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ACTIVATE IRONTON

Ironton Bicycle and Pedestrian Master Plan

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1 Introduction

The KYOVA Interstate Planning Commission is responsible for planning an orderly, cost-effective, multimodal transportation system for all citizens of its service area. In 2016-2017, KYOVA undertook a non-motorized study for Lawrence County. Two deliverables grew out of this process: the Lawrence County Bicycle and Pedestrian Plan and this Bicycle and Pedestrian Master Plan for the City of Ironton.

This Plan, called Activate Ironton, is a comprehensive plan that examines the City's existing bicycle and pedestrian needs and opportunities and recommends infrastructure, policy, and program actions to achieve a more active Ironton.

This initiative was developed in tandem with the Lawrence County Bicycle and Pedestrian Plan, which evaluates and recommends active transportation connections throughout the County, including the rural areas and the more urbanized areas between the Ironton and Proctorville communities. Together, these plans are the first comprehensive effort to study, evaluate, and recommend improvements for active transportation facilities in the City of Ironton and 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, multimodal 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 four categories: a socioeconomic profile, a review of land use and development patterns,

a transportation system overview, and an active transportation analysis. The socioeconomic profile of the City reviews population trends, income and employment, and transportation-related data, such as commute patterns and vehicle availability. The analysis of the City's transportation system includes a summary of the roadway network, descriptions of primary corridors, 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. Images and infographics display example facilities, costs, 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-one proposed projects are included with maps, images, renderings and descriptions. The proposed network would add more than 60 miles of active transportation facilities throughout the City of Ironton.

Chapter 6 identifies the steps towards a successful implementation of the proposed network. Suggestions for 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

The KYOVA Interstate Planning Commission serves as the regional transportation planning commission for the tri-state area of western West Virginia, eastern Kentucky and southeastern Ohio. Its coverage area (**Figure 1.1**) in Ohio comprises the southern portion of Lawrence County, including the townships of Hamilton, Upper, Perry, Fayette,

Union and parts of Rome. The City of Ironton comprises the Study Area for this project.

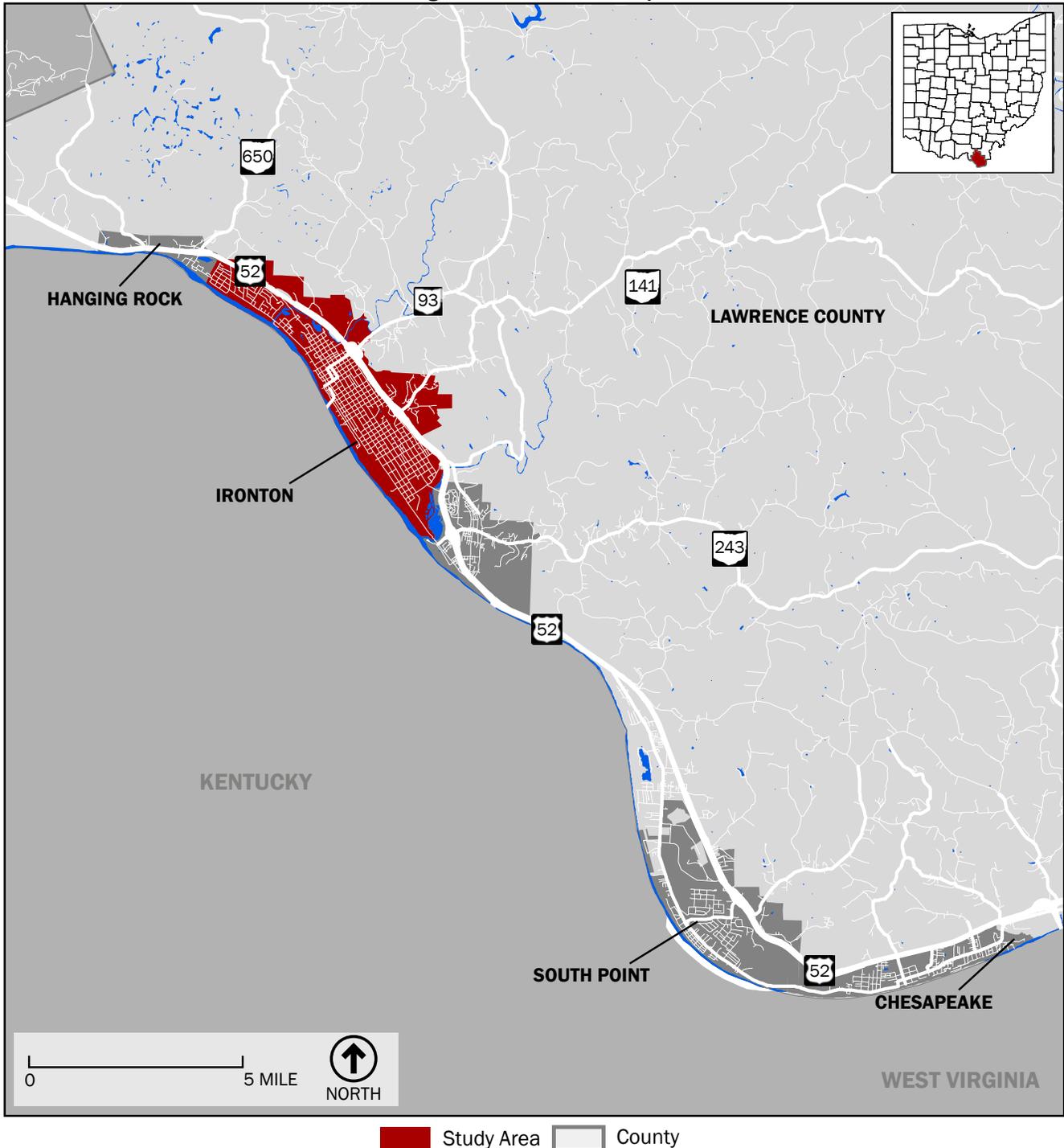
Ironton is the only city in Lawrence County, located in Ohio's Appalachian region. It was founded in 1849 and named after the plentiful deposits of iron-ore discovered in the nearby hilly terrain. Its location on the Ohio River allowed for convenient movement of ore to market, and the City quickly became one of the leading producers of iron in the world (Figure 1.2).

With the invention of steel in the late 19th Century, demand for Ironton's namesake product faltered. As the

iron industry declined, dependent industries suffered as well. Further, in the short span of 20 years, two major floods and the Great Depression wrought extensive damage to the City's infrastructure and economy. Ironton successfully attracted other industries, but by the 1950s, its population peaked and the region struggled to attract new business.

Today, the City has reinvented itself. While the area remains a logistics hub with highway, rail, and water access for freight, Ironton has expanded from its industrial beginnings. It boasts an award-winning school

Figure 1.1: Location Map



district, hosts festivals and events that attract thousands of visitors annually, and is just south of Wayne National Forest, a popular recreational area. In 2009, parts of its Downtown were designated a historic district on the

National Register of Historic Places (**Figure 1.3**). Together, these assets have reinvigorated the City as a regional hub of commerce, recreation, and entertainment.

Figure 1.2: Ironton's industrial beginnings

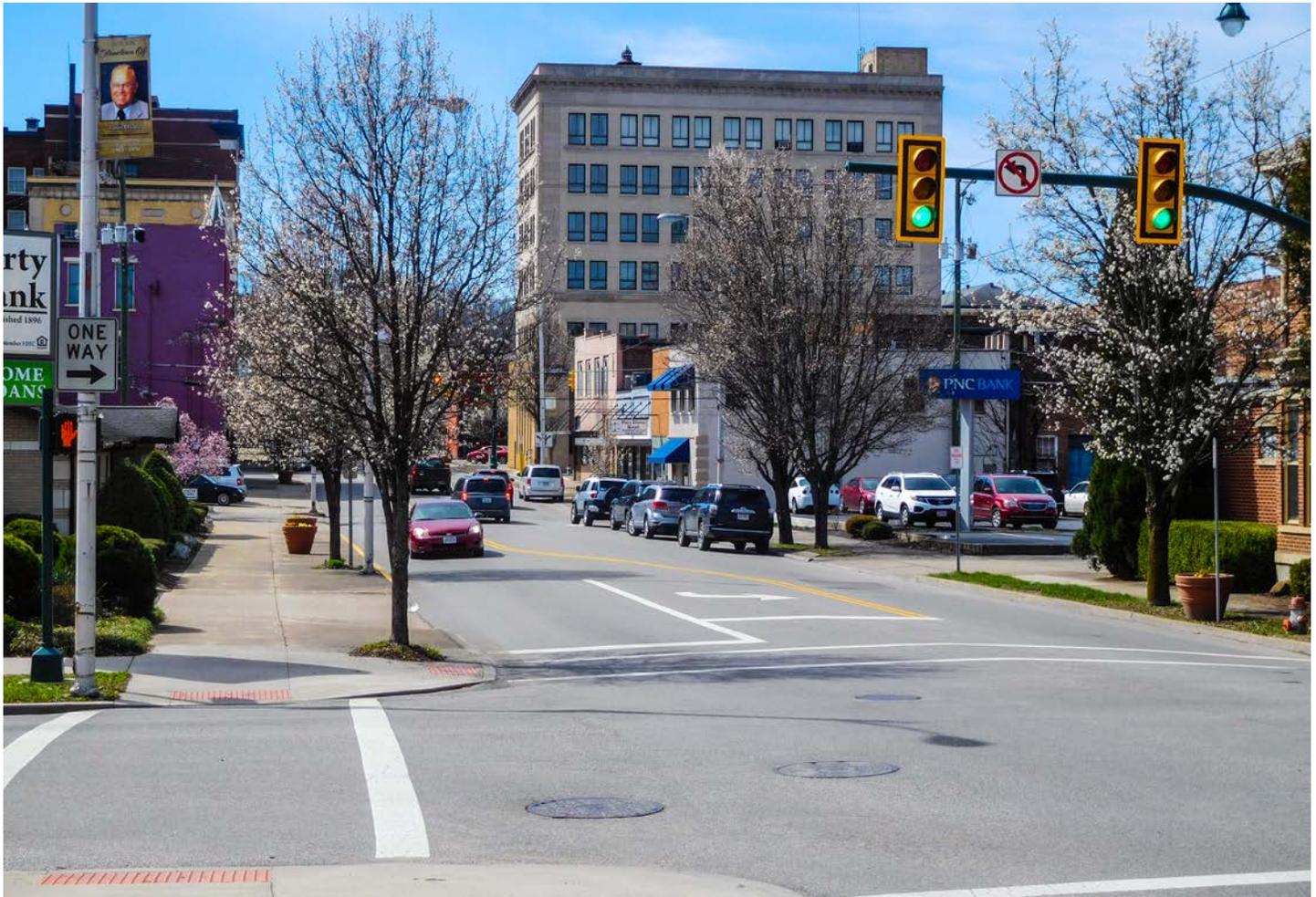


Source: appalachianhistory.net

Ironton was developed before the advent of the automobile, and its compact built environment and dense street grid are favorable for pedestrians and bicyclists. However, a number of infrastructure improvements and policy changes could increase access and connectivity for active transportation users. These changes, in concert with Ironton's other attractions, would enhance the City's status as a regional destination for visitors and an attractive environment for residents and businesses.

As everyday users of the transportation system, Ironton residents possess local expertise about the challenges and opportunities that pedestrians and bicyclists face on city roads. The next chapter describes the public's involvement in the planning process and how their ideas shaped recommendations for active transportation improvements.

Figure 1.3: Historic Downtown Ironton



2 PUBLIC INVOLVEMENT

Including the public in planning and development is an important component of any transportation plan. 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, including the City of Ironton. 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 walking and bicycling 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. However, respondents did identify the best and worst roads for bicycling and walking, including roads in Ironton (**Figure 2.2**). North 2nd Street, South 4th Street, and South 5th Street were the best roads for bicycling, according to responses. The Oakley Clark Collins Memorial Bridge, Lorain Street/Adams Lane, and Park Avenue/State Route (SR) 93 were the worst roads for bicycling, based on survey results. Responses varied for South 3rd Street,

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

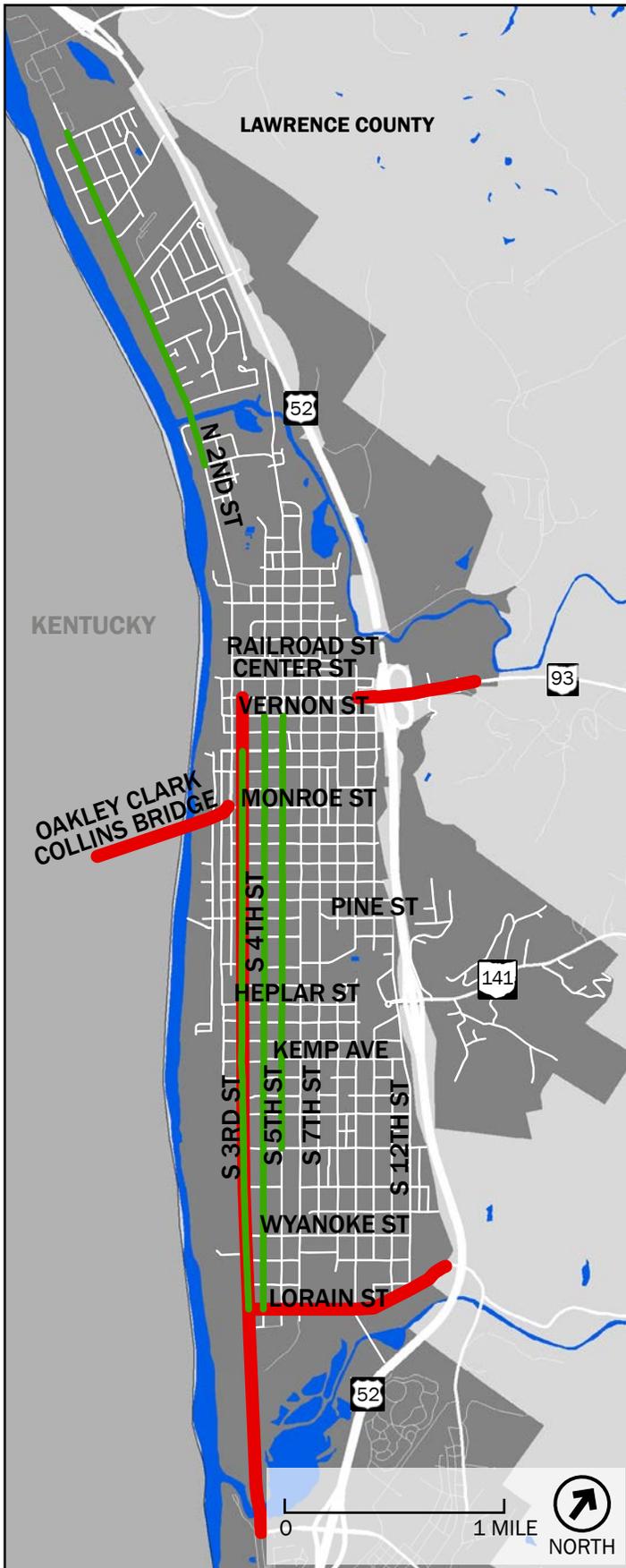
Hanging Rock

Proctorville

South Point

Other (please specify)

Figure 2.2: Best and worst roads for bicycling



which was included in both categories. In addition to the roads shown on the maps, brick streets were included in worst roads for bicycling (particular brick streets were not identified).

Respondents were also asked where they would like to see bike lanes added in the community (Figure 2.3). The Oakley Clark Collins Memorial Bridge, South 3rd Street, and North 2nd Street were the most common responses. Bike lanes are proposed on all of these roads as part of the Lawrence County Bicycle and Pedestrian Plan. Respondents also recommended a trail connection between Molten Field and the Ironton Hills Shopping Center. This recommendation is included in the Ironton Active Transportation Plan.

Most 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 survey results.

- Best Roads for Bicycling
- Worst Roads for Bicycling
- City of Ironton

Figure 2.3: Public involvement facility recommendations



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 that relate to the City of Ironton:

- Future riverfront path: This is the most important. #1 priority.
- Vernon Street – Should be a pedestrian only road with a golf cart lane.
- Need bike facilities: bike racks, rental bikes.
- Get pedestrians across the river.
- Get families involved in biking – Huntington has organizations that organize bike events.
- 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 Street, Molten field to Ironton Hills Drive – This is a way to connect Ironton Hills Drive to Downtown without crossing dangerous US-52.
- 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?

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 public input into a comprehensive analysis of Ironton'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.

- Bike Lane Recommendation
- Shared Use Path Recommendation
- City of Ironton

3 EXISTING CONDITIONS

3.1 Introduction

Chapter 3 divides existing conditions in the Study Area into three categories. It presents a socioeconomic profile of the City of Ironton, reviewing population trends, income and employment, and transportation-related data, such as commute patterns and vehicle availability. It then provides an overview of the City’s transportation system, with an inventory of roads, traffic volumes, and congestion levels. Lastly, it gives an in-depth analysis of the area’s active transportation infrastructure, including: an inventory of sidewalks, bicycle and pedestrian trip generators, public survey results on challenges and opportunities related to active transportation, and bicycle and pedestrian crash history. To develop a clear and accurate picture of the Study Area’s existing conditions, the following information 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	
Bicycle Facilities	Field work, Google Maps, survey results, Strava, GIS
Pedestrian Facilities	
Major Trip Generators	
Bicycling and walking activity	
Pedestrian & Bicycle Crash History	KYOVA

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 Section 3.5. General survey results are discussed in Chapter 2.

3.2 Socioeconomic Profile

Population

From 2000 to 2015, the City of Ironton’s population declined from 11,305 to 10,921, resulting in a decrease of 3.4 percent (**Table 3.2**). 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 Ironton, the median age range was 40 years in 2015, and 38 percent of the population was under the age of 30.

Table 3.2: Population Trends

Year	U.S.	Ohio	Ironton
2000	282,200,000	11,353,140	11,305
2010	309,300,000	11,536,504	11,129
2015	324,118,787	11,600,000	10,921
Net Change	+41,918,787	+246,860	-384
Percent Change	+14.85%	+2.17%	-3.40%

Source: U.S. Census Bureau

Income & Employment

The median household income of Ironton was \$33,488 in 2015, which was over \$15,000 lower than median household income in Ohio (**Table 3.3**); however, the median household income in Ironton increased by 42 percent from 2000 to 2015 whereas Ohio’s decreased by 12 percent during the same time period. In Ironton, 17 percent of households were below the poverty level in 2015.

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

Year	U.S.	Ohio	Ironton
2000	\$41,994	\$56,111	\$23,585
2010	\$49,445	\$47,333	\$30,074
2015	\$56,516	\$49,429	\$33,488
Net Change	+\$14,522	-\$6,682	+\$9,903
Percent Change	+34.58%	-11.91%	+41.99%

Source: U.S. Census Bureau

Ironton's unemployment rate was five percent in 2000, which was higher than Ohio's unemployment rate of four percent (Table 3.4). The City experienced a rise in unemployment in 2010 due to the financial crisis, similar to Ohio and the country as a whole. However, by 2015 the unemployment rate decreased to near its 2000 level, at 5.9 percent.

Table 3.4: Unemployment Trends (2000 – 2015)

Year	U.S.	Ohio	Ironton
2000	4.0%	4.1%	5.0%
2010	9.8%	11.0%	10.3%
2015	5.0%	5.1%	5.9%

Source: U.S. Bureau of Labor Statistics

In 2015, the largest employment sectors in Ironton were management, business, science, and arts occupations, employing 27 percent of Ironton workers; service occupations, employing 26 percent of the labor force; and sales and office occupations, which employed 24 percent of workers.

Commute Patterns

While Lawrence County's and Ohio's commute patterns are similar, commute times for Ironton workers differed from both county and state patterns. Ironton workers have shorter commute times than the average Lawrence County or Ohio worker. (Table 3.5). In Ironton, the mean travel time was roughly 16 minutes in 2015, compared to 23 minutes for the county and state. Almost half of Ironton workers had a commute time of 14 minutes or less and the majority had a commute time under 30 minutes. Only 18 percent of Ironton workers had a commute time over 30 minutes, compared to 28 and 30 percent for Lawrence County and Ohio, respectively.

Table 3.5: Commute Times (2015)

Time	Ohio	Lawrence County	Ironton
Total Labor Force	5,263,292	24,023	4,042
0 - 14 minutes	29.5%	27.9%	48.6%
15 - 29 minutes	40.1%	44.2%	33.2%
30 - 44 minutes	19.2%	17.2%	14.1%
45 - 59 minutes	6.0%	5.1%	2.1%
≥ 60 minutes	5.0%	5.6%	2%
Mean Travel Time	23.2 min	23.7 min	16.4 min

Source: U.S. Census Bureau

Eighty-five percent of Ironton workers drove to work alone in 2015. Two percent of workers walked, and 2.5 percent took a taxi, motorcycle, or bicycle.

Vehicle Availability

The majority of households in Ironton (87 percent) had one or more vehicles in 2015 (Table 3.6). Twelve percent of households did not have any personal vehicles, a much higher rate than Lawrence County and Ohio (two and three percent, respectively). Whereas one-vehicle households comprised 16 percent of Lawrence County and 20 percent of Ohio, 36 percent of households in Ironton had only one vehicle. Ironton had lower rates of households with two or more vehicles in comparison to state and county rates.

Table 3.6: Vehicle Availability (2015)

Number of Vehicles	Ohio	Lawrence County	Ironton
No vehicle	3.0%	1.9%	12.3%
1 vehicle	20.1%	15.8%	36.6%
2 vehicles	43.1%	44.7%	34.6%
3 or more vehicles	33.7%	37.6%	16.5%

Source: U.S. Census Bureau

3.3 Land Use and Development Patterns

Land use plays an integral role in active transportation networks. Auto-oriented sprawl development found in many suburban and rural communities encourages roadway networks that are inconvenient and unsafe for pedestrians and bicyclists. Roads with high speeds, no sidewalks and bicycle facilities, long distances between destinations, and a monotonous travel environment are all deterrents to active transportation users. Encouraging active travel and retrofitting the existing roadway network to accommodate all users is a challenge in these communities.

Compact development found in many historic cities and older neighborhoods is much more conducive to active transportation. These areas feature mixed land uses so that routine destinations are within walking distance of one another. In Downtown Ironton, for example, a pedestrian can pass restaurants, offices, shops, and homes while walking down the same street.

This section describes the City of Ironton's zoning districts and their impact on active transportation.

The City of Ironton has a cumulative zoning ordinance. This type of zoning allows greater flexibility than traditional, or Euclidean, zoning, which requires strict separation of all land uses. For example, Ironton’s R-2 medium/high-density residential district allows all uses permitted in the R-1 single-family residential district; the B-1 Neighborhood/walkable commercial district allows any user permitted in an adjacent residential district; etc.

There are 11 zoning districts within the City of Ironton. Each district is listed below, with its official name and designation, a short descriptive title, and its percentage of land area within Ironton (Figure 3.1). A map of zoning districts is shown in Figure 3.2.

1. R-1: Residence — Single-family residential (23%)

The R-1 district is meant to preserve existing single-family areas and undeveloped lands for future single-family large-lot residential development. The majority of the single-family residential district is east of US-52 in the Campbell Drive area. Most of this area is undeveloped. The neighborhood between Ironton Middle School and Storms Creek is also R-1, as well as several smaller areas south of Downtown.

2. R-2: Residence — Medium/high-density residential (27%)

The R-2 district comprises the majority of residential neighborhoods south of Downtown, between South 3rd Street and US-52 and extending south to Ashtabula Street. The neighborhoods at the northern end of the City, which include Ironton Middle School, is also R-2, as well as an undeveloped area east of US-52.

