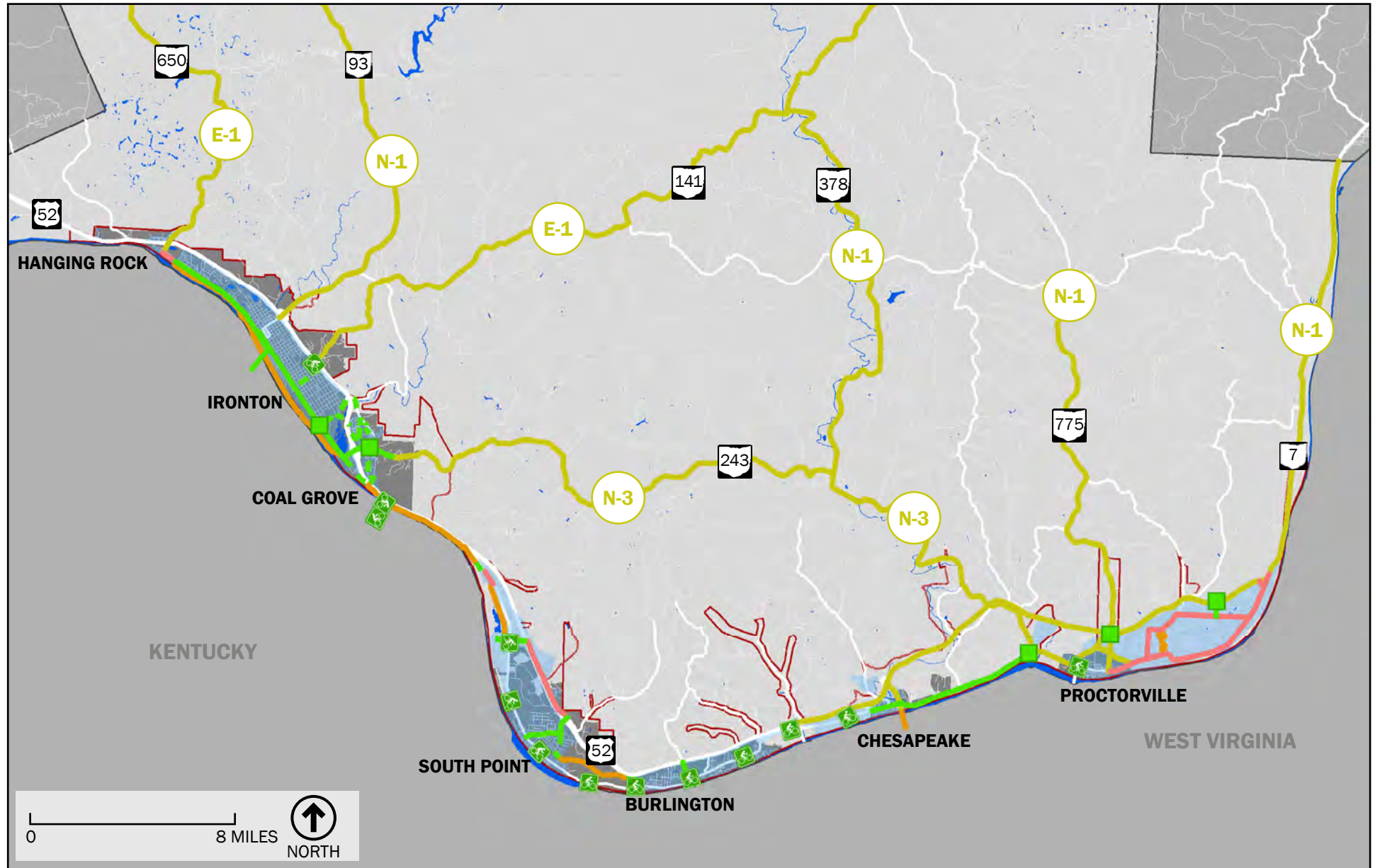
KYOVA Interstate Planning Commission | Lawrence County Bicycle & Pedestrian Plan