3. R-3: Residence — High-density residential (10%)

The R-3 permits multi-family housing and limited office and retail uses. It is concentrated north and south of Downtown Ironton.

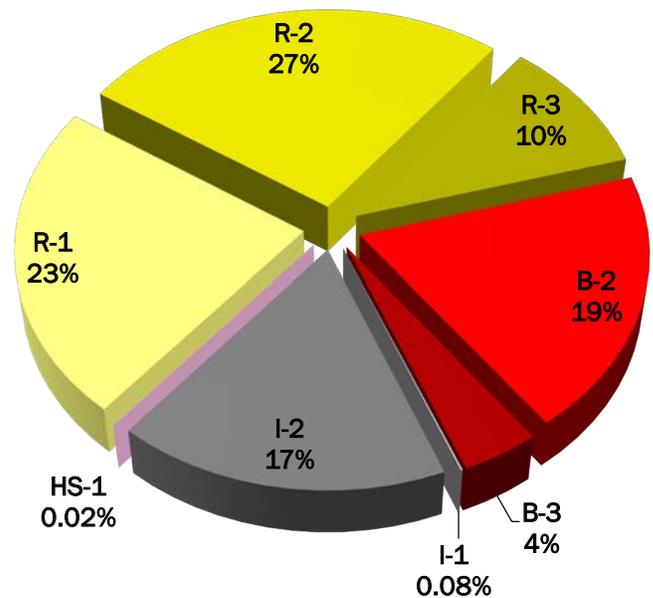
4. B-1: Business — Neighborhood/walkable commercial (0%)

The B-1 district encourages small retail operations within walking distance to residential districts. Currently, there are no areas in Ironton zoned as B-1.

5. B-2: Business — General/auto-oriented commercial (19%)

The B-2 district is zoned for shopping centers along major highways and thoroughfares. The Ironton Hill Shopping Center and its environs comprise most of

Figure 3.1: Zoning districts by land area



the B-2 district; a large, undeveloped area north of the shopping center is zoned B-2. The South 2nd and 3rd Street Corridor is also in the B-2 district, as well as several minor areas in the neighborhoods north of Storms Creek.

6. B-3: Business — Downtown mixed use (4%)

The B-3 district permits a wide variety of commercial uses and is designed to attract a regional market. It includes the Park Avenue Corridor and other high-density, mixed-use areas in Downtown Ironton. Major institutional uses, restaurants, offices, manufacturers, and homes comprise the B-3 district.

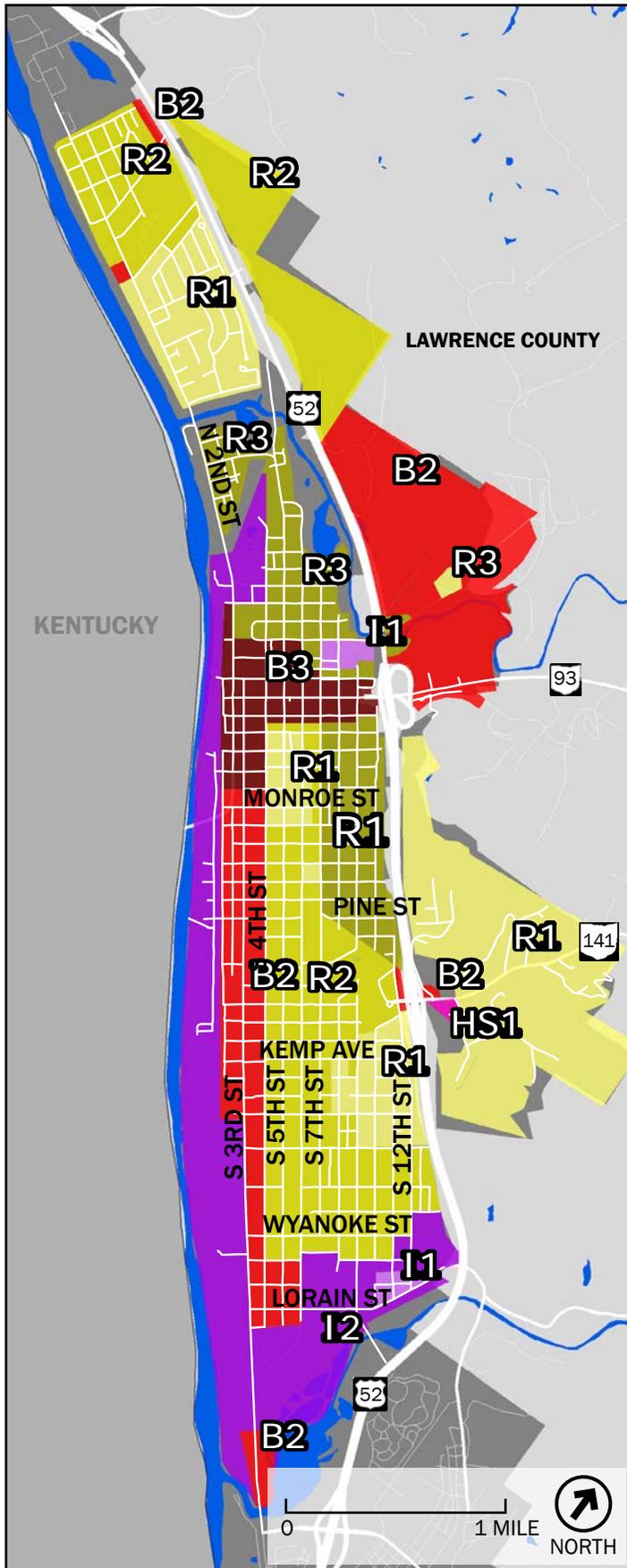
7. I-1: Light Industrial — Manufacturing, wholesale, research; transitional zone (0.08%)

Light industrial activity is allowed in the I-1 district. It includes two small areas: one area is northeast of Downtown and includes Molten Field, an electric power station, and several small residential blocks; the other area is at the southern end of the City and includes residential blocks between Adams Lane and Clinton Street and a small commercial strip center on Clinton Street.

8. I-2: General Industrial — General industrial (17%)

The I-2 accommodates heavy industrial uses. It occupies Ironton’s riverfront from the southern corporation boundary to the area south of Storms Creek. The Norfolk Southern railroad traverses the I-2 district. At its southern end, the district wraps around the commercial and residential districts to the eastern

Figure 3.2: Zoning districts



corporation boundary. Several industrial uses are in this area, including a scrap metal facility, a cooling systems plant, and a lumber yard. At its northern end, the I-2 district includes a wastewater treatment facility, a concrete plant, and a steel fabrication plant.

- 9. **PD: Planned Development — Mixed use, flexible (0%)**
The PD district encourages development with maximum flexibility in design to create an efficient mixed-use environment and preserve open space. Currently, there are no areas in Ironton zoned as B-1.
- 10. **HS-1: Health Service — Health care and medical (0.02%)**
The purpose of the HS-1 district is to enhance the availability of medical services to the community. The St Mary's Medical Campus is the only area in Ironton zoned as HS-1. It is located southeast of the US-52/SR-141 interchange.
- 11. **FP-1: Floodplain — Floodplain zone, undevelopable (0%)**
The FP-1 district prohibits development and preserves open land between floodwalls and abutting rivers. Currently, there are no areas in Ironton zoned as FP-1.

Zoning Districts and Active Transportation Compatibility
Five of Ironton's zoning districts are compatible with active transportation: R-2, R-3, B-1, B-3, and PD. Two of these districts, B-1 and PD, do not occupy any land in the City. The remaining districts account for 41 percent, or 2.7 square miles, of Ironton's land area and are concentrated in and around Downtown. While the zoning ordinance does not make specific accommodations for pedestrians and bicyclists in these districts, their regulations encourage compact development patterns that are conducive to active transportation.

- R-1: Residence — Single-family
- R-2: Residence — Medium/high-density
- R-3: Residence — High-density residential
- B-2: Business — General/auto-oriented
- B-3: Business — Downtown mixed use
- I-1: Light Industrial
- I-2: General Industrial
- HS-1: Health Service — Health care/medical

Figure 3.3: Transportation System



3.4 Transportation System

The City of Ironton’s roadway network is laid out on a grid system (Figure 3.3). The grid axis is roughly 40 degrees west of true north because it is aligned with the Ohio River. There are several advantages to a grid system, including ease of wayfinding and multiple route options for a given trip. Grid networks also pose challenges. They may encourage cut-through traffic and result in the maximum number of four-way intersections, increasing potential conflict points.

To mitigate this problem, many cities with grid systems resort to one-way streets to reduce the number of turning movements at intersections, creating a more predictable environment. However, one-way streets can act as barriers between neighborhoods and encourage speeding. Higher speeds result in more fatalities, so one-way streets are generally more dangerous for bicyclists and pedestrians. Most of Ironton’s numbered north-south streets are one-way. They are typically low-speed, residential streets.

There are approximately 87 miles of roadway in the City of Ironton, of which the majority is residential. Streets that are recommended for active transportation improvements are described in more detail in Chapter 5. The City’s primary thoroughfares are described below.

The Park Avenue/SR-93 Corridor is the main east-west thoroughfare through the City of Ironton and connects to points north, including the US-52 interchange and the Ironton Hills Shopping Center. 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.

SR-93 continues onto Park Avenue west of the US-52 interchange. Park Avenue extends 0.6 mile into the City before terminating at Bobby Bare Boulevard, adjacent to the Ohio River. The street runs through the heart of Ironton’s business district, with a variety of uses on both sides of the street. Institutional uses include the Lawrence County Court House, the Lawrence County Jail, and Christ Episcopal Church. Banks, restaurants, gas stations, offices, other businesses, and private homes also line the street. There is a heavy multimodal presence in this area, with frequent pedestrians and occasional bicyclists along the road.

-  Road (< and > = one-way)
-  City of Ironton

Table 3.8: Major Roadway Traffic Volumes & Levels of Congestion

Roadway	Functional Class	Segments	AADT (2016)	Level of Congestion
2nd St	Minor Arterial	Vernon St to Union St	2,980	Low
	Minor Arterial	Union St to Ellison St	3,528	Low
3rd St	Minor Arterial	Marion Pike To Pleasant St	8,439	Low
	Minor Arterial	Pleasant St to Spruce St	7,876	Low
	Minor Arterial	Spruce St to Madison St	6,864	Low
	Minor Arterial	Madison St to Adams St	9,271	Low
	Minor Arterial	Adams St to Park Ave	5,281	Low
SR-93/ Park Ave	Minor Arterial	East of US-52	6,616	Low
	Minor Arterial	US-52 to 5th St	14,315	Moderate
	Minor Arterial	5th St to 2nd St	6,069	Low

Ironton’s primary north-south roads are 2nd and 3rd Streets. 3rd Street provides access from points south. From the southern city limits to Downtown Ironton, the road is a commercial corridor, traveling through B-2 and B-3 zoning districts. 3rd Street terminates at Center Street in Downtown Ironton. Going north, 2nd Street parallels the Ohio River, serving residential neighborhoods north of Downtown. 2nd Street terminates near SR-650, with access to US-52.

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 3.7** shows how the number of 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 3.7: 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+

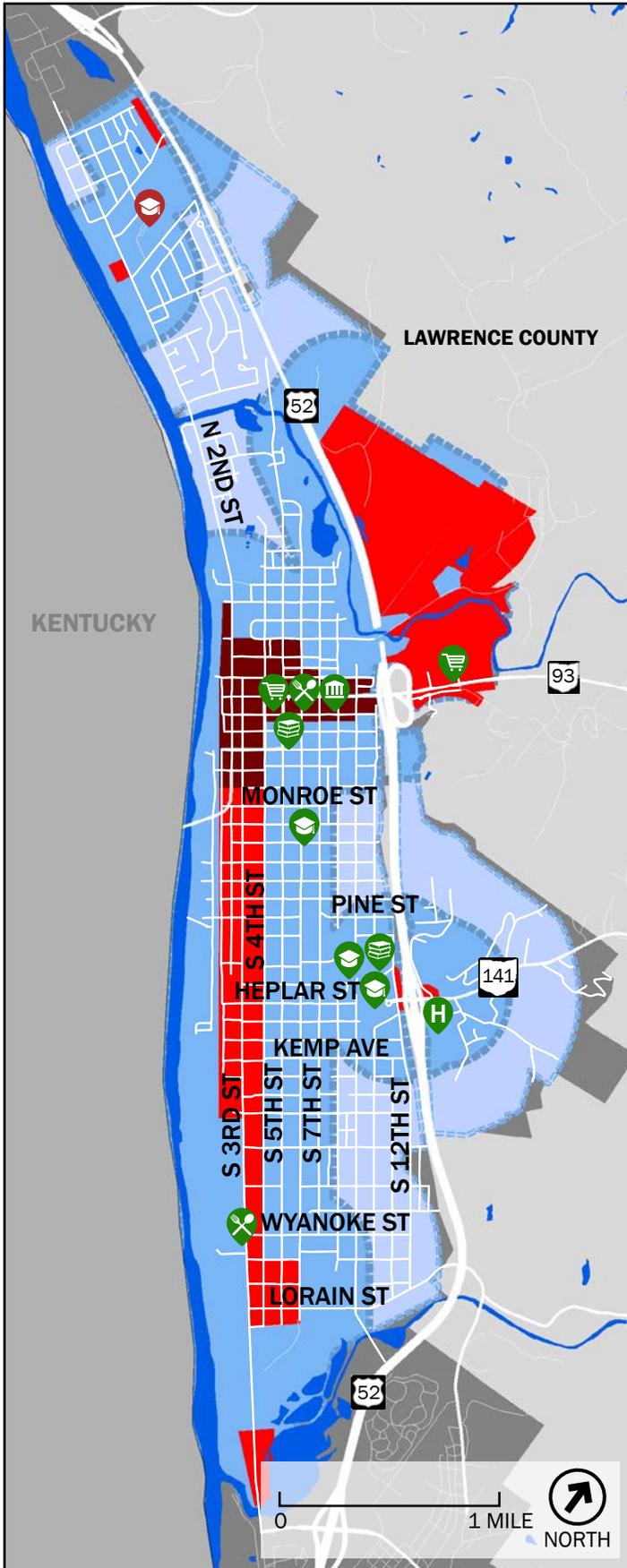
Note: These classifications assume peak-hour traffic is approximately 9% of daily traffic with a 60/40 directional split. These thresholds are given as general classifications, which can vary depending on further specifics, such as, turn lanes and crossroad traffic.

In **Table 3.8** 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.

The Park Avenue/SR-93 Corridor has the highest volumes in the Study Area. Between US-52 and 5th Street in Downtown Ironton, it carried 14,315 AADT in 2016. This is the only major roadway segment in the Study Area that experiences moderate congestion.

Traffic volumes on 2nd Street are light. The highest AADT on 2nd Street is 3,528, between Union and Ellison Streets. Continuing north to the city limits, volumes decline further, to 2,980 AADT.

Figure 3.4: Walking distance to commercial districts



3rd Street rarely experiences congestion, although certain segments, such as 3rd Street from Marion Pike to Pleasant Street and between Madison and Adams Streets, are approaching moderate congestion levels (8,439 and 9,271, respectively).

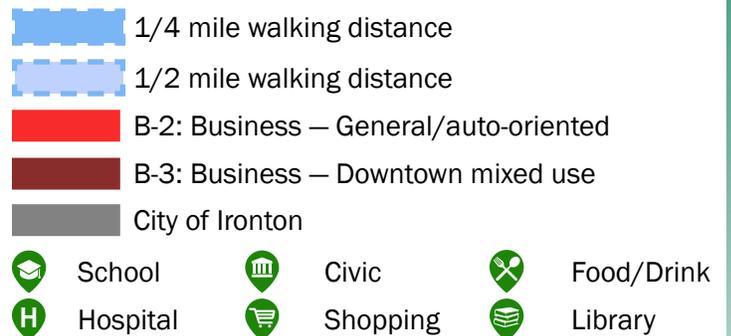
3.5 Active Transportation

This section examines bicycling and walking environments in the City of Ironton. It uses the results of a public survey and open-source data to measure current levels of walking and bicycling activity, and it includes a gap analysis of the City’s existing active transportation infrastructure.

Ironton’s dense street grid and compact development pattern are favorable to active transportation. Small block sizes and a highly connected roadway network offer multiple route options and crossing points for pedestrians and divide longer walks into more manageable segments. Continuous, linear streets enable bicycle travel that is swift and convenient. Most of the street grid is residential in nature, with low speeds and traffic volumes, further encouraging active transportation use.

A mix of destinations, from restaurants and retail to medical offices and civic buildings, are within walking distance of many of Ironton’s neighborhoods. Downtown Ironton is flanked by medium- and high-density residential zoning districts to the north and south. The 2nd/3rd Streets commercial corridor runs parallel to residential neighborhoods, and there are several smaller pockets of commercial uses throughout the City.

Commercial districts are likely to generate more pedestrian and bicycle activity due to the overall higher number of trip generations in these areas and concentrated mix of destinations. Seventy-one percent of the City’s land area is within a quarter-mile walk of one or more commercial districts, and 96 percent is within a half-mile walk (Figure 3.4).



Bicycling Environment

The Strava Global Heatmap (see **Appendix D**) uses GPS data from millions of users to display levels of walking and bicycling around the world. In Ironton, heatmap data indicates that bicycling activity is concentrated on South 2nd, 3rd, 4th, 5th, 6th and 12th Streets, North 2nd Street, and Adams Lane/Lorain Street.

There are no signed and marked bicycle facilities within the City of Ironton; however, ODOT has designated one bike route that traverses Ironton as part of the Statewide Bicycle Route System. State Bike Route 10 travels east from the Scioto County line on SR-650, through 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. There are no pavement markings, warning/regulatory signage, or wayfinding signage to indicate the presence of a bike route. No bicyclists were observed on the route at the time of the field review.

The primary source of information for bicycling conditions in the City of Ironton was a series of site visits, and a public survey, distributed in the Spring of 2017. **Appendix A** shows detailed survey results. Responses partially corroborated Strava heatmap data, showing a preference for bicycling on South 3rd, 4th and 5th Streets. However, respondents also identified South 3rd Street and Adams Lane/Lorain Street as some of the worst roads for bicyclists, despite the high level of activity on those roads, based on Strava data. The Oakley Clark Collins Memorial Bridge and Park Avenue/SR-93 between 9th Street and the Ironton Hills Shopping Center were also considered unbikeable.

A lack of dedicated bicycle facilities is the primary challenge for survey respondents in the Study Area. Eighty percent of respondents in Ironton reported that no space for bicyclists to ride on the road was a challenge.

In addition to a shortage of dedicated bicycle facilities, environmental factors also pose challenges to bicycle safety, according to survey respondents. Forty percent reported heavy and/or fast-moving traffic as a challenge and 20 percent of respondents cited too many trucks or other large vehicles as another obstacle to a safe bicycling environment. One hundred 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. At intersections, 75 percent of respondents did not report any issues. The remaining 25 percent cited 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 majority of respondents have lived in Lawrence County for more than 15 years. One hundred percent of respondents described their bicycling experience as advanced, meaning they are comfortable riding in most traffic situations on the road. Half of respondents reported bicycling more than 10 days a month in good weather and the other half reported bicycling every day. 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 City of Ironton. However, their responses may not be representative of the general population.

Walking Environment (Figure 3.5)

Several factors determine whether a street is walkable. In the road itself, it is the presence of cars, bicycles, and transit and how these modes interact with pedestrians. In the right-of-way, it is streetscapes and pedestrian facilities such as sidewalks; and in the private realm, land use and building design and placement are decisive factors. The relationship between motorists and pedestrians is often an adversarial one. Improved pedestrian accommodations and policies such as Complete Streets reduce the potential for conflict by clearly defining which road users belong where, and providing safe and convenient amenities for both cars and pedestrians. Walkable cities tend to be bikeable and transit-friendly as well, since all three modes thrive in the same high-density, mixed-use environment. Attractive streetscapes and sidewalks that clearly define the pedestrian zone with landscaping, lighting, and street furniture entice walkers to use them.

In Ironton, Strava Global heatmap data (**Appendix D**) show high levels of walking on South 5th, 6th, and 12th streets and North 2nd Street. Walkscore.com gives Ironton an overall walkability score of 75 out of 100, although scores for different neighborhoods vary widely. The City has a

robust sidewalk network, especially in the downtown area around Park Avenue. Residential neighborhoods south of Downtown also feature sidewalks. Throughout the City, there are a variety of curb ramp configurations. Some are in compliance with current Americans with Disability Act (ADA) standards (Figure 3.6), and many are not. These conditions can even vary within the same intersection. One example is at the intersection of South 7th Street and Oak Street (Figure 3.7) in front of Ironton High School — a heavy pedestrian generator. One corner of the intersection has a curb ramp with an orange truncated dome mat, proper slope, and yellow painted curb line. On the other corner, the sidewalk ends at a deteriorated curb line without a curb ramp. At some intersections in downtown Ironton, ADA-compliant curb ramps are parallel to marked crosswalks. At others, outdated curb ramps are

oriented towards the center of the intersection, rather than being aligned with crosswalks (Figure 3.8). Pedestrian signal heads are present at most signalized intersections Downtown, though not all of them. Pedestrian pushbuttons were only observed at one intersection.

Sidewalk widths vary widely throughout downtown Ironton. In some commercial areas, sidewalks are 15 to 20 feet in width to accommodate higher numbers of pedestrians (Figure 3.9). However the effective width of many of these sidewalks is reduced due to the presence of parked cars occupying the pedestrian zone (Figure 3.10). This issue was primarily observed on Park Avenue and its cross streets. In other areas of downtown Ironton, sidewalks were a standard six to eight feet, when present.

Figure 3.5: Pedestrian crossing Park Avenue



Figure 3.7: Missing curb ramp in front of Ironton High School



Figure 3.6: ADA-compliant curb ramps in Ironton



Figure 3.8: Outdated curb ramp



A unique feature in the City of Ironton is the presence of “State Law: Stop to Pedestrians” plaques affixed to many stop signs in the downtown area (Figure 3.11). These signs were located near pedestrian-generating land uses, such as the Work Force Development Resource Center and the Masonic Temple, near Center and 3rd Streets.

On some streets, such as Center Street, angled on-street parking provides a buffer between pedestrians on the sidewalk and road traffic (Figure 3.12). On other streets, there is parallel parking, which also provides a buffer for pedestrians.

Appendix A shows detailed survey results. Heavy and/or fast moving traffic and poorly lighted roadways were the main pedestrian safety issues in the Study Area.

Regarding roadway conditions, three quarters of respondents cited uneven surfaces or gaps as negatively affect walking in the Study Area, as well as cracked or broken pavement, a lack of designated and/or marked crosswalks, and a lack of sidewalks and/or pedestrian paths.

At intersections, 50 percent of respondents cited missing crosswalks and as the main challenge to navigating intersections. Other less prevalent issues at intersections include ADA accessibility and lack of pedestrian crossing signals issues.

Eighty percent of respondents cited no issues with motorists. Those that did cite issues identified failure to yield to pedestrians in crosswalks as the primary concern,

Figure 3.9: Wide sidewalk on Park Avenue



Figure 3.11: “State Law: Stop to Pedestrians” sign



Figure 3.10: Parked cars on the sidewalk



Figure 3.12: Angled on-street parking



followed by driving too fast and passing too close, motorists not using turn signals, harassing behavior, and running red lights or stop signs.

Ironton Hills Shopping Center

The Ironton Hills Shopping Center is located northeast of downtown Ironton on SR-93. It is home to over a dozen businesses, including fast food restaurants, a grocery store, a pharmacy, retail stores, and financial businesses. Although it is only 0.3 mile from Downtown, no pedestrian connections exist between the sidewalks on Park Avenue (which terminate at 9th Street) and the shopping center. In this 0.3-mile segment, Park Avenue is signed as SR-93 where it changes from a 25-mph, two-lane minor arterial in the downtown area to a four-lane (or more) state highway with an 85th percentile speed of 40 mph. Vehicle speeds increase to 73 mph northeast of the shopping center, which indicates that motorists may use the segment of SR-93 northeast of the US-52 overpass as an acceleration zone. On Park Avenue, 2015 AADT was 13,738; at the US-52 overpass, the AADT increases to 15,384.

After the sidewalks end at 9th Street, a goat path has developed on the southeast side of the street, and it continues until the US-52 interchange ramps. Where sidewalks do not exist, pedestrians create paths to reach their destinations. Goat paths indicate a need for improved active transportation facilities. At the interchange ramps, pedestrians must cross the on-ramp entrance and use the shoulder underneath the overpass. Then they cross over two more ramps to reach an unpaved gravel shoulder. There are no crosswalks or other safe and comfortable means of accessing the shopping center on the other side of the road. In addition, SR-93 is over 80 feet wide in some places, making it difficult for pedestrians to cross. Refer to **Appendix D** for images of the conditions described above.

The Molten Field Trail provides an alternative pedestrian route to the Ironton Hills Shopping Center. Two blocks north of Park Avenue/SR-93, the paved trail travels under US-52, where it terminates at a site used to store yard waste. An unpaved and unmarked trail continues up a hill, adjacent to the US-52 westbound exit ramp to SR-93. The trail ends at a vacant field, approximately 300 feet from the shopping center. For residents north of Park Avenue, the path is more convenient and safer than walking along Park Avenue/SR-93 to the shopping center's main entrance.

3.6 Gap Analysis

Ironton's existing active transportation network was analyzed for gaps. A gap is a break between two active transportation facilities or between an active transportation facility and an important trip generator. Two data sources were used to evaluate the network for gaps: comments from survey respondents and public meeting attendees and the results of a sidewalk inventory

Pedestrian Network Gaps

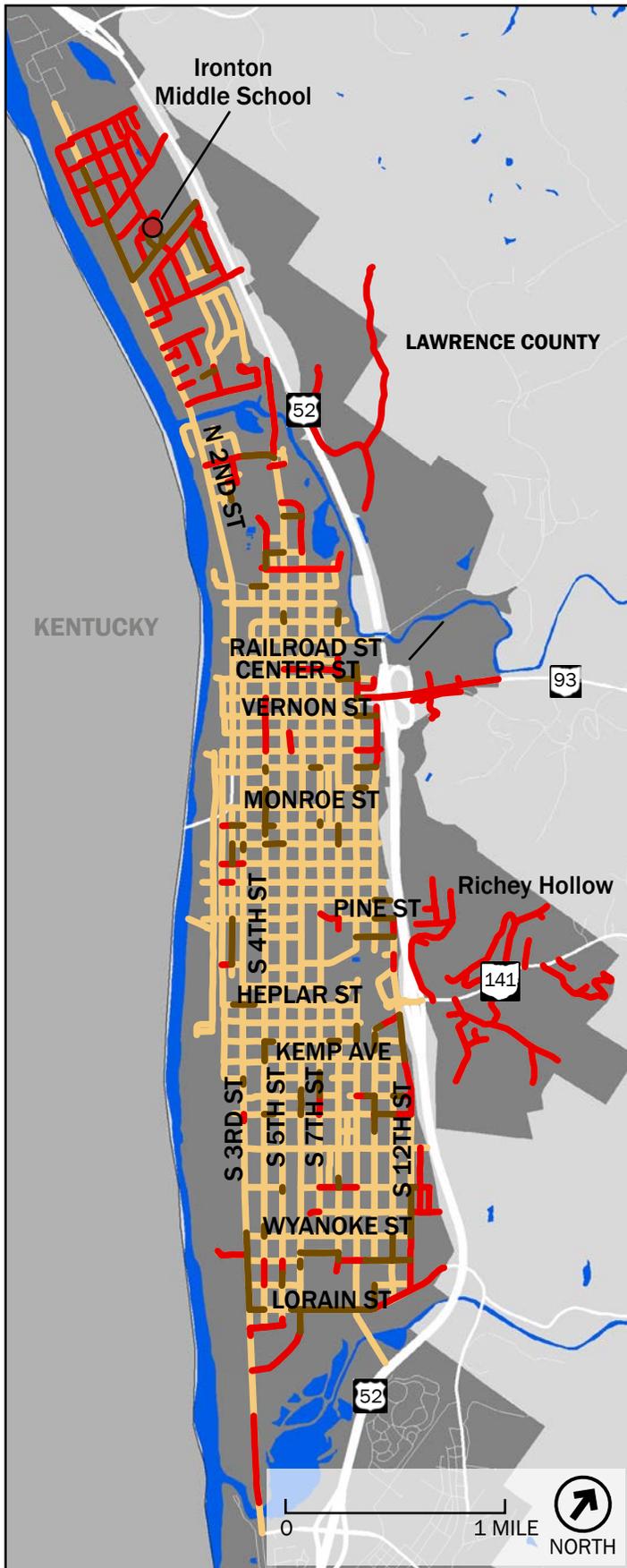
Figure 3.13 shows sidewalk inventory results. The sidewalk inventory categorized all block segments within the City of Ironton as 1) sidewalks on both sides, 2) sidewalks on one side only, or 3) missing sidewalks.

For the purposes of this inventory, a sidewalk was defined as any constructed pedestrian pathway within the right-of-way that could accommodate an able-bodied person. Some sidewalks observed during the inventory were in a severe state of disrepair. Heaving pavement, crumbling curbs, overgrown weeds that obstruct the pedestrian pathway, and intersections with outdated or absent curb ramps were found in several parts of the City. However, these deteriorated sidewalks were included in the inventory to provide a complete picture of Ironton's current sidewalk network, and because they were able to accommodate an able-bodied person. It should be noted that parts of the sidewalk network, such as the areas described above, are inaccessible to people with disabilities.

Approximately one quarter of roads within city limits lack sidewalks on both sides. The majority of these roads are at the northern end of the City, between Orchard and Ellison Streets. They are low-speed, low-volume, streets with suburban character (serving single-family homes with front yards). Ironton Middle School is located in the center of this area. It has a walkscore of 4, indicating that almost all trips in the area require a car. However, Strava Global Heatmap data shows a high level of walking activity in this area, indicating a strong need for pedestrian facilities. Most of the houses in these neighborhoods are within one mile walking distance of the school. Students who wish to walk to school must share the road with motorized traffic.

The Richey Hollow area, southeast of the US-52/SR-141 interchange, also lacks sidewalks. The roads in this area are rural in character, with narrow widths, serving large lots with deep setbacks for single-family homes.

Figure 3.13: Sidewalk Inventory



Eight percent of roads have sidewalks on only one side. These roads are dispersed throughout the City and do not form any significant clusters. The remaining two thirds of city streets have sidewalks on both sides.

Because there are no signed and marked bicycle facilities within the City of Ironton, a bicycle network gap analysis was not conducted. See **Chapter 5** for an analysis of existing conditions along proposed bikeways.

3.7 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. There are many bicycle and pedestrian-friendly destinations in Ironton (**Figures 3.14-17**). Most of these destinations are accessible to pedestrians and bicyclists and are located in areas with compact, medium- to high-density development.

3.8 Pedestrian 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. Only one crash occurred in the City of Ironton, at 5th Street and Park Avenue, between a pedestrian and a vehicle.

- Sidewalks On Both Sides
- Sidewalks On One Side
- No sidewalks
- City of Ironton

3.9 Conclusion

Pedestrian Network Summary

Ironton features a robust pedestrian network, and with some improvements, the active transportation opportunities could be expanded to accommodate more users of varying abilities.

Bicycle Network Summary

Although Ironton lacks a bicycle network, there are many locations that could incorporate bicycle facilities into the existing roadway network. Some roadways could be modified to include separated bicycle facilities, as well as shared lanes through signage and pavement markings.

Figure 3.14: Ironton High School



Figure 3.16 : Ohio University-Ironton Library



Figure 3.15: Downtown Ironton



Figure 3.17: Ro-Na Theater, Downtown Ironton



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 multimodal networks in smaller urban 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 two primary 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.

Land Use

The land use adjacent to a roadway influences the type and intensity of use that the road experiences. For example, a downtown shopping corridor may generate heavy traffic during off-peak hours of the day and on weekends. It would likely draw more pedestrians and bicyclists than a road without these attractions.

There are 21 facility types in this chapter. The first section describes each facility type, typical elements, applications, and benefits¹. It divides facilities into the following categories:

Bicycle Boulevards: Bicycle boulevards form the spine of Ironton's proposed active transportation network. This section explains standard elements, advanced treatments, and volume and speed management practices.

Separated Bicycle Facilities: Several types of bike lanes are proposed for Ironton's active transportation network, including standard bike lanes and separated bike lanes, or cycle tracks.

Pedestrian Facilities: pedestrian amenities range from standard crosswalks to more advanced elements, such as rapid flashing beacons.

Other Facilities: Shared streets and road closures, or pedestrian/bicycle-only streets, are included in this section.

The second section features a quick-reference page 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.

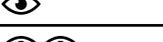
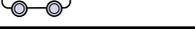
Additional information is listed in **Table 4.1**.

1. Some content was borrowed from the NACTO Urban Bikeway Design Guide.

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

Table 4.1 explains the significance of each icon used to describe the facility types on the following pages.

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 Bicycle Boulevards and Traffic Calming

Bicycle boulevards are a low-cost way to increase connectivity in a bikeway network by designating existing local streets for priority bicycle travel. These networks 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.

Bicycle boulevards are the arteries of Ironton's proposed active transportation network. They comprise a number of facilities, from traffic calming treatments to pavement markings. These items are grouped together and described below, showing how they function as a whole to create an effective bicycle boulevard.

Bicycle Boulevard Pavement Marking (Figure 4.1)

Pavement markings identify the route as a bicycle boulevard. These markings vary across communities, from the standard shared lane marking, or sharrow, for consistency with the rest of the bikeway network, to customized bicycle boulevard markings that span an entire lane.

Bicycle Boulevard Signage (Figure 4.2)

Wayfinding signs are placed at key decision points along the bicycle boulevard. They mark turns in the route, intersecting bikeways, and list distances to destinations. Signs also brand the network and may name the route 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 characters.

Warning signage is placed on cross-streets to alert motorists to the presence of bicyclists at potential conflict points.

Intersection Treatment (Figure 4.3)

A variety of solutions can be employed to make intersections safer and more convenient for bicyclists. These treatments range from painted facilities, such as through bike lanes, bike boxes, sharrows that mark bicyclists' path of travel through the intersection, and bicycle actuated signals. More complex treatments are discussed individually on the following pages.

Bicycle Boulevard Benefits

General

- » Increases comfort for bicyclists by reducing motor vehicle speeds and volumes.
- » Connects local roads to commercial corridors and civic uses 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.

Pavement Markings and Signage

- » Help users remain on designated routes and navigate between routes.
- » Distinguish bicycle boulevards from other local streets.
- » Pavement markings encourage proper positioning in the roadway and show all users where bicyclists should be riding.
- » Signs improve wayfinding and ease of navigation.

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.



4.2.1 Traffic Calming: Volume Management

Traffic calming plays a key role in establishing low-stress bicycle routes on residential streets. Certain bicycle boulevard improvements, such as stop sign removal or rotation, may encourage cut-through vehicular traffic to use the same routes that are meant to prioritize bicyclists. To deter motorists, a variety of traffic calming elements can be used.

Diverter (Figure 4.4)

Diverter may restrict vehicle through-movements in either or both direction while allowing bicyclist through-movements. Diverter are customized to address volume control needs at a specific intersection and may take many forms. Median diverters allow cross-street traffic through-movements but require vehicles on the bicycle boulevard to turn; right-in-right-out diverters require right turn movements for all traffic; and diagonal diverters require all traffic to turn.

Partial Closure (Figure 4.5)

A partial road closure diverts one direction of traffic, restricting vehicle access to one side while allowing full bicycle access. It converts one or more blocks into one-way streets for motorized traffic and uses contra-flow bike lanes or other markings to indicate that two-way bicycle travel is permissible.

Full Closure (Figure 4.6)

A full closure creates a T intersection, redirecting all motor vehicle traffic onto a cross-street while maintaining full bicycle access on the bicycle boulevard street. Full closures use diverters, medians, and other landscaped or landscaped obstacles. Motor vehicle access on either side of the closure is still allowed, but through-traffic is prohibited. Full closures should maintain access for emergency vehicles.

These types of road closures, which block access from intersecting streets but still allow vehicles, should not be confused with pedestrian/bicycle-only streets, which close one or more blocks to all vehicle travel, and are described in Section 4.5.

Volume Management Benefits

- » Reduces motor vehicle volumes by completely or partially restricting through traffic on a bicycle boulevard.
- » Establishes and reinforces bicycle priority by prohibiting vehicle through movements.
- » Improves bicyclist comfort on a corridor and benefits pedestrians and residents by reducing traffic volumes along the corridor.
- » Provides opportunities for landscaping, stormwater management, and other beautification projects.

Diverter

- » Limits access and reduces through-traffic, while maintaining pedestrian and bicycle access.
- » Designed to favor bicycle travel, creating continuous routes through residential neighborhoods.

Partial Closure

- » Reduces cut-through traffic and effectively converts through-bicycle streets into low-volume routes.
- » Can include landscaping and aesthetic improvements.

Full Closure

- » Eliminates cut-through traffic and effectively converts through-bicycle streets into low-volume routes.
- » Can include landscaping and aesthetic improvements.



4.2.2 Traffic Calming: Speed Management

Chicane (Figure 4.7)

Chicanes are a set of two or more bulb-outs or curb extensions that narrow and realign the roadway for short segments making drivers slow down to negotiate the curves. Chicanes discourage cut-through traffic but still maintain two-way traffic and full access for larger vehicles. A chicane effect can be created using various methods, including concrete curbs, landscaped areas or alternating parallel parking from one side of the street to the other every few hundred feet. Landscaped chicanes provide a space to capture storm water runoff, simultaneously greening the roadway and calming traffic.

Curb Extension (Figure 4.8)

Curb extensions, also called bulb-outs or neckdowns, narrow the roadway by extending the curb at key intersections and midblock crossing locations. They slow traffic and reduce turning speeds and crossing distance, making pedestrians more visible to oncoming traffic. Curb extensions effectively indicate that the walking environment is equally important as the road itself, reclaiming space to improve pedestrian comfort and safety.

Median Island (Figure 4.9)

Medians are a type of barrier that separate opposing traffic on a two-way street. Unless there is a break in the median at an intersection, medians block turning movements and through traffic on intersecting streets. Medians visually narrow the roadway, causing motorists to reduce speeds. They can be landscaped, concrete, or made of other materials. Lighting and signage for pedestrian crossings can also be included.

Mini Traffic Circle (Figure 4.10)

Mini traffic circles are raised or delineated islands placed at intersections that reduce motorized traffic speeds by narrowing turning radii and travel lanes. They can be used in conjunction with yield signs at minor street crossings to reduce speeds on the bicycle boulevard and to prevent cross-street traffic from entering or traversing the route at dangerous speeds. Circles are often landscaped for aesthetics and to create a more prominent obstruction

Speed Management Benefits

- » Decreases motor vehicle speeds.
- » Decreases the likelihood that crashes will occur, by increasing drivers' response time and minimizing motor vehicles overtaking movements.
- » Decreases the likelihood of an injury resulting from a crash.
- » Improves bicyclist comfort and benefits pedestrians by reducing traffic speeds.
- » Establishes and reinforces bicycle priority on bicycle boulevards by discouraging through vehicle travel.
- » Provides opportunities for landscaping and other community features such as benches, message boards, and colored pavement in the intersection.

Chicane

- » Reduces vehicle speeds and discourages cut-through traffic.
- » Improves the appearance and function of the street.

Curb Extension

- » Slows traffic, reduces turning speeds, and increases pedestrian safety by reducing crossing distance.
- » Shifts the focus of the street towards creating a more multimodal environment.

Median Island

- » Reduces crossing distances and provides shelter.
- » Can improve a local street's residential character.

Mini Traffic Circle

- » Can be more effective at traffic calming than four-way stop signs.
- » Landscaping in the circle can beautify the intersection.



4.3 Separated Bicycle Facilities

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.

Cycle Track (Figures 4.13-14)

Cycle tracks, also known as separated bike lanes, use space within the right-of-way to remove bicyclists from motorized traffic with barriers such as bollards, parked cars, landscaping, or grade-separation. They accommodate riders of all experience and comfort levels. Standard cycle tracks allow travel in one direction; two-way cycle tracks have two travel lanes to accommodate bicycle travel in both directions.

A midway or median cycle track allows continuous protected bicycle travel in both directions along the centerline of the road. It makes bicyclists highly visible to other users at intersections and reduces right- and left-hook crashes.

Bike Hub (Figure 4.15)

A bike hub's primary purpose is to provide increased amenities to bicyclists. Bike hubs range from relatively simple open-air shelters with repair stations and seating to full-service facilities with bathroom, showers, and lockers. Bike hubs always include bike parking and may feature map displays or handouts showing the local bikeway network. A bikeshare station may also supplement other bike hub amenities. Bike hubs are placed where two routes intersect, or where especially high volumes of bicyclists are expected, such as downtown riverfront trails, universities, and commercial districts.

Separated Bicycle Facilities Benefits

Bike Lane

- » Provides additional 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 a variety of comfort levels within built-up areas.
- » Offers 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.

Cycle Track

- » 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.

Bike Hub

- » Increases bicyclist convenience, encouraging more use of existing facilities.
- » Provides shelter, navigational aid, and rest areas for bicyclists.
- » Can induce more demand for bicycle facilities and amenities.
- » Increases bicycle volumes.



4.4 Pedestrian Facilities

Sidewalk (Figure 4.16)

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.

High-Visibility Crosswalk (Figure 4.17)

High-visibility, or continental, crosswalk patterns use white paint placed longitudinally across the roadway to increase the crosswalk's visibility to motorists. Markings can be spaced to avoid vehicle wheel paths, reducing maintenance needs. Additional high-visibility elements can alert drivers to bicyclists and pedestrians, acting as a strong cue to control speeds. Elements can include flashing beacons, extra signage, textured and colored pavement, and in-pavement lighting.

Curb Ramp (Figure 4.18)

Curb ramps provide an accessible way for people with disabilities to safely navigate from a crosswalk or road to a sidewalk or vice versa. Title II of the Americans with Disabilities Act requires state and local governments to make pedestrian crossings accessible to people with disabilities by providing curb ramps. Curb ramps must have textured surfaces, called truncated dome mats, that alert people with disabilities of their proximity to the road. They are required where pedestrians must navigate from one curbed sidewalk to another and where people board and alight from public transportation.

Rectangular Rapid Flashing Beacon (Figure 4.19)

Rectangular rapid flashing beacons, or active warning beacons, alert drivers to yield when pedestrians or bicyclists are crossing the road. They are typically used at mid-block crossings. Crosswalk users activate the beacon with a pushbutton. Their irregular flash patterns are similar to emergency vehicle lights and are effective at getting the attention of motorists. When yield control is insufficient due to traffic speeds or volumes, a Pedestrian Hybrid Beacon (Figure 4.20) is used to bring traffic to a complete stop.

Accessible Pedestrian Signals (Figure 4.20)

Accessible Pedestrian signals, or APS, provide audio, visual, and vibrotactile feedback to pedestrians requesting a walk signal, replacing outdated pedestrian pushbuttons that do not accommodate users with disabilities.

Pedestrian Facilities Benefits

Sidewalk

- » 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.

High-Visibility Crosswalk

- » More visible to approaching vehicles than conventional crosswalks.
- » Improves yielding behavior.

Curb Ramp

- » Improves accessibility for users with disabilities.
- » Complies with ADA.

Rectangular Rapid Flashing Beacon

- » More effective at getting the attention of motorists than warning lights with steady flash.
- » User-activated, only in operation when needed.

Accessible Pedestrian Signal

- » Makes crossing safer for users with disabilities.



4.5 Other Facilities

Shared Street (Figure 4.21)

Shared streets — also known as living streets or Woonerfs, a term coined by their Dutch inventor — allow pedestrians, bicyclists, and vehicles to share the road. All users travel at slow speeds and pedestrians have right-of-way. These streets are common throughout Europe and are becoming more popular in North America. They are typically found in areas with high pedestrian activity and on roads where vehicle volumes are low. Road surfaces are flush with curbs and sidewalks to emphasize pedestrian priority and accessibility. Shared streets often include traffic calming measures, streetscaping improvements (decorative lighting, signage, public art, street furniture, planters, parklets, etc.), and other design measures to implicitly slow speeds and discourage cut-through traffic.

Road Closure (Figure 4.22)

Road closures prohibit motorized traffic and are designed entirely for pedestrian, and in some cases, bicycle use. They are also called pedestrian/bicycle-only streets and are typically found in high-density, mixed-use urban areas with significant pedestrian activity already present.

In some cities, especially those that rely on tourism, road closures and pedestrian/bicycle-only streets are economic engines. They generate more pedestrian traffic than regular streets, leading to a prime location for shopping and entertainment. These streets also act as venues for concerts, farmers' markets, and other public events. Property values on or near such streets can rise. Lastly, they can improve public health by providing pleasant environments for walking and bicycling.

Streetscaping improvements (decorative lighting, signage, public art, street furniture, planters, parklets, etc.), enhanced amenities, such as bikeshare stations and public restrooms, and other design measures are used to make these streets more attractive for walking and bicycling.

Continuous maintenance and programming are a key element of successful pedestrian/bicycle-only streets. Road closures that do not attract sufficient pedestrian volumes by hosting regular events can become sources of blight and criminal activity.

Emergency and delivery vehicle access should be maintained for both shared streets and road closures.

Shared Street and Road Closure Benefits

- » Prioritize pedestrian and bicycle travel.
- » Divert motorized traffic to more auto-oriented roads.
- » May increase property values.
- » Attract visitors and boosts local economy.
- » Activate underused spaces and repurpose other spaces, such as on-street parking, for more valuable uses.
- » Can be implemented temporarily to test effects and plan for long-term changes.

Shared Street Benefits

- » Slows vehicle speeds and reduces volumes.