Exhibit 5.1: County Wide Proposed Routes Map



KYOVA Interstate Planning Commission | Lawrence County Bicycle & Pedestrian Plan

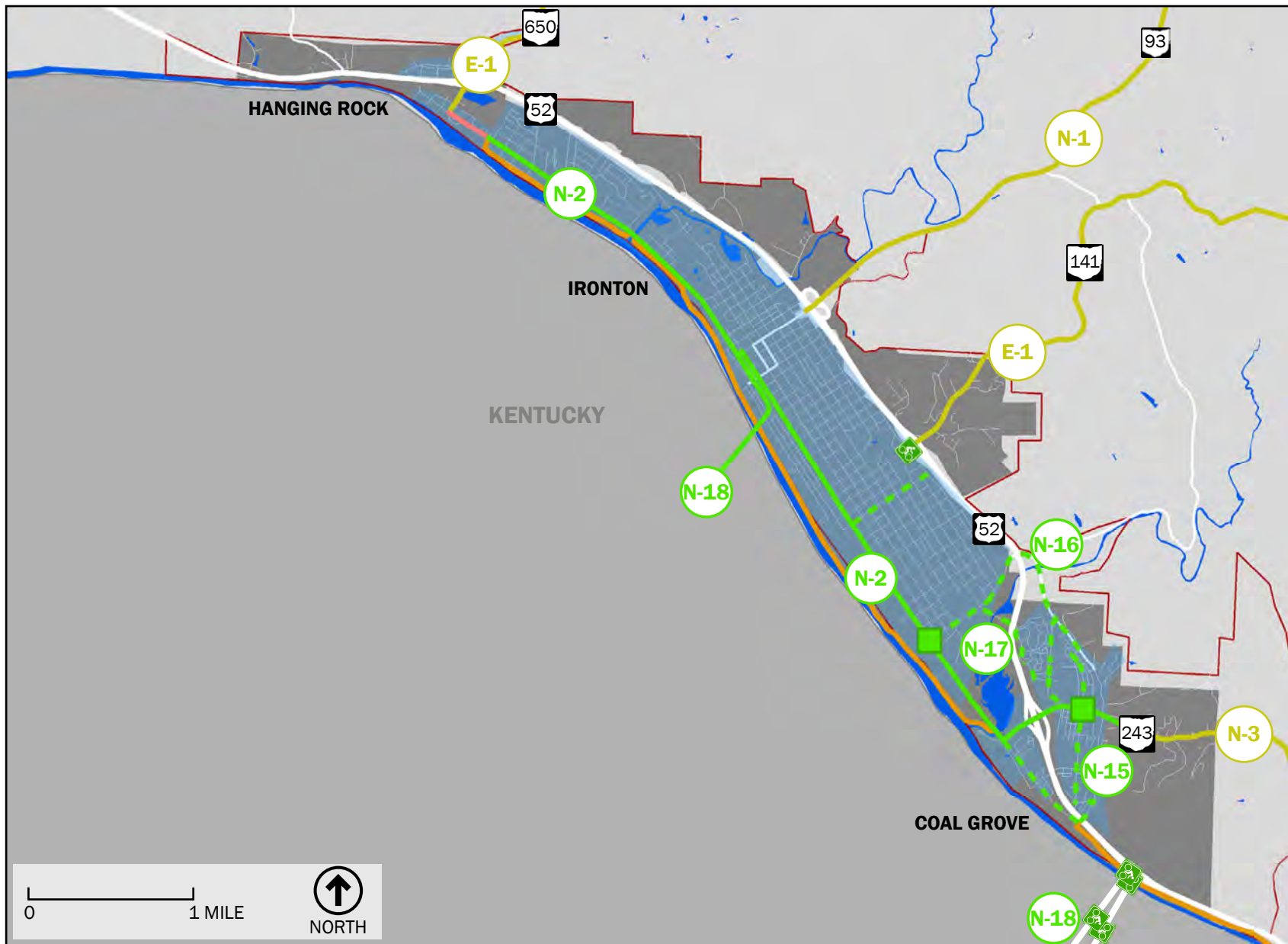
Exhibit 5.2: Study Area Proposed Routes Map



- | | | | | | |
|--|------------------------------|--|--------------------------------------|--|------------------------|
| | Bike Lane | | Sidepath | | Intersection Treatment |
| | Bicycle Boulevard | | Shared Use Path | | Sidewalk Area |
| | Signed and Marked Bike Route | | Bicycle/Pedestrian Route On-Shoulder | | Study Area |