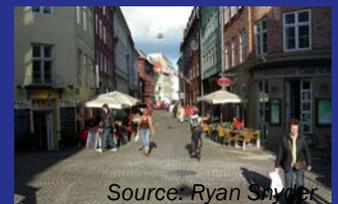


Figure 4.1



BICYCLE BOULEVARD PAVEMENT MARKING

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.2



BICYCLE BOULEVARD SIGNAGE

PROTECTION LEVEL	N/A				
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.3



INTERSECTION TREATMENT

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.4



Source: NACTO

DIVERTER

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.5



PARTIAL CLOSURE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.6



FULL CLOSURE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.7



CHICANE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.8



CURB EXTENSION

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

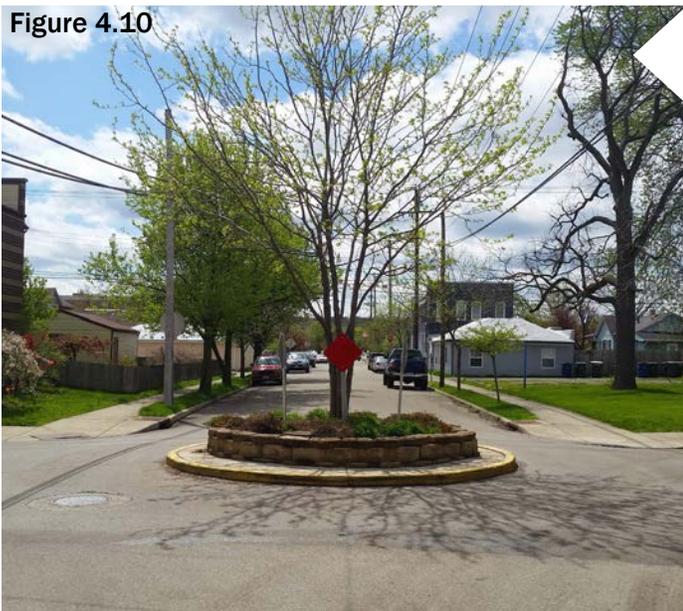
Figure 4.9



MEDIAN ISLAND

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.10



MINI TRAFFIC CIRCLE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.11



BIKE LANE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.12



Source: NACTO

BUFFERED BIKE LANE

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.13



TWO-WAY CYCLE TRACK

PROTECTION LEVEL	    
INSTALLATION COST	    
DURABILITY	    
AESTHETICS	    
USERS	

Figure 4.14



MIDWAY CYCLE TRACK

PROTECTION LEVEL	    
INSTALLATION COST	    
DURABILITY	    
AESTHETICS	    
USERS	

Figure 4.15



BIKE HUB

PROTECTION LEVEL	    
INSTALLATION COST	    
DURABILITY	    
AESTHETICS	    
USERS	

Figure 4.16



SIDEWALK

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.17



HIGH-VISIBILITY CROSSWALK

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

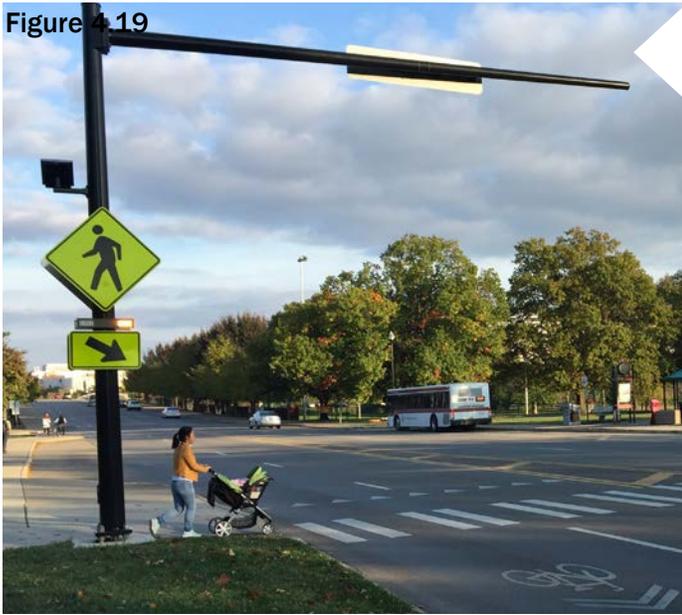
Figure 4.18



CURB RAMP

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

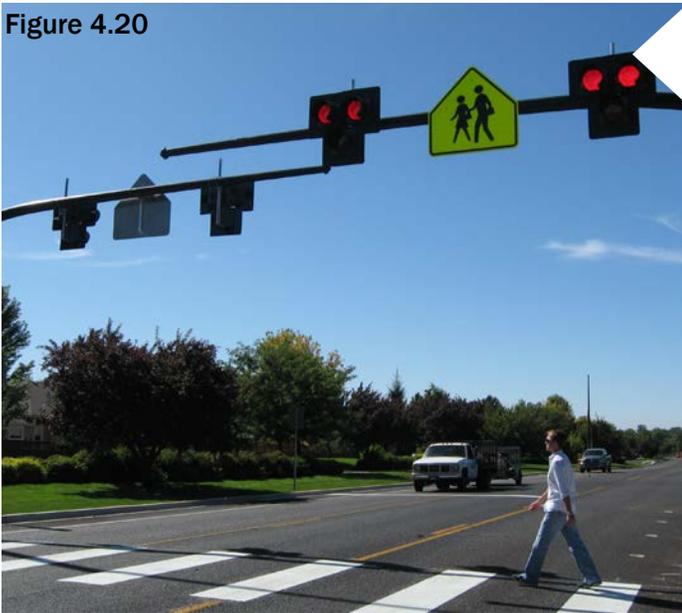
Figure 4.19



RECTANGULAR RAPID FLASHING BEACON

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.20



PEDESTRIAN HYBRID BEACON

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.21



ACCESSIBLE PEDESTRIAN SIGNAL

PROTECTION LEVEL					
INSTALLATION COST					
DURABILITY					
AESTHETICS					
USERS					

Figure 4.22



SHARED STREET

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

Figure 4.23



Source: Ryan Snyder

ROAD CLOSURE

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

5 RECOMMENDATIONS

5.1 Introduction

Infrastructure recommendations for the Ironton Active Transportation Plan are divided into four categories:

- EP: Improvements to gaps in the existing pedestrian network
- NP: New pedestrian facilities
- NB: New bicycle facilities
- NS: New shared use facilities

The majority of the recommendations are NB routes. Policy and program recommendations are addressed in Chapter 6.

All proposed routes and improvements were developed from information gathered during the Existing Conditions phase, including stakeholder comments, field visits, geospatial analysis, and other data sources. The blue boxes in this chapter contain descriptions of existing conditions on each street that is recommended for improvements.

These recommendations would add more than 64 miles of active transportation facilities throughout the City of Ironton. Many of the proposed facilities are located in Ironton's active transportation-compatible zoning districts, identified in Section 3.3. These improvements would utilize the City's existing compact, walkable and bikeable environments to enhance active transportation accessibility and connectivity.

It should be noted that the recommendations in this chapter are suggestions only; once built, the network may differ significantly from these recommendations. To ensure the safest and most convenient network possible is constructed, a detailed analysis of existing conditions along all proposed routes and at each proposed intersection modification should be conducted before design of the network is finalized. While the recommendations form a comprehensive system, each proposed route should be treated as a standalone project, with the required feasibility, safety, environmental, and other analyses completed, where applicable.

Recommendations are listed in **Table 5.1** and shown in **Figures 5.1** and **5.2**.

5.2 Pedestrian Facilities

While the City of Ironton already has a robust sidewalk network, certain improvements can be made to create a safer, more convenient and comfortable walking environment. Pedestrian facility recommendations are intended to remove gaps in the existing sidewalk network, establish new sidewalk networks in areas that currently lack pedestrian facilities, and increase pedestrian safety through enhanced infrastructure.

EP-1: Park Avenue Sidewalks

It is recommended to install sidewalks on both sides of Park Avenue/SR-93 between 9th Street and Coryville Road. This improvement would fill in the gap between Downtown Ironton and the Ironton Hills Shopping Center, and aligns with the conceptual improvements proposed in the Park Avenue Traffic Study.

EP-2: Fill in Minor Sidewalk Gaps

There are approximately 90 minor gaps (fewer than four blocks long) throughout the City that account for 19 miles of missing sidewalks. Filling in these gaps would significantly improve pedestrian mobility and accessibility, particularly towards the south end of the City, between Lorain Street/Adams Lane and Kemp Avenue. These minor sidewalk improvements could be included in routine street maintenance and resurfacing projects to leverage existing funds.

EP-3: Pedestrian Improvements on Proposed Bikeways

With bicyclists' increased presence on proposed bikeways, the accompanying traffic calming will also attract pedestrians to these streets. Pedestrian improvements should be prioritized on proposed bikeway routes to create multimodal corridors across the City. Improvements include repairing existing sidewalks and building new ones to fill gaps, repairing or upgrading curb ramps, and installing high-visibility crosswalks along proposed bikeways.

EP-4: High-Visibility Crosswalks

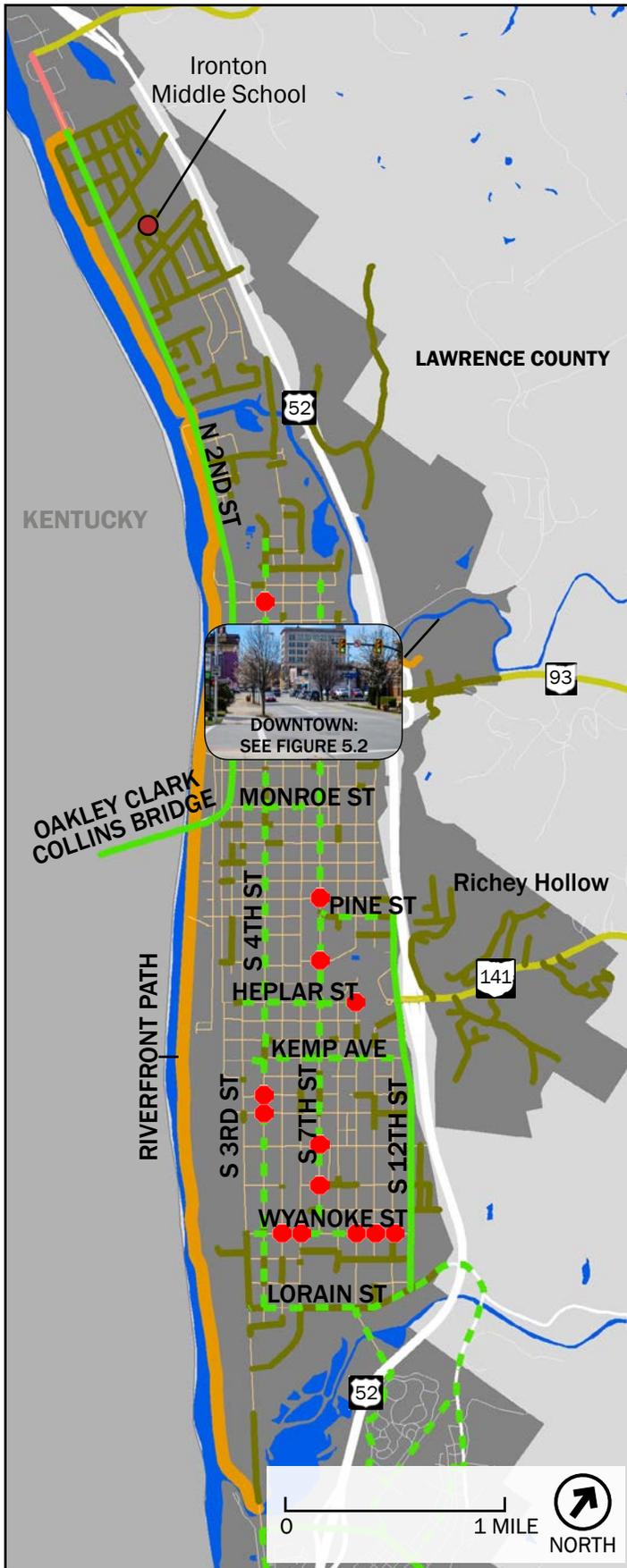
Standard crosswalk markings are used at most marked crosswalk locations in the City of Ironton: two parallel lines, roughly ten feet apart, extending across the roadway from curb to curb. These crosswalks are not highly visible to motorists, nor do they emphasize intersections

Table 5.1: Proposed Active Transportation Routes

ID	LOCATION	FACILITY TYPE	LENGTH (MILES)	DESCRIPTION
EP-1	Park Avenue	Sidewalks	.8	Sidewalks on both sides of Park Avenue between 9th Street and Coryville Road
EP-2	City-wide	Sidewalks	19	Fill in minor gaps (> 4 blocks) in sidewalk network
EP-3	Pedestrian Improvements on Proposed Bikeways	Sidewalks Curb Ramps Crosswalks	N/A	Repair, upgrade, and install pedestrian amenities along proposed bikeways to accommodate increased foot traffic
EP-4	City-wide	High-Visibility Crosswalks	N/A	Upgrade standard crosswalks with high-visibility markings in pedestrian-oriented areas.
NP-1	All roads within 1 mile of Ironton Middle School	Sidewalks	14	Sidewalks on both sides of local streets between Ellison and Orchard Streets
NP-2	Richey Hollow	Sidewalks	9	Sidewalks on both sides of local streets between Ellison and Orchard Streets
NB-1	Monroe Street	Bicycle Boulevard Feeder	0.3	Bicycle boulevard between S 3rd and S 7th Streets
NB-2	Pine Street	Bicycle Boulevard Feeder	0.2	Bicycle boulevard between S 7th and S 11th Streets
NB-3	Heplar Street	Bicycle Boulevard Feeder	0.5	Bicycle boulevard between S 3rd and S 9th Streets
NB-4	Wyanoke Street	Bicycle Boulevard Feeder	0.6	Bicycle boulevard between S 3rd and S 12th Streets
NB-5	4th Street	Bicycle Boulevard Cross-Town Connector	3.5	Bicycle boulevard between Lorain and Mary Streets
NB-6	7th Street	Bicycle Boulevard Cross-Town Connector	3	Bicycle boulevard between Wyanoke and Mill Streets
NB-7	Railroad Street	Cycle Track	0.5	Bidirectional midway cycle track between N 2nd and N 8th Streets
NB-8	11th/12th Streets/ Liberty Avenue	Bike Lanes	1.7	Bike lanes between Adams Lane and Pine Street
NB-9	2nd/3rd Streets	Bike Lanes	7	Ironton segment of Ironton-Proctorville Bikeway*
NB-10	Lorain Street/Adams Lane	Bicycle Boulevard Regional Route	1	Extension of Coal Grove bicycle boulevard network*
NB-11	Kemp Avenue	Bicycle Boulevard Regional Route	0.7	Segment of State Bike Route 10*
NB-12	Oakley Clark Collins Memorial Bridge	Bike Lanes	0.6	Part of Lawrence County Bicycle and Pedestrian Plan*
NS-1	Vernon Street	Road Closure (pedestrian/bicycle-only)	0.7	Full closure between Bobby Bare Boulevard and S 7th Street and between S 9th and S 10th Streets; partial closure between S 7th and S 9th Streets
NS-2	Bobby Bare Boulevard	Road Closure (pedestrian/bicycle-only)	0.1	Full closure between Vernon and Center Streets
NS-3	Center Street	Shared Street	0.7	Shared street from Bobby Bare Boulevard to eastern road terminus
NS-4	Molten Field Trail	Shared Use Path	0.4	Shared use path from N 8th Street and Railroad Street to Ironton Hills Shopping Center

*See Lawrence County Bicycle and Pedestrian Plan, Section 5.2.

Figure 5.1: Proposed Active Transportation Network



as multimodal spaces where pedestrian presence is expected. Standard crosswalks could be replaced with high-visibility crosswalks, described in Section 4.4, to increase pedestrian visibility. Park Avenue and other busy pedestrian corridors should be prioritized for crosswalk upgrades.

NP-1: North End Neighborhoods and Ironton Middle School Sidewalk Network

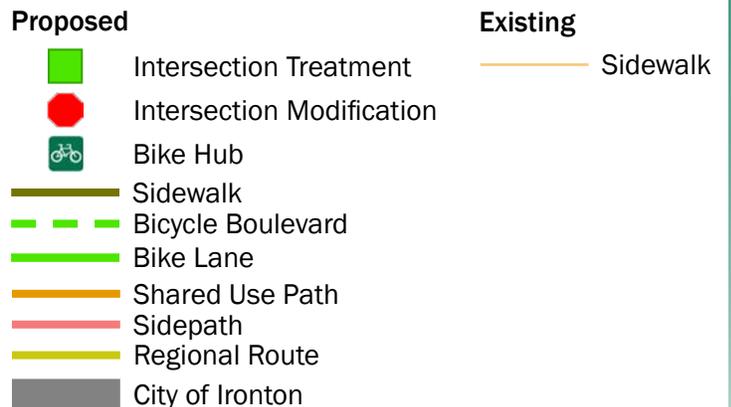
There are virtually no sidewalks in the neighborhoods adjacent to Ironton Middle School. These compact and otherwise walkable neighborhoods with low traffic volumes and speeds are an ideal setting for students to walk to school. Installing sidewalks would enhance safety for students and other pedestrians.

NP-2: Richey Hollow Sidewalk Network

The Richey Hollow neighborhood is rural in character, with narrow widths, serving large lots with deep setbacks for single-family homes. The closest destination is the St Mary’s Medical Campus and some small-scale retail on SR-141, less than half a mile from the furthest point in the neighborhood. Installing sidewalks in the area would encourage residents to make short trips to nearby destinations on foot rather than driving.

5.3 Bicycle Boulevard Network

Ironton’s proposed bicycle boulevard network would be composed of two primary north-south routes (cross-town connectors), four secondary east-west routes (Feeders), and two regional routes that connect to other facilities. Existing conditions for each route and proposed improvements are described in this section. Bicycle boulevard concepts and principles are explained in Chapter 4.



5.3.1 General Bicycle Boulevard Recommendations

- Install bicycle boulevard wayfinding signage, pavement markings, and intersection treatments (as needed).
- Install sidewalks on both sides of streets, curb ramps, and crosswalks, where missing, to create active transportation corridors.
- To facilitate convenient and continuous travel, right-of-way should be established for bicycle boulevard users at as many intersections as possible. Forcing frequent stops makes the route less attractive to would-be bicyclists and may lead to reduced compliance at stop-controlled intersections. Specific recommendations for each proposed route are on the

following pages.

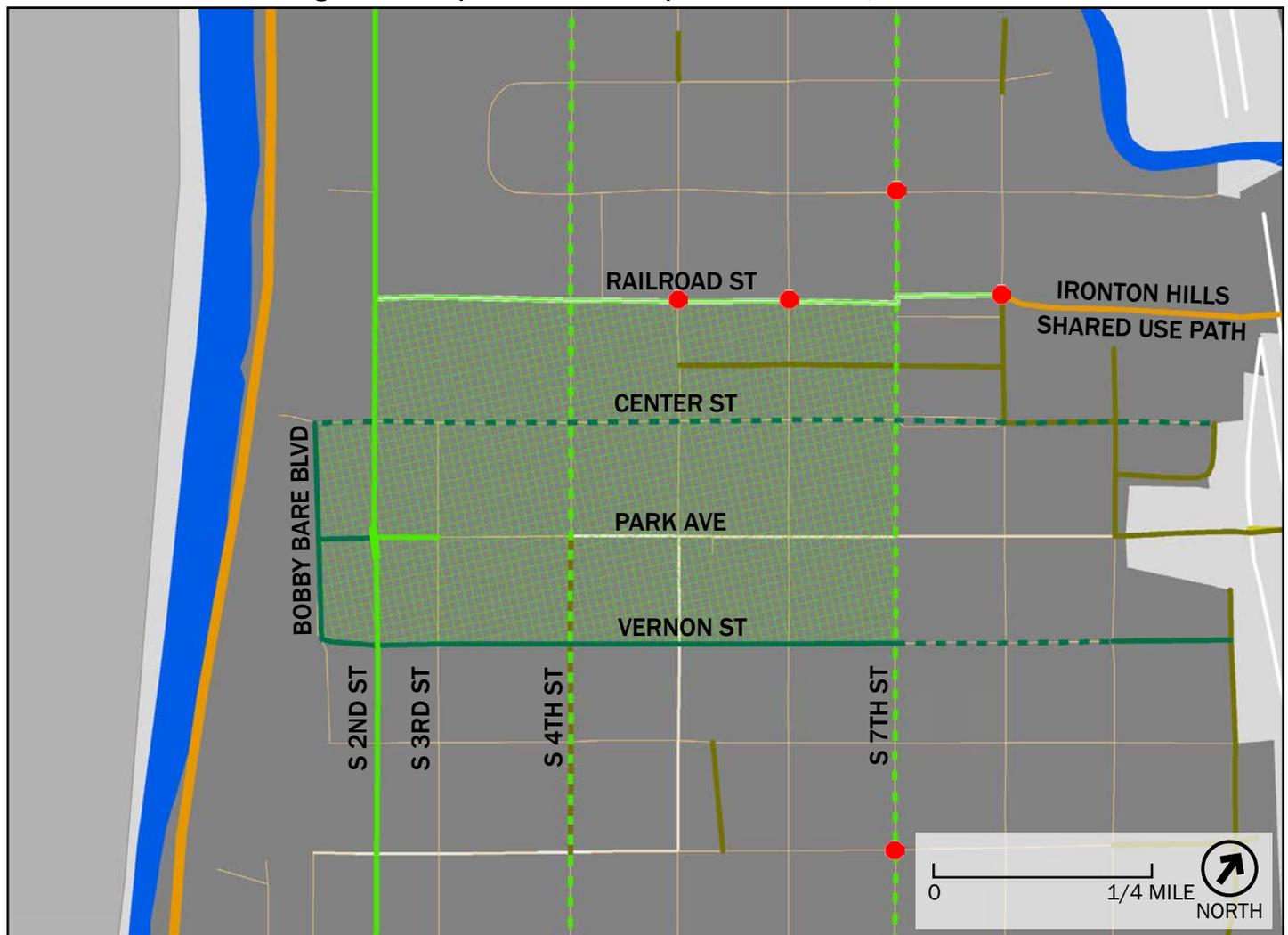
5.3.2 Feeders

East-west bicycle boulevards would create strategic links between the local active transportation network and regional bikeways. There are over 40 east-west cross streets that could be used to connect the local bikeway network to regional facilities. It is recommended that the following roads be used for east-west bicycle boulevard feeders.

NB-1: Monroe Street Bicycle Boulevard

Monroe Street is a two-way, residential street. It runs 0.4 miles from Campbell Avenue east to 7th Street. It was selected as a proposed bicycle boulevard feeder because of its short length, which likely deters cut-through traffic.

Figure 5.2: Proposed Active Transportation Network, Downtown



Existing		Proposed			
	Sidewalk		Intersection Treatment		Sidewalk
			Intersection Modification		Bicycle Boulevard
			Bike Hub		Bike Lane
					Cycle Track
					Multimodal Zone
					Shared Use Path
					Sidepath
					Regional Route
					City of Ironton

Both termini of this bicycle boulevard would connect with other proposed facilities: the 7th Street Bicycle Boulevard (NB-10) and the 3rd Street Bike Lanes (NB-1), part of the Ironton-Proctorville Bikeway. It would also cross over the 4th Street Bicycle Boulevard (NB-9), further enhancing network connectivity.

NB-2: Pine Street Bicycle Boulevard

Pine Street is a 0.2 mile two-way, residential street that runs east-west from 7th Street to 11th Street. The Pine Street Bicycle Boulevard would link the 7th Street Bicycle Boulevard with the 11th/12th Street/Liberty Avenue Bike Lanes (NB-12).

NB-3: Heplar Street Bicycle Boulevard

Heplar Street is a two-way, residential street. It runs 0.6 miles from 2nd Street east to 9th Street. Installing a bicycle boulevard on Heplar Street from 2nd Street to 9th Street would connect Ironton High School and the Ohio University Southern campus to the 4th and 7th Street Bicycle Boulevards and the 3rd Street Bike Lanes.

Traffic volumes on the north-south streets intersecting Heplar Street are higher than traffic on Heplar Street itself. Further, two of these north-south streets, 4th and 7th, are proposed bicycle boulevard cross-town connectors (see Section 5.4.2). These facilities would likely carry more bicycle traffic than the Heplar Street Bicycle Boulevard. Such conditions preclude any major intersection modifications on Heplar Street. The all-way stop-controlled intersection at 9th Street could be converted to a yield-controlled intersection, as it serves slow-speed parking lot entrances and is on a brick surface, which also discourages speeding.

NB-4: Wyanoke Street Bicycle Boulevard

Wyanoke Street is a 0.6 mile two-way street that runs east-west from 3rd Street to 12th Street. The Wyanoke Street Bicycle Boulevard would connect to all proposed north-south facilities at the southern end of the City. It would feed local traffic from the cross-town connector bicycle boulevards to parallel regional routes.

The all-way stop-controlled intersections at 5th, 6th, 9th, and 11th Street should be converted to two-way stops, controlling cross-street traffic. Stop signs at the 10th Street intersection should be rotated to control cross-street traffic.

5.3.3 Cross-Town Connectors

In addition to the east-west feeder facilities, a set of longer,

cross-town bicycle boulevards should also be developed on the City's north-south numbered streets. These routes would parallel the proposed Ironton-Proctorville Bikeway, offering an alternative on low-volume, slow-speed residential streets. They would accommodate bicyclists making short, cross-town trips who would not need to access the regional bikeway network. And they would connect the residential neighborhoods south of the Park Avenue Corridor with the commercial and institutional destinations in Downtown Ironton.

Ironton's residential street grid is an ideal environment for a local bicycle boulevard network. Several north-south roads span the entire City, providing uninterrupted access to multiple destinations. The streets are linear and relatively long (between two and 2.5 miles, or the length of a typical urban bicycle trip). Available traffic counts indicate volumes of fewer than 3,000 motor vehicles per day, the maximum volume allowed on a bicycle boulevard, according to the National Association of City and Transportation Officials.

Route Selection

2nd and 3rd Streets have high traffic volumes that preclude bicycle boulevard treatments, and bike lanes are already recommended for these roads as part of the regional bikeway network. 5th Street has acceptable volumes (under 3,000 vehicles per day) but is still too busy to ensure a comfortable bicycling experience in mixed traffic. 6th Street could serve as a bicycle boulevard but has a brick surface in certain segments, totaling one mile, which is uncomfortable for bicyclists. 1st, 8th, 9th, 10th, 11th, and 12th Streets are not continuous across the City. They are segmented by Beechwood Park, Ironton High School, and US-52. Because of these limitations 4th and 7th Streets were identified as the strongest candidates for bicycle boulevards.

NB-5: 4th Street Bicycle Boulevard

A common challenge for bicycle boulevard networks is providing access to popular destinations that is as convenient as more direct routes. Because bicycle boulevards use residential streets, they can often be several blocks away or more from business, commercial, and entertainment districts. While they offer a more comfortable travel environment for less experienced bicyclists, bicycle boulevards are typically not as direct as bike lanes.

A bicycle boulevard on a residential street that runs parallel to a commercial corridor can serve destinations on both streets, solving the accessibility issue. 4th Street

is one block away from 3rd Street, which is lined with shops and other businesses. Locating a bicycle boulevard on 4th Street (**Figure 5.3**) would allow convenient access to destinations on 3rd Street and supplement the proposed 3rd Street Bike Lanes, which are part of the Ironton-Proctorville Bikeway. Survey respondents identified 4th Street as one of the more suitable roads for bicycling, indicating that it is already used by the bicycling community and that the proposed facilities would likely be well-utilized.

To facilitate uninterrupted travel, the following all-way stop-controlled intersections could be converted to two-way stops, controlling cross-street traffic:

- Pleasant Street
- Jones Street
- Washington Street
- Etna Street

Removing the stops signs on 4th Street at these intersections would create a two-mile segment of continuous travel for bicyclists between Lorain Street and Adams Street. The stop and signal-controlled intersections from Adams Street to Center Street (two signalized, three stop-controlled, 0.3 mile segment) would remain in place. A 0.5 mile segment with continuous right-of-way on 4th Street would complete the route between Center Street and Mary Street.

Bike boxes, bicycle actuated signals, and crossing treatments (see Chapter 4) could be installed at the signalized intersections to create safer and more convenient crossing conditions for bicyclists. Warning signage on busier cross streets, such as Park Avenue, could be installed to alert motorists to the presence of

crossing bicyclists.

NB-6: 7th Street Bicycle Boulevard

The 7th Street (**Figure 5.4**) Bicycle Boulevard would be the southbound counterpart to the 4th Street Bicycle Boulevard.

The route would begin with a 0.5 mile segment of continuous travel from Mill Street to Park Avenue. Removing the stops signs at the intersections listed below would create a one-mile segment of continuous travel for bicyclists between Vernon Street and Oak Street. The stop-controlled intersections at Park Avenue, Vernon Street, Oak Street, and Wyanoke Street would remain in place. A 0.9 mile segment with continuous right-of-way on 7th Street would complete the route between Oak Street and Wyanoke Street.

To facilitate uninterrupted travel, the following all-way stop-controlled intersections could be converted to two-way stops, controlling cross-street traffic:

- Lawrence Street
- Adams Street
- Spruce Street
- Ellison Avenue
- Vine Street
- McGovney Avenue

Bike boxes, bicycle actuated signals, and crossing treatments (see Chapter 4) could be installed at busier intersections to create safer crossing conditions for bicyclists. Warning signage on busier cross streets, such as Park Avenue, could be installed to alert motorists to the presence of crossing bicyclists.

5.3.4 Volume and Speed Management

Figure 5.3: Existing Conditions on 4th Street



To discourage cut-through motor vehicle traffic that could result from stop sign removals or rotations, volume and speed management measures may be needed. Volume and speed data should be collected before the bicycle boulevard is in place to provide baseline comparison data.

The following treatments, discussed in Chapter 4, could be used to deter cut-through motor vehicle traffic:

- Mini traffic circles
- Chicanes
- Curb extensions
- Median Islands
- Full/partial road closures
- Diverters

These improvements could be installed at intersections that pose safety issues, along segments of road with continuous travel that may encourage speeding, and elsewhere along the route to maintain low motor vehicle volumes and speeds.

The 4th and 7th Street Bicycle Boulevards would form a pair of low-stress, cross-town routes that traverse the City. East-west feeder bicycle boulevards would connect the two cross-town routes and would also link them to the Ironton-Proctorville Bikeway.

5.4 Additional Recommendations

While bicycle boulevards form the spine of Ironton’s proposed active transportation network, a number of other facilities could supplement this system and enhance connectivity for both bicyclists and pedestrians. Most of these improvements are centered around Downtown

Ironton.

NS-1: Vernon Street Road Closure

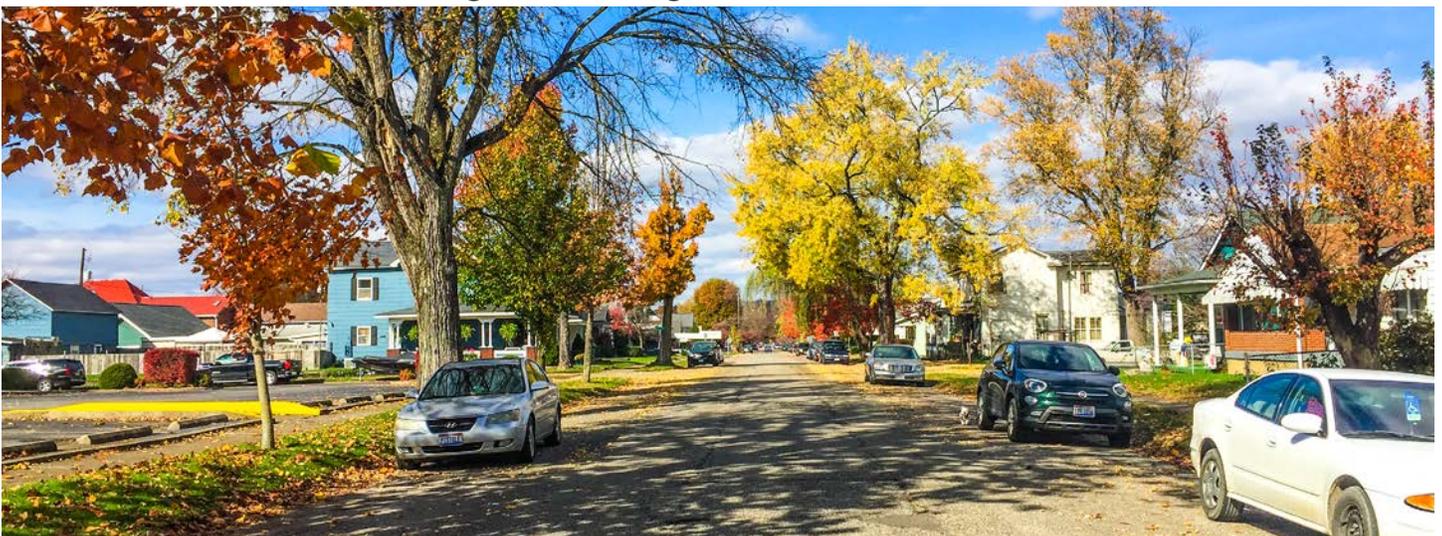
During public involvement, several stakeholders suggested that Vernon Street should be closed to motorized traffic and open only to pedestrians, bicyclists, and golf carts. This change – also called a road closure or pedestrian/bicycle-only street – would alter traffic patterns and pose challenges, but also offer substantial benefits to the City’s active transportation network and economic development opportunities.

Closing Vernon Street to motorized traffic may result in higher traffic volumes on Park Avenue, a main thoroughfare that is one block north of Vernon Street. Motorists that currently use Vernon Street would be diverted onto Park Avenue or other alternative routes. Businesses and other destinations on Vernon Street would likely be concerned with their motoring customers facing restricted access. The non-motorized street would have to allow exceptions for deliveries, emergency vehicles, and residents.

In most American cities, road closures that ban motorized traffic are a drastic change from the status quo, which typically prioritizes motor vehicle access and accommodates non-motorized users only if space, policies, and popular support permit it. Closing Vernon Street to general motorized traffic would likely face significant opposition. However, such a change could prove to be a strong asset for Downtown Ironton.

In some cities, especially those that rely on tourism, road closures and pedestrian/bicycle-only streets are economic engines. They generate more pedestrian traffic

Figure 5.4: Existing Conditions on 7th Street



than regular streets, leading to a prime location for shopping and entertainment. These streets also act as venues for concerts, farmers' markets, and other public events. Property values on or near such streets can rise. Lastly, they can improve public health by providing pleasant environments for walking and bicycling. For more information on road closures and pedestrian/bicycle-only streets, refer to **Section 4.5**.

To demonstrate the benefits of pedestrian/bicycle-only streets and gain public support, Vernon Street could host regular events that simulate a non-motorized environment before permanent changes are introduced. Open Streets are programs that temporarily close streets to motorized traffic on a regular basis, usually weekly or monthly. Group bike rides, outdoor exercise classes, food trucks and farmers' markets, and other community events typify an Open Streets program.

If an Open Streets program demonstrates the viability of a permanent pedestrian/bicycle-only street, Vernon Street could become an iconic destination for shopping, entertainment, and recreation in Downtown Ironton. This project would surpass the realm of active transportation planning and require significant investment and redevelopment of Vernon Street. The following improvements would be needed to make Vernon Street a viable pedestrian/bicycle-only street.

Infrastructure Recommendations for Vernon Street from Bobby Bare Boulevard to 7th Street and 9th Street to 10th Street (fully restricted access; mixed-use blocks)

- Place barriers at all cross-street intersections to restrict motor vehicle access using bollards, planters, jersey barriers, or other means. Barriers should allow emergency and delivery vehicle access.
- Install landscaping and streetscaping improvements in right-of-way (decorative lighting, signage, street furniture, planters, parklets, etc.).
- Place bike parking, repair stations, bike lockers, bikeshare stations, public restrooms, and water fountains at 4th and/or 7th Streets Bicycle Boulevards to create bike hubs¹.
- If feasible, install golf cart lane.
- Install decorative pavement or brick flush with curb to reinforce pedestrian priority and enhance ADA accessibility.

1. Based on demand and use, two or more bike hubs should be installed Downtown. These hubs could be located at any intersection where two active transportation facilities meet.

Infrastructure Recommendations for Vernon Street from 7th Street to 9th Street (partially restricted access; residential blocks)

- Create shared street environment similar to Center Street (following page).
- Maintain motorized vehicle access due to residential use.
- Install traffic calming measures, branding, and landscaping/streetscaping improvements to identify these blocks with the non-motorized segments of Vernon Street.

Policy, Programming, and Regulatory Recommendations

- Offer financial incentives for businesses to locate or remain on Vernon Street.
- Create a streamlined administrative process for business startups on Vernon Street, and prioritize demolition, building, and sign permit applications for Vernon Street businesses.
- Create a Tax Increment Finance district to support redevelopment along Vernon Street.
- Amend the Ironton zoning code to include a zoning overlay that encourages mixed-use development on Vernon Street.
- Extend and expand existing events, such as the 2nd and Vernon Streets Farmers' Market, Rally on the River, and the Memorial Day Parade, to include Vernon Street once it is closed to motorized traffic.
- Anchor both ends of Vernon Street with attractive public spaces. At the western terminus, the street would connect with a redeveloped riverfront, already planned with walking trails and a marina, that offers programmed events (see Bobby Bare Boulevard Road Closure). At Vernon Street's eastern terminus, the vacant lot on the northeast corner of the 9th Street intersection could be developed into a park, outdoor concert venue, or other civic gathering place.

NS-2: Bobby Bare Boulevard Road Closure

Bobby Bare Boulevard would make an ideal pedestrian/bicycle-only street due to its location at the center of the Downtown riverfront, its historic built environment, brick surface, and proximity to other proposed facilities. The Depot building offers a prominent terminated vista on Park Avenue which makes it a natural attraction for west-bound travelers. Its off-street parking lots are also accessible from 2nd Street, and the road has very low traffic volumes so a full closure to non-motorized traffic (excepting emergency and delivery vehicles) would not

cause significant disruptions.

The street could be converted into a plaza or pedestrian mall, similar to 3rd Street between Center and Railroad Streets in front of the Workforce Development Resources Center. Its wide width could accommodate a number of pedestrian-generating attractions, such as pop-up artists' shops, food trucks, farmers' markets, and outdoor concerts. These improvements could be coordinated with the planned riverfront redevelopment. The Bobby Bare Boulevard pedestrian/bicycle-only street could link a future riverfront path to the City's proposed on-street active transportation network.

The following improvements would be needed to make Bobby Bare Boulevard a viable pedestrian/bicycle-only street.

- Place barriers at all cross-street intersections to restrict motor vehicle access using bollards, planters, jersey barriers, or other means. Barriers should allow emergency and delivery vehicle access.
- Install landscaping and streetscaping improvements in right-of-way (decorative lighting, signage, street furniture, planters, parklets, etc.).
- Preserve existing brick surface; if feasible overlay with smooth walking paths leading to nearby destinations to enhance ADA accessibility.
- Place bike parking, repair stations, bike lockers, bikeshare stations, public restrooms, and water fountains at Center Street Shared Street terminus and/or 2nd Street Bike Lanes to create bike hubs.

The closure could be extended one block east on Park Avenue to 2nd Street. With a brick surface and little traffic, this block is similar in character to Bobby Bare Boulevard.

NS-3: Center Street Shared Street

Center Street (**Figure 5.5**) is one block north of Park Avenue, in the heart of Downtown Ironton. With its mix of uses, wide sidewalks, and proximity to downtown attractions, Center Street has the potential to attract active transportation users. It could be converted into a shared street (described in **Section 4.5**), allowing pedestrians, bicyclists, and vehicles to share the road (**Figure 5.6**). All users on Center Street would travel at slow speeds. Traffic calming, streetscaping, and enhanced amenities, such as outdoor seating and parklets, would prioritize pedestrian travel and comfort over motor vehicles.

The existing pavement could be replaced with brick pavers or another decorative surface flush with curbs and sidewalks to emphasize pedestrian priority and

accessibility.

The following modifications would be needed to create a shared street on Center Street:

- Remove angled on-street parking.
- Remove lane markings, replace pavement with decorative surface flush with curb and sidewalk.
- Reduce speed limits, allow modes to mix.
- Install traffic calming measures.
- Install landscaping and streetscaping improvements (decorative lighting, public art, signage, street furniture, planters, parklets, etc.).
- Place bike parking, repair stations, bike lockers, bikeshare stations, public restrooms, and water fountains at 4th Street and/or 7th Street Bicycle Boulevard intersections to create bike hubs.

There are intermittent alleys on both sides of Center Street that could be used by delivery vehicles. Where alleys are absent, designated loading and unloading zones may be defined through differences in pavement pattern or use of striping and signage.

With Center Street converted to a shared street and pedestrian/bicycle-only access on Bobby Bare Boulevard and Vernon Street, Park Avenue — Ironton's main street — would be flanked by an active transportation corridor on all sides.

These changes would significantly impact Downtown Ironton's traffic patterns and overall character. They would also require a sustained commitment from local government and a secured source of funding for ongoing improvements and programming. **Chapter 6** shows how these projects would be phased. Creating incremental changes to the transportation network allows early projects to prove their success and viability before larger investments are made. This approach also generates more support for future active transportation enhancements.

NB-7: Railroad Street Cycle Track

Shared streets become increasingly complex and difficult to maintain as width increases. Wider roads encourage speeding and lack a public realm that is framed by pedestrian-scaled viewsheds. Further, with the proposed conversion of Center Street to a shared street one block south, establishing a shared street on Railroad Street (**Figure 5.7**) as well would likely diffuse pedestrian activity rather than focusing it on several key corridors. However, Railroad Street's width allows space for other large-scale improvements.

It is recommended to install a midway or median cycle track on Railroad Street (**Figure 5.8**). This facility could accommodate users of all comfort levels and bicycling experiences because it provides complete separation from traffic, except at intersections. While the traffic volumes and speeds on Railroad Street may not merit a separated facility, installing a cycle track would effectively extend the Molten Field Trail onto Railroad Street, offering a similar

level of separation from traffic. Further, a separated facility would likely attract more bicycle traffic than a standard bike lane, and complete an active transportation corridor from 2nd Street to the Ironton Hills Shopping Center (see recommendation NS-4).

The cycle track would travel along the centerline of the road, with one eight foot lane in each direction and an eight foot landscaped buffer on either side. Even with 32

Figure 5.5: Existing Conditions on Center Street



Figure 5.6: Conceptual Rendering of Center Street Shared Street



8'
LANDSCAPING &
STREETSCAPING

56'
SHARED STREET WITH DECORATIVE
PAVEMENT FLUSH WITH CURB

8'
LANDSCAPING &
STREETSCAPING

72' OF RIGHT OF WAY

feet of space dedicated for the facility, Railroad Street could accommodate two travel lanes or one travel and one parking lane in both directions between 4th and 8th Streets. There is not enough room for landscaped buffers between 2nd and 4th Streets, but road width still allows for a narrower buffer for the cycle track while maintaining one motor vehicle lane in either direction.

To install a midway cycle track on Railroad Street, the

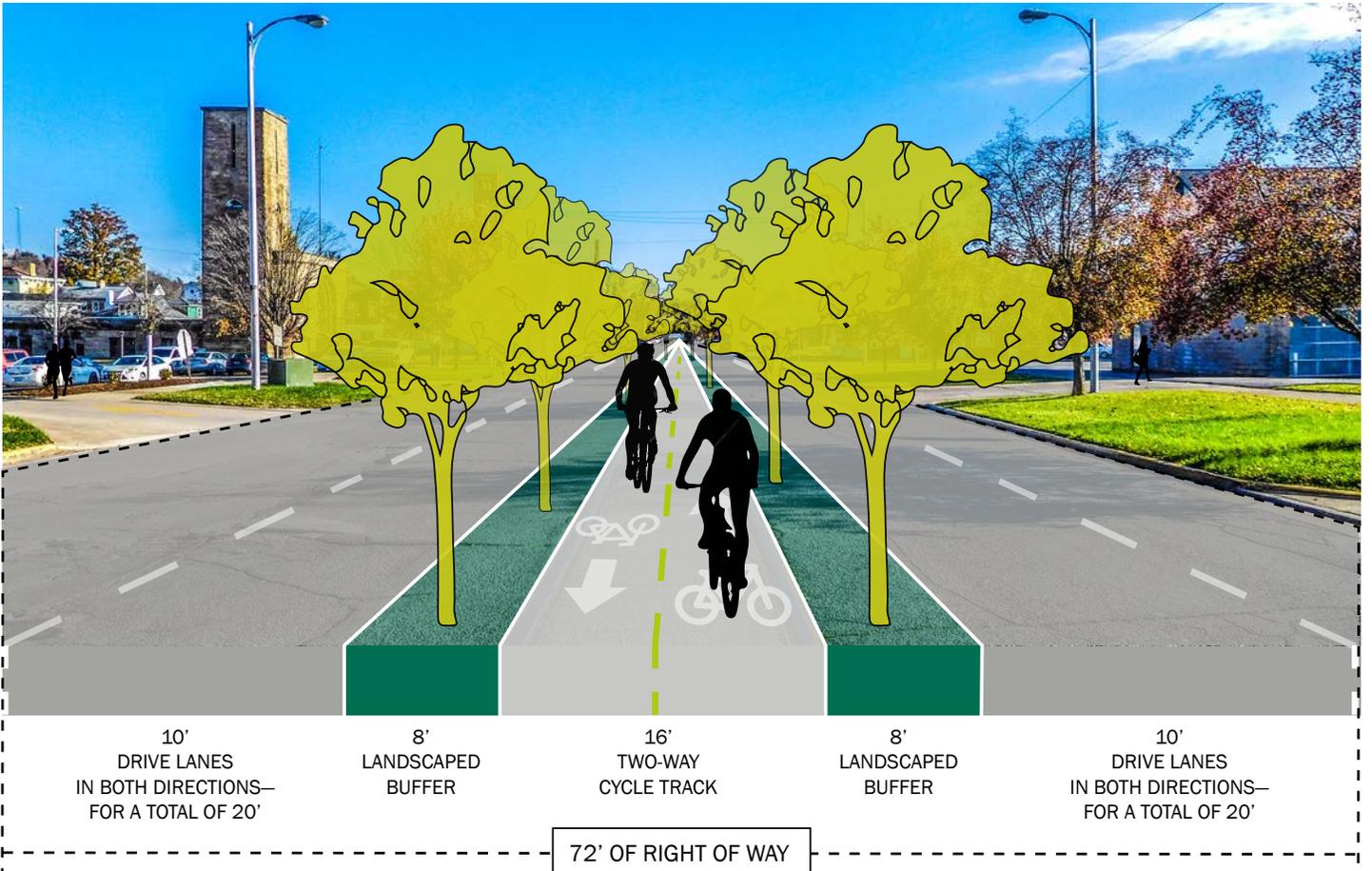
road would need several modifications:

- Remove landscaped median on approach to 2nd Street.
- Convert on-street angled parking to parallel parking.
- Install midway cycle track with landscaped buffer.
- Install crossing treatments at all intersections.
- Install enhanced crosswalks at intersections and midblock crosswalks.

Figure 5.7: Existing Conditions on Railroad Street



Figure 5.8: Conceptual Rendering of Railroad Street Cycle Track



To facilitate convenient and continuous travel on Railroad Street, right-of-way should be established for cycle track users at as many intersections as possible. Forcing frequent stops makes the route less attractive to would-be bicyclists and may lead to reduced compliance at stop-controlled intersections.