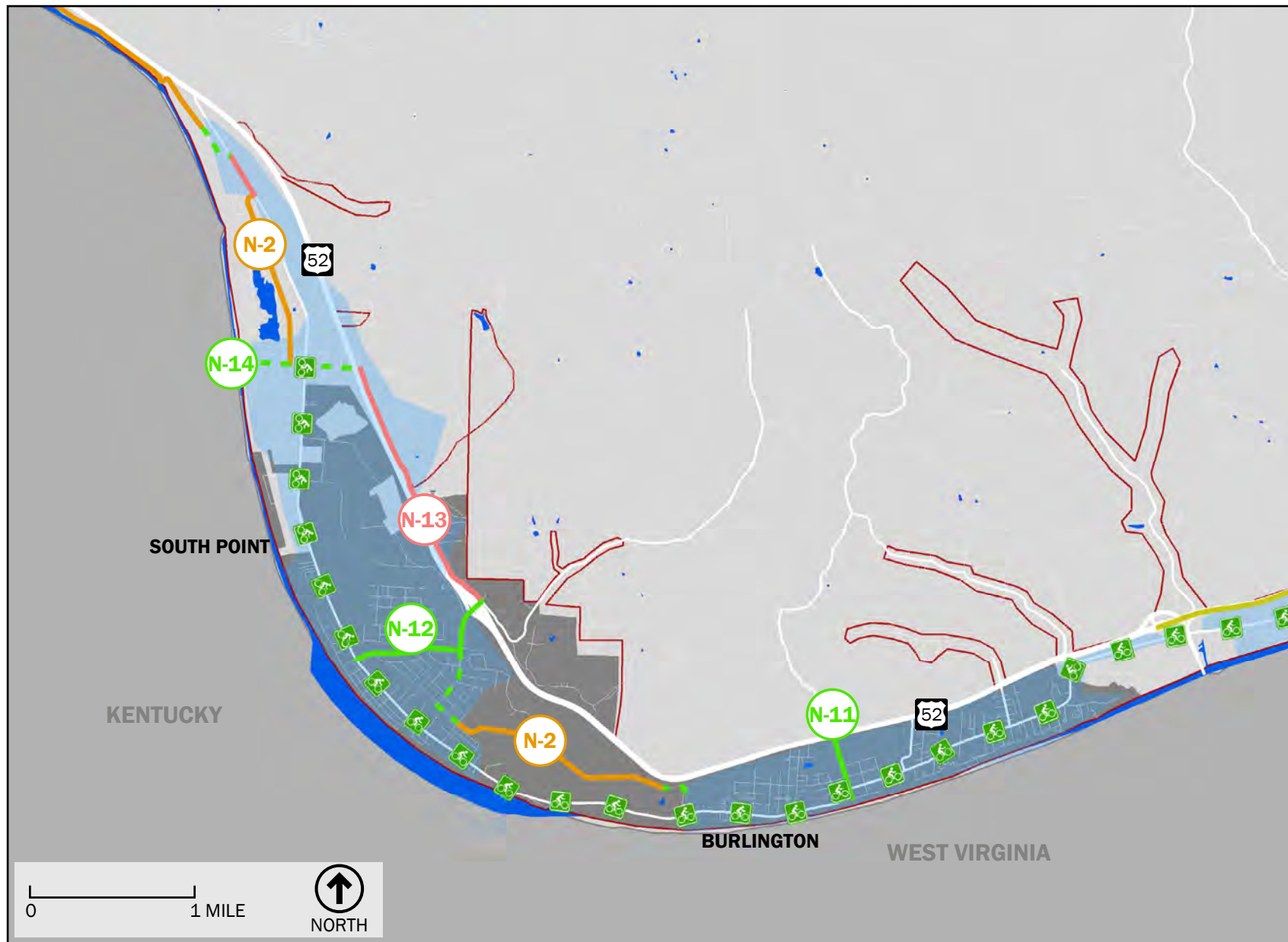
KYOVA Interstate Planning Commission | Lawrence County Bicycle & Pedestrian Plan