Stop signs at the 5th and 6th Street intersections should be rotated to control cross-street traffic. A stop sign should be placed at the 8th Street intersection to control cross-street traffic and allow continuous travel onto the Ironton Hills Shared Use Path (NS-4). Stop signs at the 4th and 7th Street intersections should remain in place to allow continuous travel for bicycle boulevard users on those streets.

The route would begin with a 600 foot segment of continuous travel from 2nd Street to 4th Street. Rotating the stop signs at the intersections listed above would create a 1,000 foot segment of continuous travel for cycle track users between the 4th Street and 7th Street Bicycle Boulevards.

The Railroad Street Cycle Track would complete a multi-tiered loop of active transportation facilities around Downtown Ironton (see **Figure 5.2**). The 17-square block area within this loop could be designated as a multimodal zone, intended for bicycle and pedestrian use, as the majority of the roads in this area (over 2.5 miles) would prioritize non-motorized travel.

NS-4: Ironton Hills Shared Use Path

Railroad Street continues as a trail east of 8th Street. It follows the south side of Molten Field, travels under US-52, and curves north, eventually connecting with Lawrence Street. It is recommended to extend this trail to Ironton Hills Shopping Center. An unmarked, unpaved path already exists (**Figures 5.9-10**), suggesting that pedestrians currently use this route to access the shopping center. For residents north of Park Avenue, the path is more convenient and safer than walking along Park Avenue/SR-93 to the shopping center’s main entrance. Significant excavation and grading may be needed to make the trail extension ADA-compliant.

Improving and extending the existing trail, combined with the Railroad Street Cycle Track, would create an uninterrupted multimodal corridor from 2nd Street to the shopping center. In addition to paving the unmarked section of the path, decorative lighting, public art, and landscaping would enhance this route and attract more users.

NB-8: 11th/12th Streets/Liberty Avenue Bike Lanes

To supplement the cross-town connector bicycle boulevards on 4th and 7th Streets and provide access to the Ohio University Southern campus, homes, and businesses along the corridor, it is recommended to install bike lanes on 11th/12 Streets/Liberty Avenue from Adams Lane to Pine Street. This facility would enhance regional connectivity in the southeastern quadrant of the City, linking with the proposed Maddyville Pike Bicycle Boulevard into Coal Grove, part of the Lawrence County Bicycle and Pedestrian Plan. The bike lane would also intersect with the proposed Wyanoke Street, Kemp

Figures 5.9-10: Molten Field Trail and Unmarked Path to Ironton Hills Shopping Center



Avenue, and Pine Street Feeder Bicycle Boulevards. To install bike lanes, on-street parking would need to be removed. However, most homes have driveway or alley access so motorized accessibility would not be significantly affected. Between Maple Avenue and Pine Street, 11th Street is one-way south. The north-bound bike lane on this block would need to be marked as a contra-flow lane to allow two-way bicycle traffic.

Signage

Signs are used to identify various multimodal facilities. They provide travel times and distances to key destinations, guide users through turns in a route, and create a distinctive brand for a particular active transportation network. In Ironton, wayfinding signage should be placed where routes intersect or continue onto another street. Signage should include travel time and distance to places such as Downtown Ironton, Ironton High School, Ohio University Southern, the Lawrence County Courthouse, and other bicycle and pedestrian routes. Signage could also be installed on roads that are not part of the proposed active transportation network, but direct users to it.

5.5 Regional Bicycle Facilities

Several recommendations included in the Lawrence County Bicycle and Pedestrian Plan are located within the City of Ironton. Although these recommendations are not unique to the Ironton Active Transportation Plan, they are discussed in relation to the Ironton-specific recommendations in this chapter to provide a complete picture of Ironton's proposed active transportation network. They are also included in **Figures 5.1** and **5.2**.

NB-9: 2nd/3rd Street Bike Lanes

The 25-mile Ironton-Proctorville Bikeway would connect via active transportation facilities the two main hubs of economic, social, and cultural activity in Lawrence County: Ironton and Proctorville. 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.

Five miles of the proposed Ironton-Proctorville Bikeway are within Ironton city limits. The bikeway would traverse the entire City, continuing onto Hanging Rock to the north and Coal Grove to the south. Initially, the route would use bike lanes on 2nd and 3rd Streets; in the future a shared use path could be developed along the riverfront as an alternate route.

Because the regional route travels north-south through the City, local active transportation facilities on east-west streets would be needed to direct users towards the Ironton-Proctorville Bikeway. These feeder facilities would take the form of bicycle boulevards.

NB-10: Lorain Street/Adams Lane Bicycle Boulevard

Several bicycle boulevards were proposed in Ironton as part of the Lawrence County Bicycle and Pedestrian Plan. These facilities would act as segments of regional routes. The bicycle boulevard on Lorain Street and Adams Lane would extend the Maddyville Pike bicycle boulevard into Ironton, connecting with Coal Grove's proposed bicycle boulevard network.

NB-11: Kemp Avenue Bicycle Boulevard

The bicycle boulevard on Kemp Avenue would form part of the realigned State Bike Route 10, connecting the S Third Street and SR-141 segments of the route.

NB-12: 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.

The next chapter divides network design and construction into phased tasks, with step-by-step guides for implementing the Ironton Active Transportation Plan.

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 collaborative planning effort with the City of Ironton. 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

Ironton falls within the KYOVA Interstate Planning Commission's coverage area, and any major transportation planning initiatives in the City should be closely coordinated with KYOVA. This is especially true for projects with regional implications. Because Ironton's proposed active transportation network would form critical links with county-wide and inter-state facilities as part of the Lawrence County Bicycle and Pedestrian Plan, this effort requires close collaboration between the City of Ironton and KYOVA.

While KYOVA will take a leadership role in project development, the City of Ironton will be heavily involved as well. Primary stakeholders identified in the following list will be collectively responsible for design, funding, construction, maintenance, monitoring, promotion, enforcement, and evaluation; secondary stakeholders will generate and attract network users (this list is not comprehensive).

Primary Stakeholders

- KYOVA
- City of Ironton
 - » Health Department
 - » Mayor's Office
 - » Police Department
 - » Public Service

- » Recreation
- » Street Department

- Ironton-Lawrence County Action Organization
- Lawrence County Economic Development Corporation
- Lawrence County Engineer
- ODOT District 9

Secondary Stakeholders

- Briggs Lawrence County Public Library
- Citizens
- Downtown businesses
- Greater Lawrence County Chamber of Commerce
- Ironton City Schools
- Ohio University Southern Campus
- St Joseph High School
- St Mary's Medical Center

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 the City of Ironton.

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 lists federal funding sources for bicycle and pedestrian infrastructure projects based on project type and eligibility. Additional funding resources are listed in **Appendix D**.

6.4 Implementation Principles

A set of Implementation Principles was developed to

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

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
*Only available when part of a transit project



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 Ironton.

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 City (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 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

Most major destinations in the City of Ironton 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 4th and 7th Streets (NB-5 and NB-6) offer a quieter and more residential alternative route to the proposed bike lanes on 3rd Street (NB-9), which has higher volumes and speeds. By offering multiple routes between the same destinations, the proposed network can accommodate users of varying experience and comfort level.

4. 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 both within Ironton and connected to a regional network, incremental improvements can begin immediately.

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

5. 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.

6. 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 the City of Ironton. 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: 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	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	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
Incremental Integrity	Functions as standalone facility until connected with larger network ³		3
Equity ⁴	Majority of the route travels through or adjacent to census blocks with:	Median household income less than \$43,000 ⁵	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. 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.
4. Minority and elderly populations and zero-vehicle households were also considered as equity criteria, but all census blocks in the City are majority white and there are no elderly groupings or zero-vehicle households; therefore these criteria would not alter scoring results.
5. The 2015 median household income for Lawrence County was approximately \$43,000 (see Table 3.3).

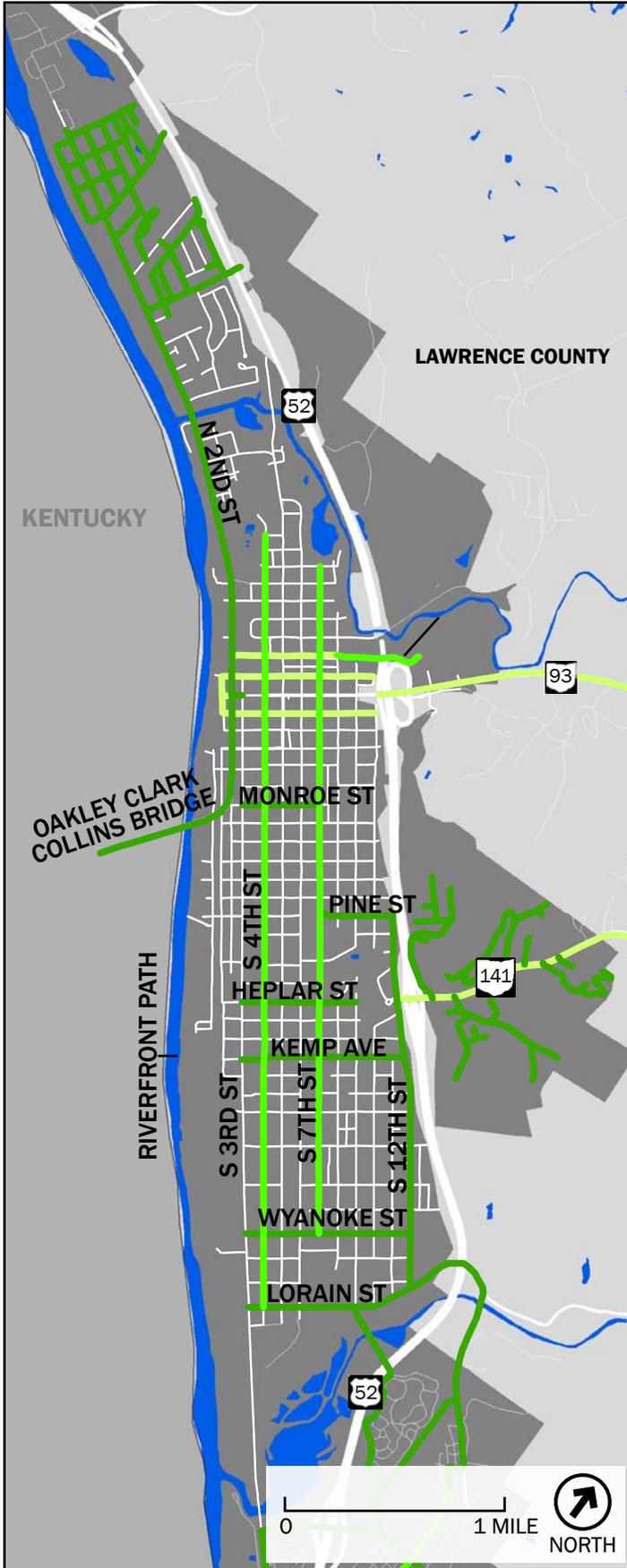
Table 6.2 on the following page shows the criteria used to rank each proposed project. Each criterion supports one of the Implementation Principles. Certain criteria are weighted more heavily than others based on their significance to implementation. For example, if a project is within 1/4 mile of a bicycle and pedestrian generator, it receives four 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. Projects are scored based on eight criteria for a total of 27 possible points. Proposed projects should be assigned to a phase based on the point system shown in **Table 6.3**.

Analysis of Project Prioritization Results

The process was applied to all segments of the proposed network. **Appendix E** 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, 12 projects qualify for Phase 1 implementation, three projects qualify for Phase 2, one project qualifies for Phase 3, and no projects qualified for Phase 4. **Figure 6.1** shows a phase map. Regional routes were scored and assigned phases as part of the Lawrence County Bicycle and Pedestrian Plan and were omitted from scoring for Ironton-specific projects. The Park Avenue sidewalks (EP-1) should be completed as recommended in the Park Avenue Corridor Study and were also omitted from scoring. Filling in city-wide sidewalk gaps and upgrading standard crosswalks to high-visibility ones should be completed as opportunities arise; because these are minor projects throughout the City, they are not subject to the project prioritization process.

Figure 6.1: Phase Map



- Phase 1
- Phase 2
- Phase 3

Table 6.3: Project Point System

Points	Phase	Timeline
21 - 27	1	Immediate (0-2 years)
15 - 20	2	Near-term (3-5 years)
8 - 14	3	Mid-term (6-15 years)
0 - 7	4	Long-term (> 15 years)

Due to Ironton’s high-density development, a number of projects are within 1/4 mile of a population center and/or a bicycle and pedestrian generator, the two most important factors in the project prioritization process. Many of these projects qualified for Phase 1 implementation, but it would be unfeasible to complete all of them within one year of plan adoption. Certain projects have been moved to Phases 2 and 3 while high-priority projects remain in Phase 1.

Phase 1 – Immediate (0-2 years)

Phase 1 is the most important component of implementation. An early success in a highly visible area with the potential to serve many users would generate excitement around the Plan and show the City’s commitment to embracing active transportation as a valid means of travel.

As the main arteries of Ironton’s proposed active transportation network, the 4th and 7th Street Bicycle Boulevard cross-town connectors (NB-5 and NB-6, respectively) are recommended to be completed first. With these facilities in place, they will support future projects, such as the series of bicycle boulevard feeders and pedestrian improvements on proposed bikeways. The project prioritization process identified the 4th and 7th Street Bicycle Boulevards as high-priority because:

- They run through a high-density area, with multiple bicycle and pedestrian generators.
- They have low traffic volumes and speeds.
- They enhance network connectivity, linking with other proposed routes and providing alternative routes for less experienced bicyclists.
- They function as standalone projects with clear start and end points and no breaks.

To convert 4th and 7th Streets to bicycle boulevards, the roads would need several initial modifications, also discussed in Chapter 5:

- Install bicycle boulevard wayfinding signage, pavement markings, and intersection treatments (as needed).
- To facilitate convenient and continuous travel, right-of-way should be established for bicycle boulevard users at as many intersections as possible (at Pleasant, Jones, Washington, and Etna Streets on 4th Street and at Lawrence, Adams, Spruce, and Vine Streets and Ellison and McGovney Avenues on 7th Street)
- Traffic calming measures may be installed in subsequent phases to deter cut-through vehicular traffic. Volumes should be monitored before and after implementation.

Pavement markings and signage could be installed first, followed by more complex changes in subsequent phases.

The 4th and 7th Street Bicycle Boulevards could serve as the pilot implementation project for this Plan, familiarizing Ironton residents with certain types of active transportation infrastructure before other projects are deployed throughout the City, and generating demand for a more multimodal travel environment.

The Molten Field Trail extension to the Ironton Hills Shopping Center (NS-4) is also recommended to be completed in Phase 1. The public involvement process revealed an urgent need for safer and more convenient access to the shopping center than that provided by Park Avenue/SR-93.

Phase 2 — Near-term (3-5 years)

The City’s bicycle boulevard network would be completed in Phase 2 with the construction of east-west feeder routes. Due to its distance from any bicycle and pedestrian generator or population center, the Wyanoke Bicycle Boulevard did not qualify for Phase 2 implementation. However, constructing all feeder routes in the same phase will enhance connectivity. Together, these routes would extend multimodal access beyond the 4th and 7th Street Bicycle Boulevards and link them to regional routes, such as the 2nd and 3rd Street Bike Lanes (NB-9) which are part of the Ironton-Proctorville Bikeway. The 11th/12th Streets/Liberty Avenue Bike Lanes would also be constructed during Phase 2. Pedestrian improvements on proposed bikeways (EP-3) would accompany these projects. Sidewalk networks around the around Ironton Middle School (NP-1) and in the Richey Hollow neighborhood (NP-2) would also be completed during this phase.

Phase 3 — Mid-term (6-15 years)

Road closures, shared streets, and more elaborate bicycle facilities would be completed during Phase 3. The Vernon Street and Bobby Bare Boulevard Road Closures (NS-2 and NS-3, respectively), the Center Street Shared Street (NS-1), the Railroad Street Cycle Track (NB-7), and the Oakley Clark Collins Memorial Bridge Bike Lanes (NB-12) would transform Downtown Ironton’s street network into a pedestrian-oriented, bikeable environment with connections to local and regional active transportation routes. Although most of these projects qualified for Phase 1 implementation, they require an extensive planning process which will take multiple years. Scheduling them for Phase 3 allows for the necessary public involvement, education, experimental and temporary changes, and funding arrangements needed to ensure successful implementation.

Phase 4: Long-term (> 15 years)

While no projects scored low enough to qualify for Phase 4, this phase is still included in the implementation process. Any projects that are not completed by Phase 3 can be continued in Phase 4.

Table 6.4 shows estimated costs for selected projects. It should be noted that these are rough estimates based on average costs. Actual costs may vary significantly,

Table 6.4: Cost Estimates

Project	Estimated Cost
City-wide Sidewalks (EP-2)	\$3,511,200
Sidewalks near Ironton Middle School (NP-1)	\$2,587,200
Richey Hollow Sidewalks (NP-2)	\$1,663,200
Ironton Hills Shared Use Path (NS-4)	\$481,140
Park Avenue Sidewalks (EP-1)	\$147,840
Center Street Shared Street (NS-1)	\$63,000
Vernon Street Road Closure (NS-2)	\$63,000
Bobby Bare Boulevard Road Closure (NS-3)	\$9,000
11th/12th Streets/Liberty Avenue Bike Lanes (NB-8)	\$8,500
4th Street Bicycle Boulevard (NB-5)	\$3,500
7th Street Bicycle Boulevard (NB-6)	\$3,000
Pine Street Bicycle Boulevard (NB-2)	\$800
Wyanoke Street Bicycle Boulevard (NB-4)	\$600
Heplar Street Bicycle Boulevard (NB-3)	\$500
Monroe Street Bicycle Boulevard (NB-1)	\$300



especially for more complex projects with multiple improvements, such as shared streets.

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 the City of Ironton. 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 6.5** lists recommended policy and program actions and responsible parties for each action.

Education

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

Table 6.5: 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

users. They can model appropriate behavior for other bicyclists and pedestrians and demonstrate to motorists that many active transportation users are law-abiding and deserve respect on the road.

- *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. 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 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
- » 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*
Low-cost bikeshare 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. If initial programming is successful, it could be expanded to include permanent stations and a fleet of durable bicycles operated by a private company or the City. Siting bikeshare stations at new facilities, such as shared streets and bike hubs, 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 multimodal 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 Ironton. 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.

In addition to these recommendations, the City of Ironton should continue to implement its ADA Transition Plan. While recommendations in the Bicycle and Pedestrian Master Plan will significantly improve ADA compliance and accessibility, implementation of both plans should be coordinated to leverage potential funding, consolidate projects, and accelerate improvements.

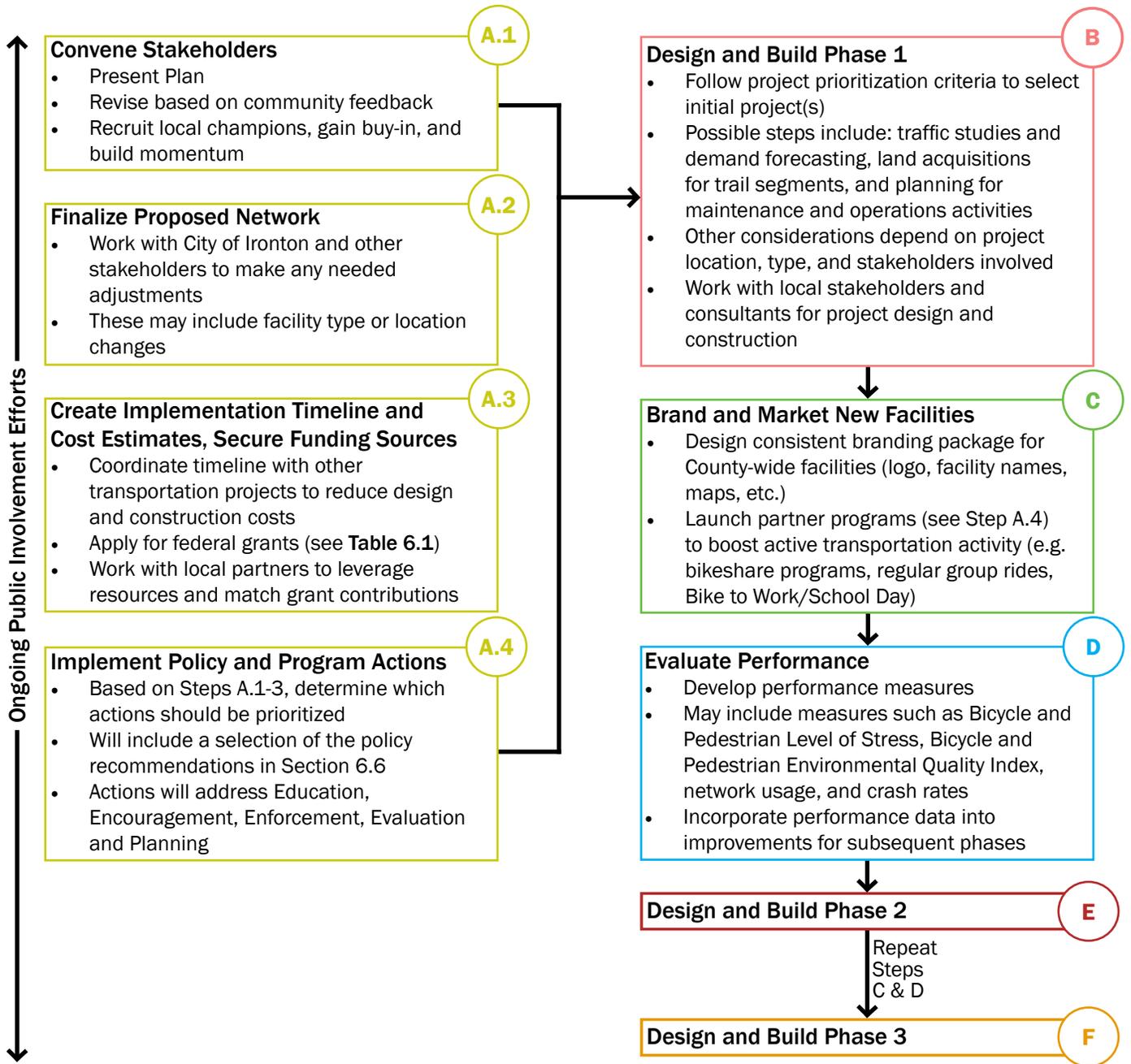
6.7 Conclusion

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 64 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 the City of Ironton.

Building a successful 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 City's economic wellbeing, considering the needs of its 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.

Figure 6.2: Implementation Flow Chart
Step-by-Step Process to Implement Four Phases of Recommended Projects



APPENDIX A

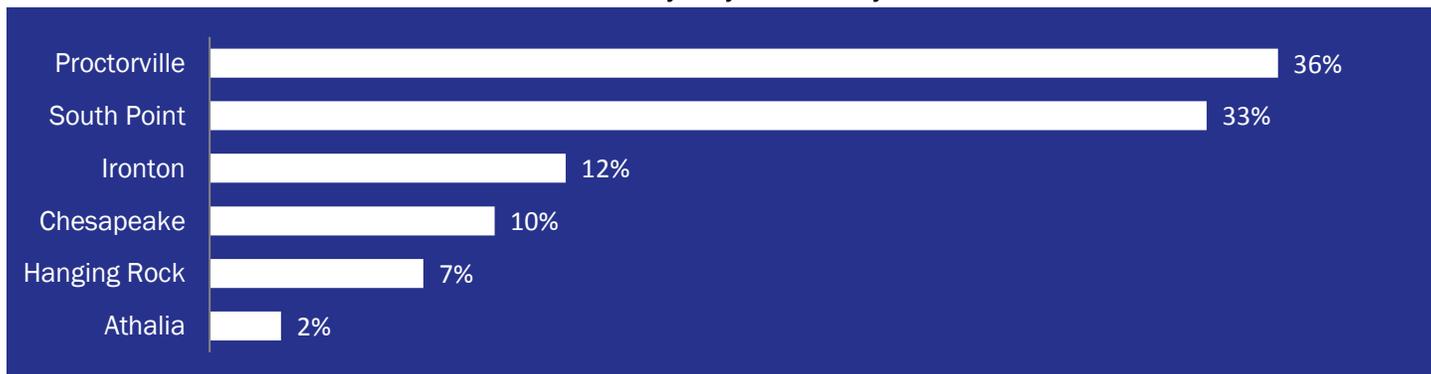
SURVEY MATERIALS

Survey Distribution List

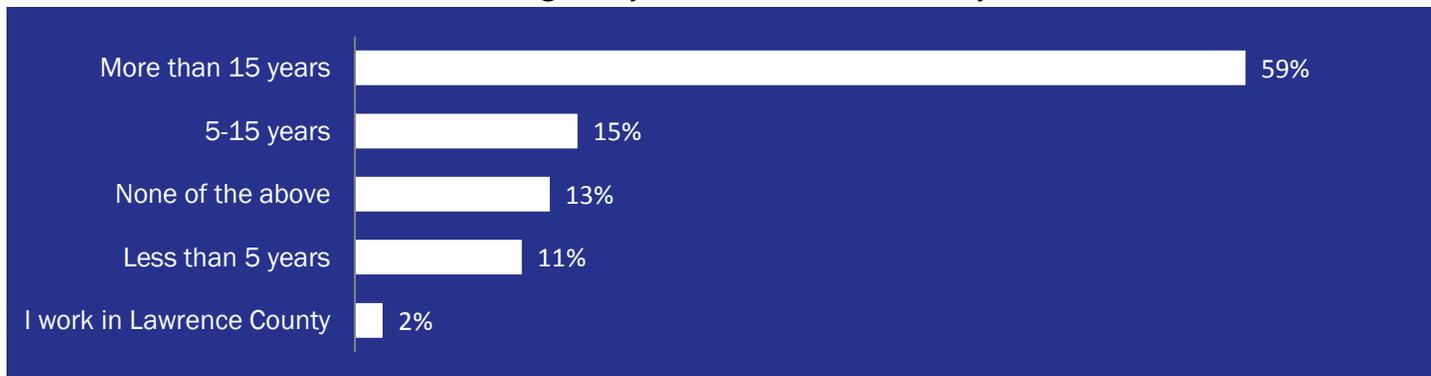
- Briggs Lawrence County Public Library
- Chesapeake Elementary/Middle/High Schools
- Dawson Bryant High School
- Fairland Elementary/Middle/High Schools
- Greater Lawrence County Area Chamber of Commerce
- Huntington Cycle & Sport
- Ironton Elementary/Middle School
- Ironton Fire
- Ironton Police
- 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?

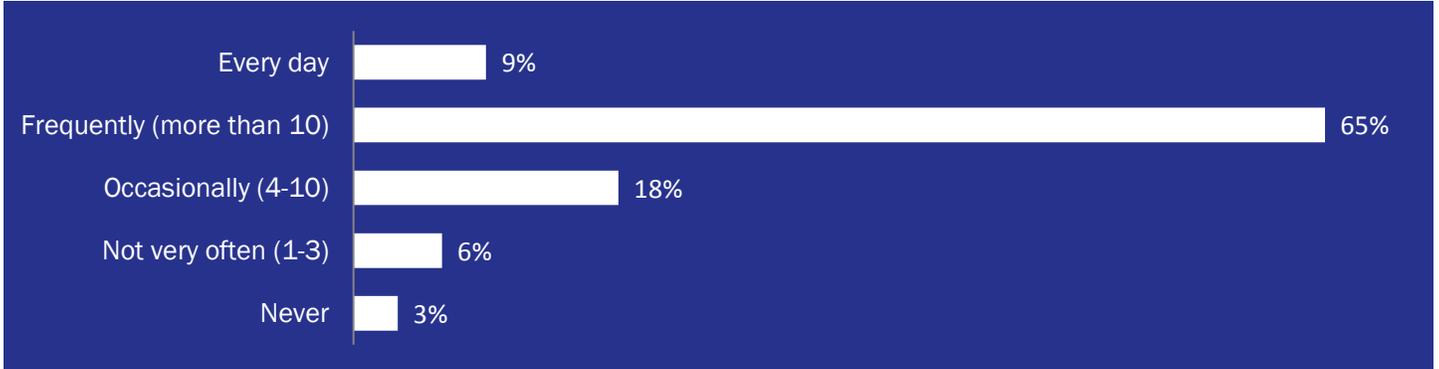


*Survey results show responses from all participants, not only City of Ironton respondents.

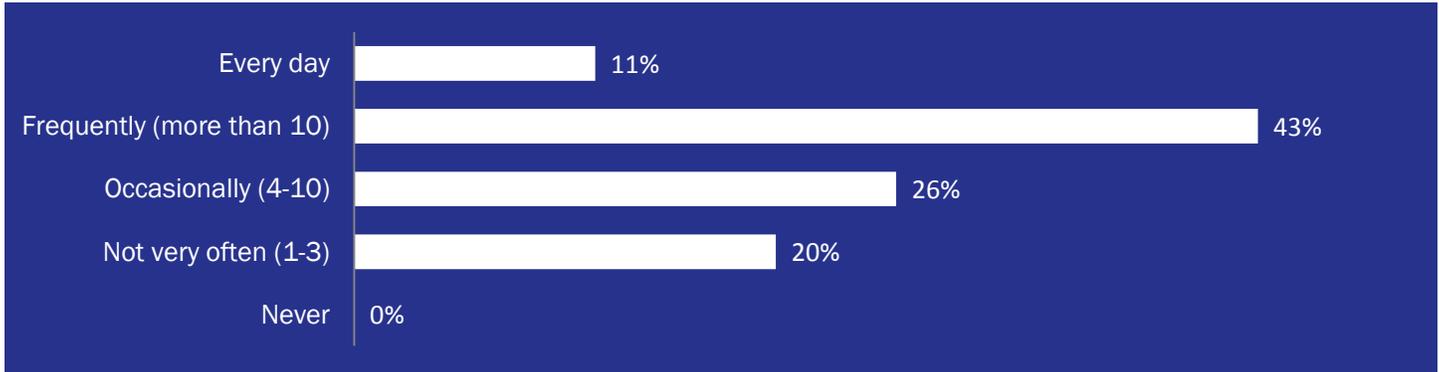
Which of these phrases best describes your bicycling experience?



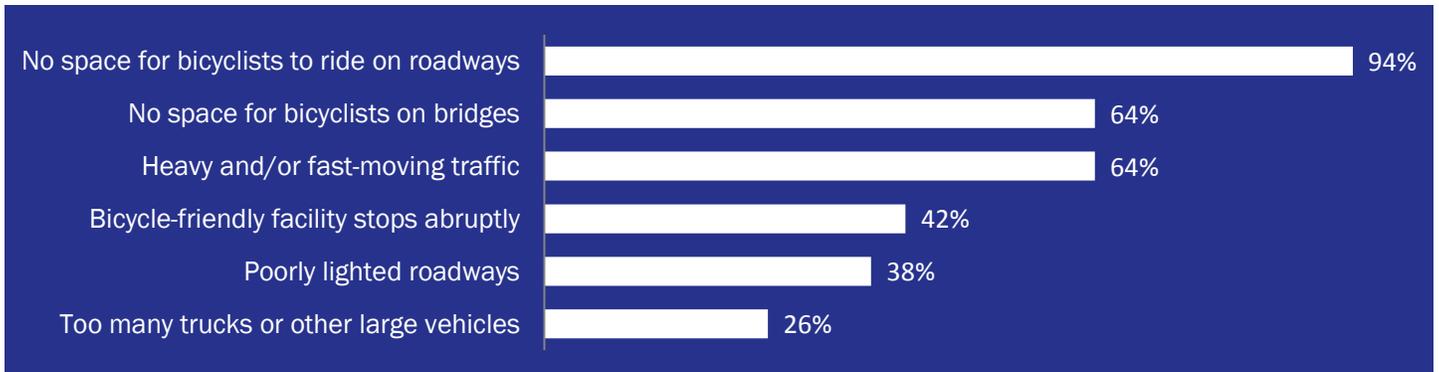
In good weather months, about how many days a month do you ride your bike?



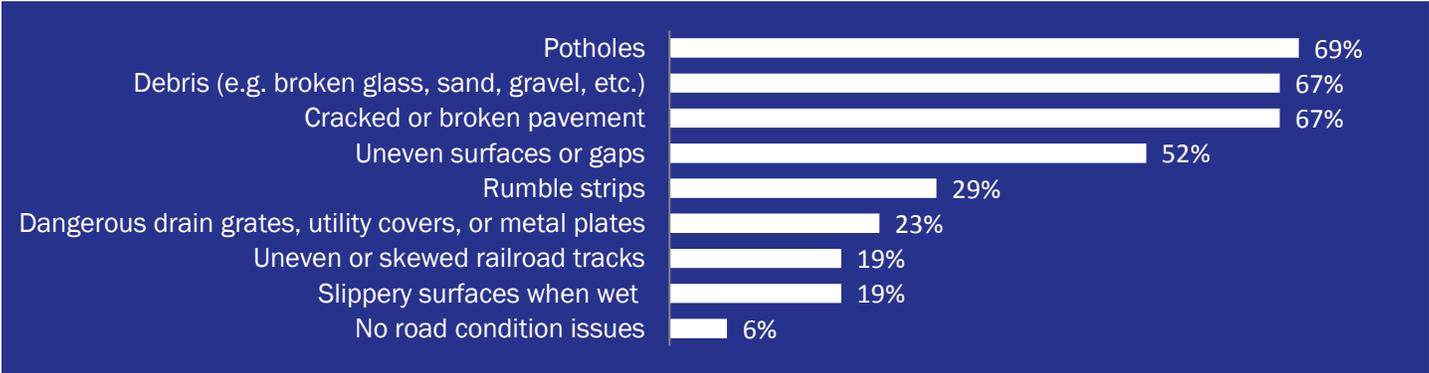
In good weather months, about how many days a month do you walk for more than 30 minutes?



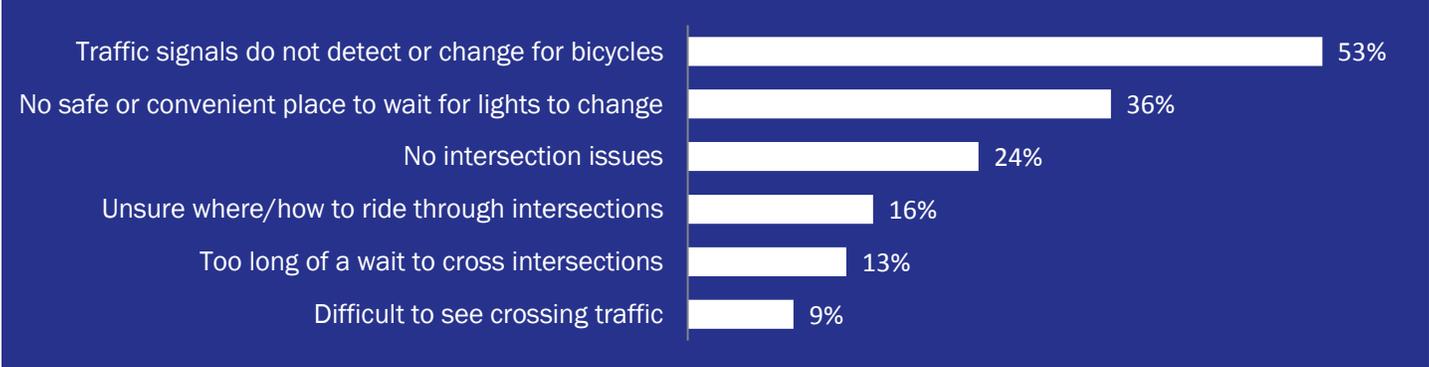
What challenges exist on roadways in your area related to bicycle safety? Check all that apply.



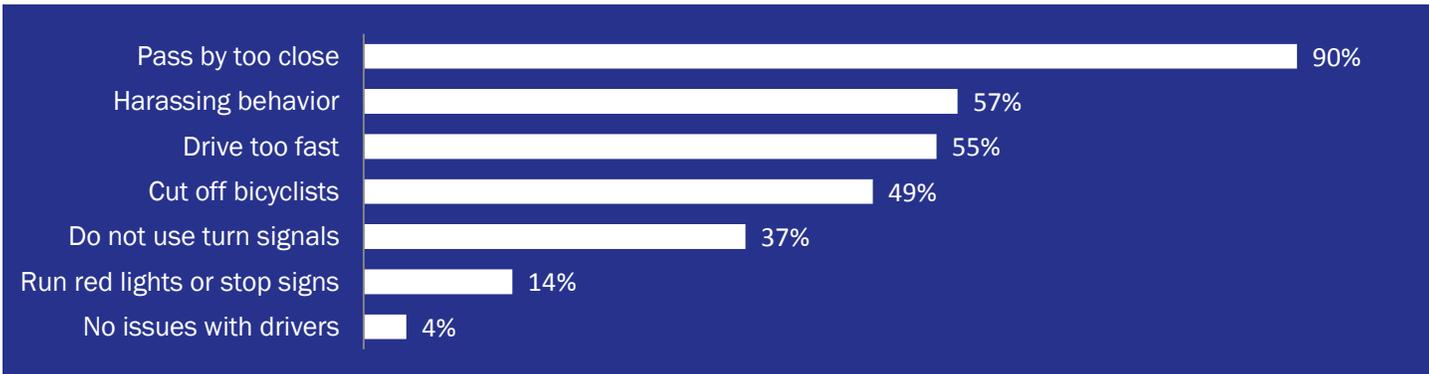
Are there any road condition issues in your area that negatively affect bicycling? Check all that apply.



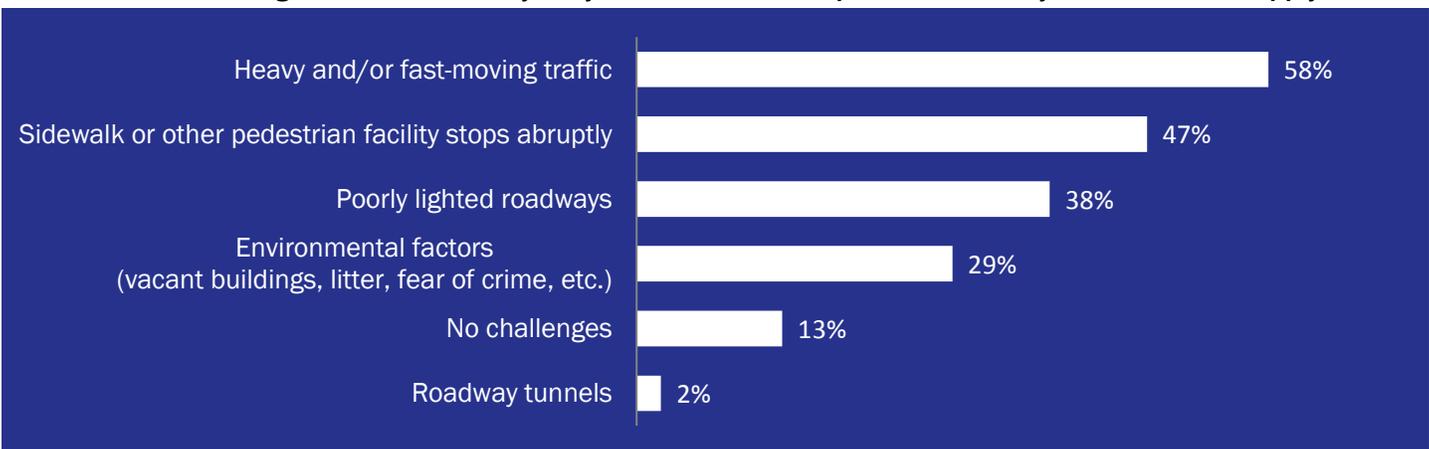
Are there any challenges to navigating intersections as a bicyclist in your community? Check all that apply.



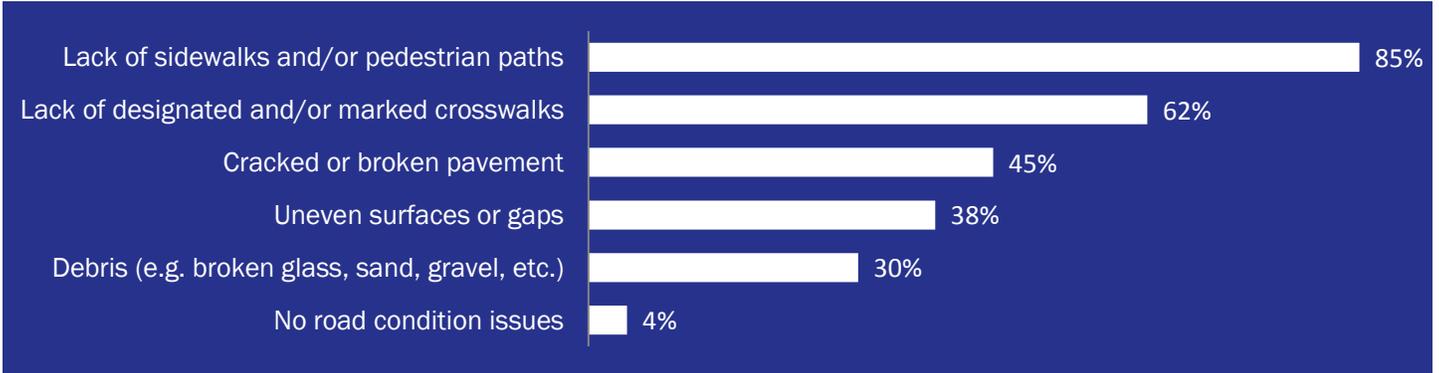
How do drivers interact with bicyclists in your area? Check all that apply.



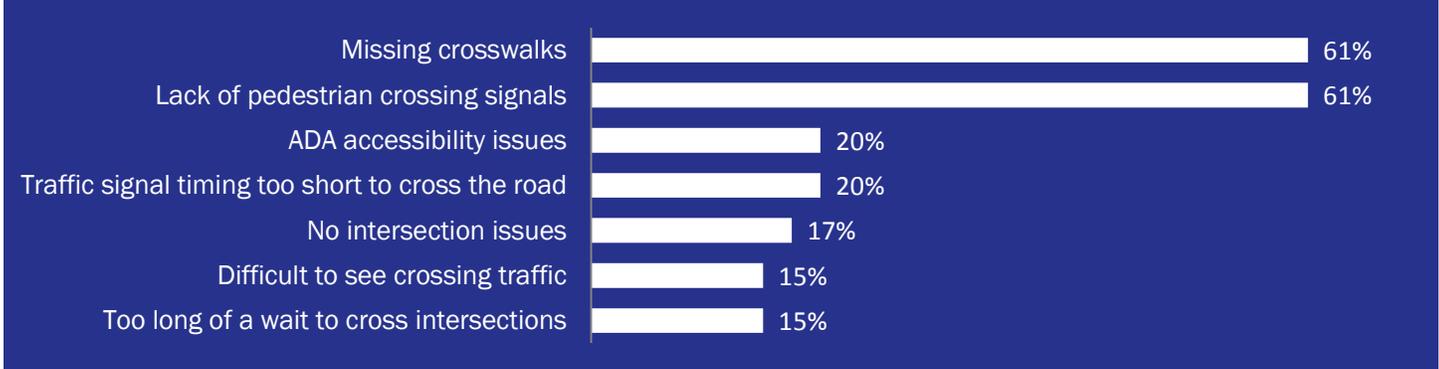
What challenges exist on roadways in your area related to pedestrian safety? Check all that apply.



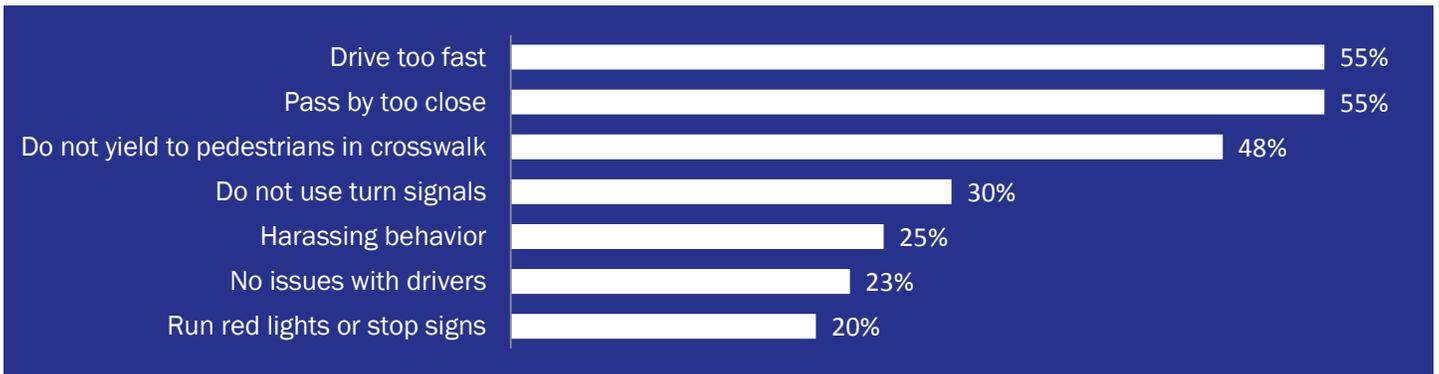
Are there any road condition issues in your area that negatively affect walking? Check all that apply.