Exhibit 5.3: Hanging Rock, Ironton, and Coal Grove Proposed Routes Map

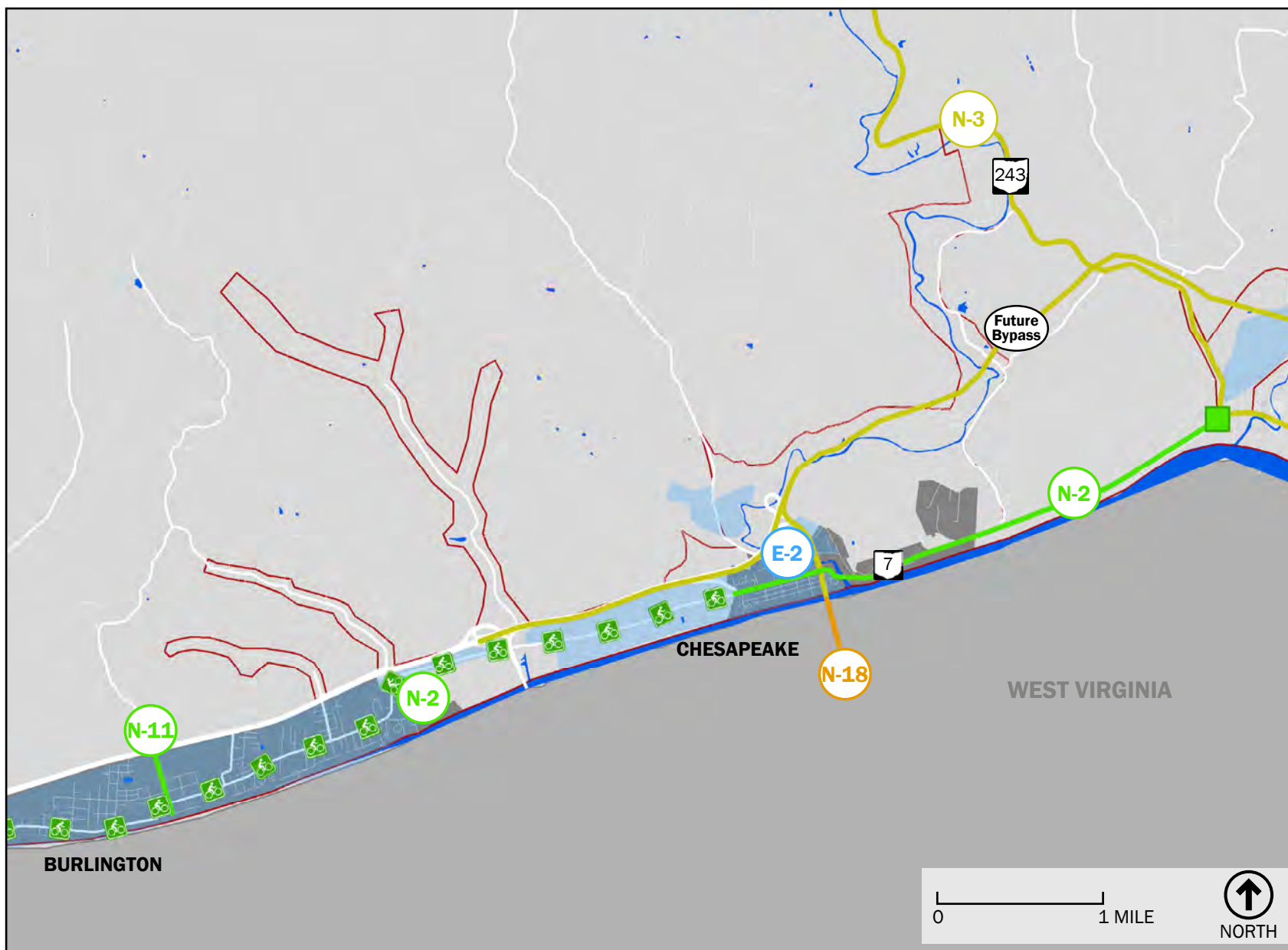


- | | | |
|------------------------------|--------------------------------------|------------------------|
| Bike Lane | Sidepath | Intersection Treatment |
| Bicycle Boulevard | Shared Use Path | Sidewalk Area |
| Signed and Marked Bike Route | Bicycle/Pedestrian Route On-Shoulder | Study Area |

KYOVA Interstate Planning Commission | Lawrence County Bicycle & Pedestrian Plan
Exhibit 5.4: South Point, Burlington, and Chesapeake Proposed Routes Map



- | | | |
|---|--|---|
| — Bike Lane | — Sidepath | ■ Intersection Treatment |
| - - - Bicycle Boulevard | — Shared Use Path | ■ Sidewalk Area |
| ■ Signed and Marked Bike Route | — Bicycle/Pedestrian Route On-Shoulder | □ Study Area |



- | | | |
|------------------------------|--------------------------------------|------------------------|
| Bike Lane | Sidepath | Intersection Treatment |
| Bicycle Boulevard | Shared Use Path | Sidewalk Area |
| Signed and Marked Bike Route | Bicycle/Pedestrian Route On-Shoulder | Study Area |