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

EXISTING CONDITIONS

SUPPLEMENTAL MATERIAL

Figure B.1: State Bike Route 10



— State Bike Route 10

Figure B.1 : Bicycling Activity Heat Map

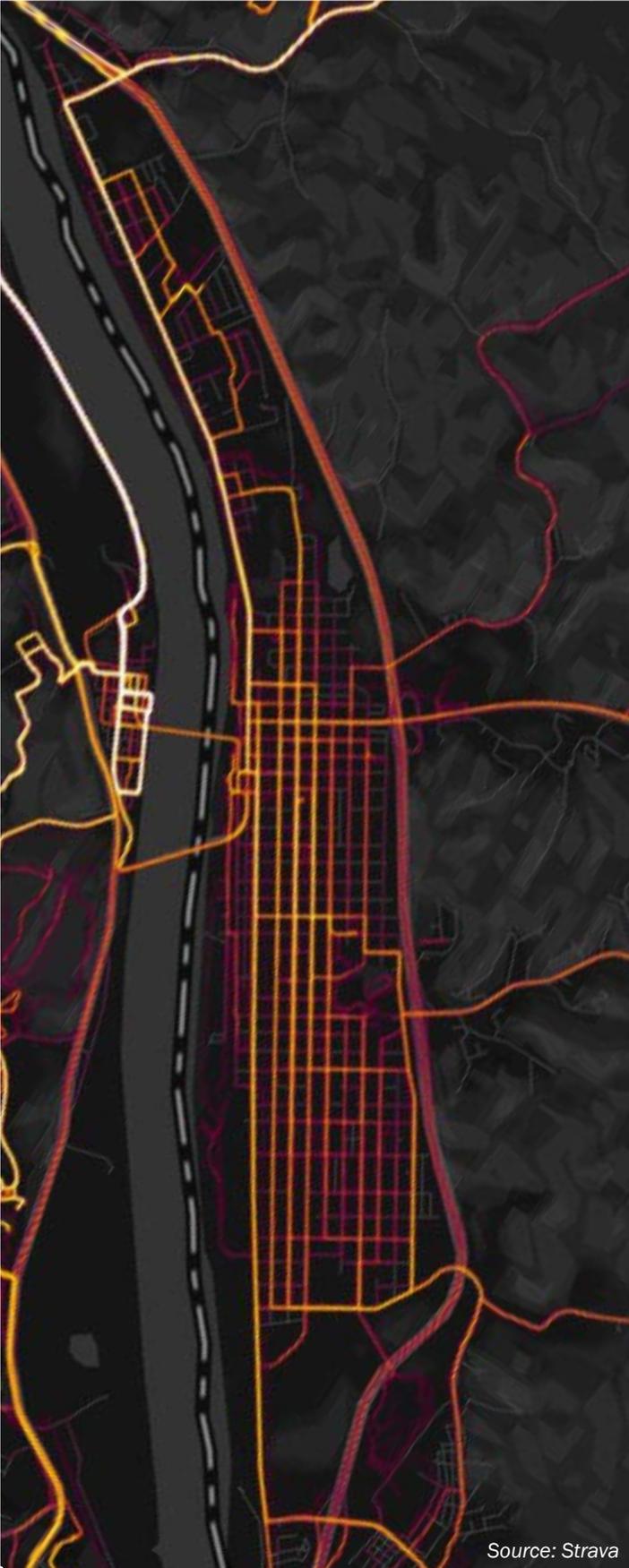


Figure B.2: Walking Activity Heat Map

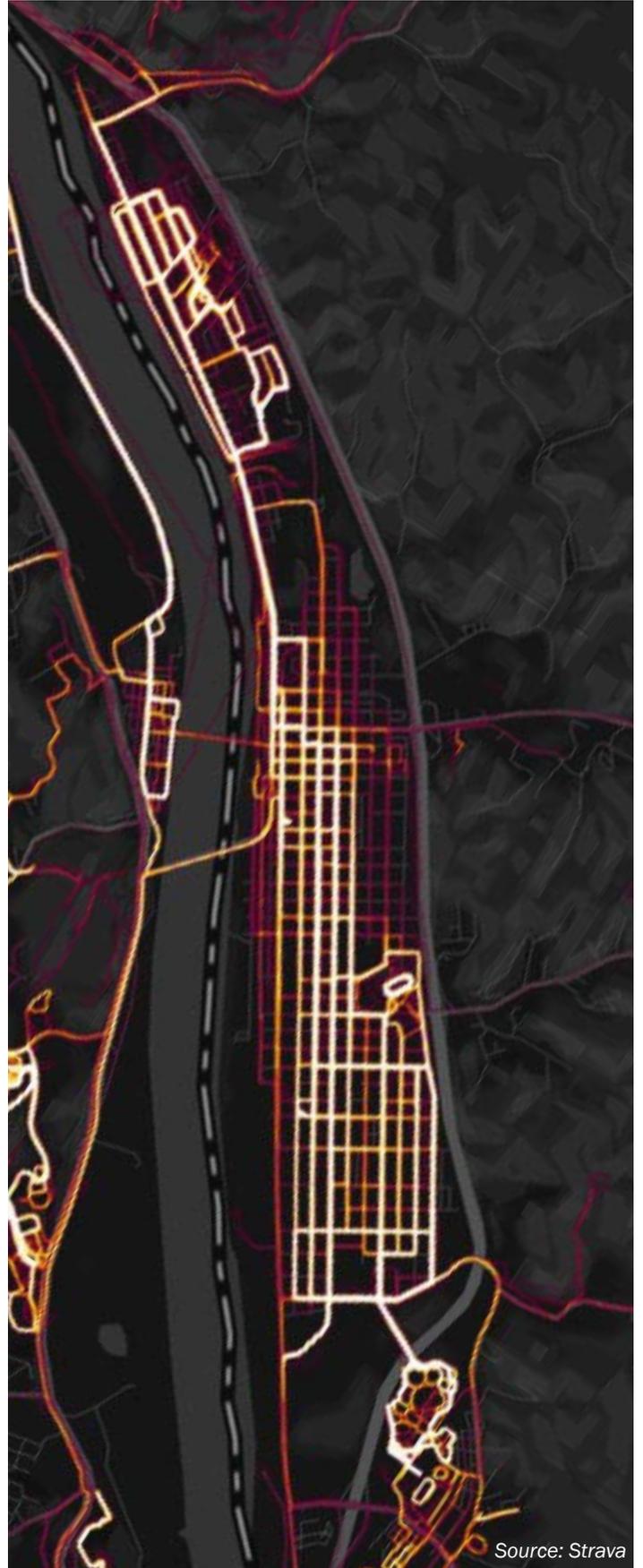


Figure B.3: Ironton Hills Shopping Center



Figure B.6: Walking under the US-52 overpass



Figure B.4: Goat path on Park Avenue



Figure B.7: Gravel shoulder on SR-93 north of US-52



Figure B.5: Crossing the entrance ramp to US-52 East



Figure B.8: Pedestrians walking under US-52



Proposed Bikeways Existing Conditions

These descriptions supplement the information in Chapter 5 regarding streets recommended for proposed bikeways.

NB-1: Monroe Street Bicycle Boulevard

Monroe Street is a two-way, residential street. It runs 0.4 miles from Campbell Avenue east to 7th Street. It has seven intersections, all stop-controlled. The road is approximately 35 feet wide with an asphalt surface and has sidewalks and on-street parking on both sides.

NB-2: Pine Street Bicycle Boulevard

Pine Street is a 0.2 mile two-way, residential street that runs east-west from 7th Street to 11th Street. It has five intersections: three are stop-controlled, one is a continuous turn, and one is uncontrolled. It has an asphalt surface and sidewalks on both sides between 8th and 10th Streets, on the north side only between 10th and 11th Streets, and no sidewalks between 7th and 8th Streets.

NB-3: Heplar Street Bicycle Boulevard

Heplar Street is a two-way, residential street. It runs 0.6 miles from 2nd Street east to 9th Street, where it terminates next to Ironton High School and the Ohio University Southern campus. It has eight intersections: six are stop-controlled and one is stop-controlled with flashing warning beacons overhead. The remaining intersections give right-of-way to Heplar Street traffic. The road is approximately 30 feet wide and has on-street parking on both sides. It has sidewalks on both sides between 4th and 9th Streets. Sidewalks are missing on both sides between 2nd and 3rd Streets and are missing or in deteriorated between 3rd Street and the alley east of 3rd Street. Heplar Street has an asphalt surface between 2nd and 7th Streets and a brick surface between 7th and 9th Streets.

NB-4: Wyanoke Street Bicycle Boulevard

Wyanoke Street is a 0.6 mile two-way street that runs east-west from 3rd Street to 12th Street. It has ten intersections: seven are stop-controlled and the remaining intersections give right-of-way to Wyanoke Street traffic. It has an asphalt surface and sidewalks on both sides. The road is approximately 30 feet wide and has on-street parking on both sides.

NB-5: 4th Street Bicycle Boulevard

4th Street is 3.5 mile residential street. It runs one-way

from Cemetery Lane north to Mary Street, terminating at the Ironton Waste Water Plant. It has 39 intersections: nine are stop-controlled, two are signal-controlled, and the remaining intersections give right-of-way to 4th Street traffic. The road is approximately 35 feet wide with an asphalt surface and has sidewalks and on-street parking on both sides. There are several major destinations on 4th Street, including the Lawrence County Courthouse, Briggs Lawrence County Public Library, as well as private homes, churches, and businesses.

NB-6: 7th Street Bicycle Boulevard

7th Street runs one-way from Mill Street to Wyanoke Street. The 3 mile road has 31 intersections: nine are stop-controlled, two are stop-controlled with flashing warning beacons overhead, and the remaining intersections give right-of-way to 7th Street traffic. The road is approximately 35 feet wide and has sidewalks and on-street parking on both sides. 7th Street has an asphalt surface except for one block paved with bricks between Oak and Heplar Streets in front of Ironton High School. In addition to the high school, other destinations on 7th Street include the Lawrence County Department of Job and Family Services, private homes, churches, and businesses.

NS-1: Vernon Street Road Closure

Vernon Street is a 0.7 mile long residential and mixed use road that runs east-west between Bobby Bare Boulevard and 10th Street in Downtown Ironton. It is a two-way street with nine intersections: four are stop-controlled, one is stop-controlled with flashing warning beacons overhead, three are signal-controlled, and one is a continuous turn. The road is approximately 35 feet wide with an asphalt surface and has sidewalks on both sides, except between 9th and 10 Streets, where sidewalks are missing on the north side. There is a variety of uses along Vernon Street, including shops, offices, churches, restaurants, government buildings, and private homes. Major destinations include Ironton City Center, First Baptist Church, Gateway Baptist Church, St Lawrence School, and Frisch's Big Boy restaurant.

NS-2: Bobby Bare Boulevard Road Closure

Bobby Bare Boulevard is a 0.1 mile (approximately 700 feet) two-way street that runs north-south from Vernon Street to Center Street. Its only other intersection is at Park Avenue. The road has a brick surface and is between 40 and 70 feet wide (the narrower section is in front of the Depot restaurant building). It has sidewalks on the east side of the street and in front of the Depot on the west side of the street. Bobby Bare Boulevard functions as a

parking lot and access drive to restaurants and additional off-street parking.

NS-3: Center Street Shared Street

Center Street is a 0.7 mile mixed-use street in Downtown Ironton that runs east-west from Bobby Bare Boulevard to 9th Street. It is a two-way street with nine intersections: seven are stop-controlled, one is a continuous turn, and one gives right-of-way to Center Street traffic. The road is approximately 30 feet wide on the residential blocks from 8th Street to its eastern terminus. It widens to 50 feet between 8th Street and Bobby Bare Boulevard. It has an asphalt surface except for the block between Bobby Bare Boulevard and 2nd Street, which is brick. There are sidewalks on both sides except for the block between 8th Street and 9th Street, which is missing a sidewalk on the north side. There is parallel and angled on-street parking from Bobby Bare Boulevard to 2nd Street. Angled on-street parking is on both sides of the road from 2nd Street to 7th Street. Parallel parking is allowed on the remaining blocks, including between 7th Street and 8th Street, where there is a green median the length of the block. There is a variety of uses along Vernon Street, including shops, offices, churches, restaurants, government buildings, and private homes. Major destinations are civic/institutional and include the Workforce Development Resource Center, the Lawrence County Court House, the Ironton City Schools Board of Education, the First United Methodist Church, and the St Lawrence O'Toole Church.

NB-7: Railroad Street Cycle Track

Railroad Street is a 0.5 mile mixed-use street in Downtown Ironton that runs east-west from 2nd Street to 8th Street. Remnants of an old streetcar track follows the road's centerline between 2nd and 7th Streets. It is a two-way street with six intersections: five are stop-controlled and one is unmarked. The road is 40 to 50 feet wide between 2nd and 4th Streets and approximately 70 feet wide between 4th and 8th Streets. It has sidewalks on both sides, angled parking on both sides in the wider section, and no parking on either side in the narrower section. There is a landscaped median on the approach to 2nd Street. Offices and parking lots are found between 2nd and 5th Streets. Private homes line the road between 5th and 7th Streets.

NS-4: Ironton Hills Shared Use Path

Stakeholders identified a major challenge identified early on in this study: lack of non-motorized access to the Ironton Hills Shopping Center. Even though it is a short distance from Downtown, it is separated by US-52, a significant

barrier for bicyclists and pedestrians (see **Section 3.5**). Recommended improvements on Park Avenue would extend the sidewalk on the north side of the street to the shopping center entrance. To supplement this route, an alternative off-street route using the Molten Field Trail is recommended.

NB-8: 11th/12th Streets/Liberty Avenue Bike Lanes

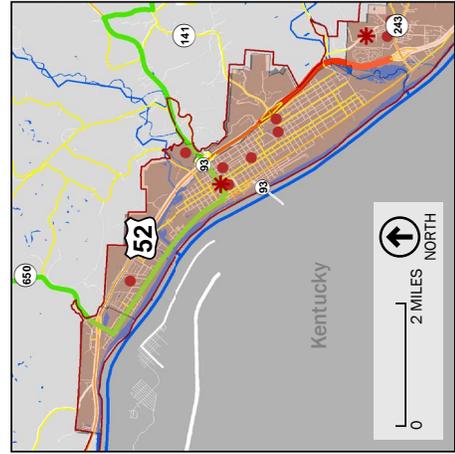
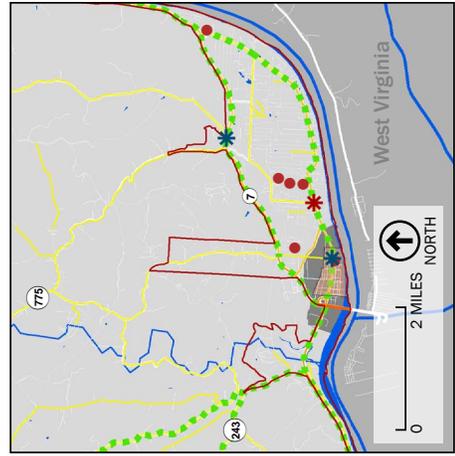
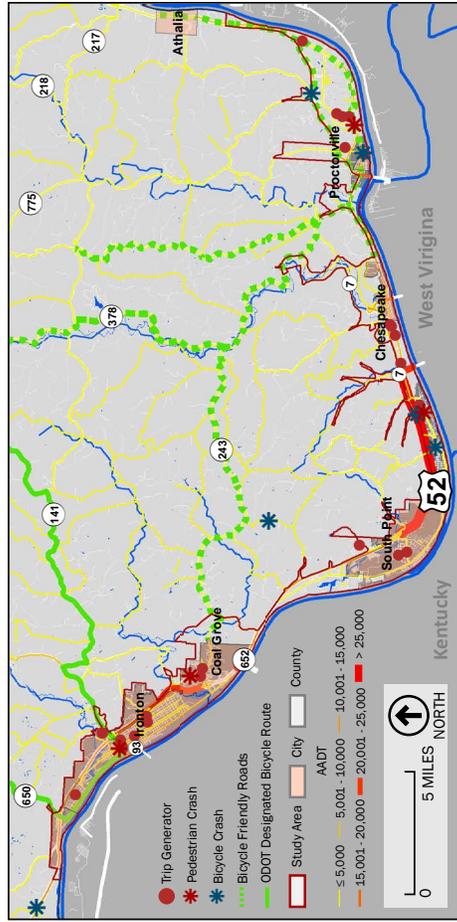
11th Street, 12 Street (**Figure 5.16**), and Liberty Avenue form a continuous two-way corridor from Pine Street, traveling south past the Ohio University Southern campus and terminating at Lorain Street. The road is 1.7 miles long and has 14 intersections: two are stop-controlled, one is signal-controlled, and the remaining intersections give right-of-way to traffic on 11th/12th Streets/Liberty Avenue. It is approximately 30 feet wide with an asphalt surface. There is on-street parking on both sides of 12th Street, the west side of 11th Street, and neither side of Liberty Avenue. Sidewalks are on both sides of 12th Street from McGovney Avenue to Pleasant Street. They are missing on both sides from Pleasant Street to Kemp Avenue. They are present on both sides from Kemp Avenue to the end of Liberty Avenue. They are missing on both sides on 11th Street. The majority of the corridor on 11th and 12th Streets is residential. Small-scale retail uses are on Liberty Avenue across from a major institutional use, the Ohio University Southern campus.

APPENDIX C

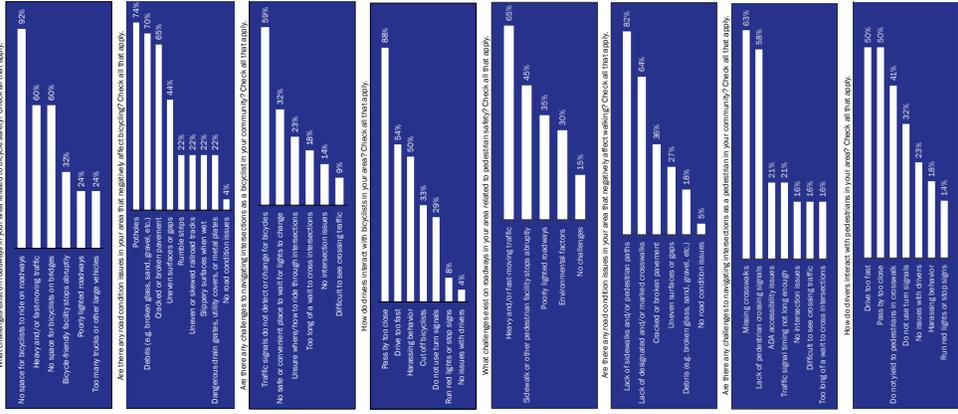
PUBLIC MEETING MATERIALS

Lawrence County Bicycle & Pedestrian Plan | Existing Conditions

Existing Environment: Pedestrian facilities are lacking. Bicycling Environment: There are no signed and marked 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 Run. Ironton has a robust sidewalk network, especially in the downtown area around Park Avenue. Residential neighborhoods east of Downtown also feature sidewalks.



Survey Results: In April and May 2017 a public survey was distributed to stakeholders in Lawrence County.



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

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

2. Visually Separated Facilities

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

3. Physically Separated Facilities

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

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 safe place 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.

Application: *Walkable 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 lower-speed, lower-volume streets.
- Provides additional visual cues to drivers that they should expect bicyclists on the roadway, which is particularly useful when transitioning to a built-up area from a highway context.

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

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 unimproved 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 Ironton and Proctorville.*

BICYCLE BOULEVARD



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

Bicycle Boulevard 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 life for residents through calmer traffic and safer crossings.

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

ADVISORY SHOULDER



PROTECTION LEVEL	✓	✓	✓	✓	✓	✓	✓	✓	✓
INSTALLATION COST	\$	\$	\$	\$	\$	\$	\$	\$	\$
DURABILITY	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
AESTHETICS	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
USERS	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶

Advisory Shoulder Benefits

- Provides a delineated but non-exclusive 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.

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.*

Shared Use Path Benefits

- Provides undisturbed 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 route for users of all ages and abilities to natural areas or an appropriate recreational opportunity itself.
- Provides an increased transportation access to help low-income people obtain access to recreation.
- Paths have a small footprint and can display a variety of uses.

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

Cycle Track Benefits

- Dedicating 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 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 area as a barrier.
- Provides a high level of confidence levels.

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

Sidewalk Benefits

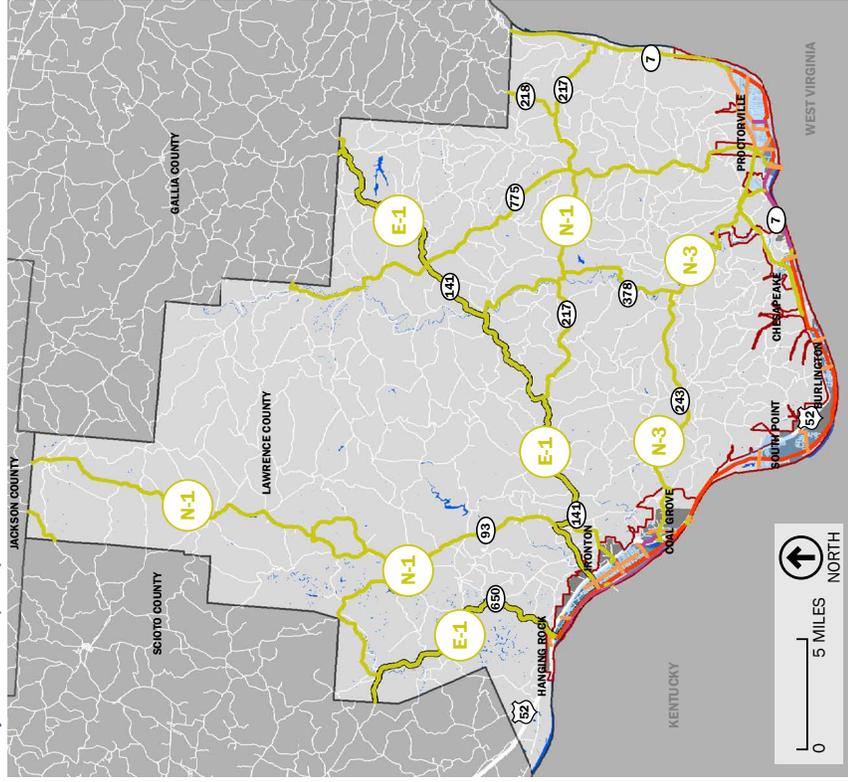
- Provides a dedicated place within the public right of way for pedestrians to safely travel and reduces pedestrian collisions in rural areas.
- Reduces "walking along roadway" crashes.
- May notably increase levels of walking in areas with high traffic speeds and/or volumes.

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 that will be prioritized in these locations. In addition, the pedestrian routes for the Lawrence County for Ironton, the routes are preliminary at this Bicycle & Pedestrian Plan. Please note that in time, pending results of a more detailed study urbanized areas, sidewalks are recommended as part of the Ironton Non-Motorized Plan. The on all of the streets (E-2), so they are shown on "E" routes designate connecting gaps in the maps as shaded areas, not routes. Where existing bicycle/pedestrian network; "N" routes bicycle facilities are specifically recommended designate new bicycle/pedestrian network in urbanized areas, missing sidewalks should facilities.

County Wide Concept Map

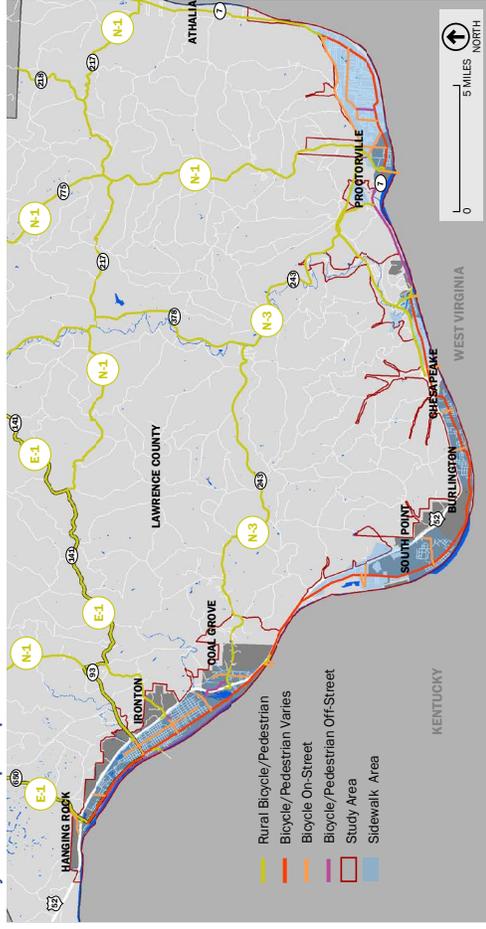


Concept Routes

ID	LOCATION	FACILITY TYPE	DESCRIPTION
E-1	County-wide	Bicycle/pedestrian route on-shoulder	Add bicycle (with pedestrian allowed) facilities along existing designated route off of SR-93
E-2	Study Area	Sidewalks	Existing sidewalks were identified in urbanized areas of Proctorville, Ironton and Coal Grove. Add sidewalks along all roads in urbanized areas
E-3	Ironton	Bicycle/pedestrian route	Upgrade all state routes throughout the County to wider paved shoulders for biking/walking
N-1	County-wide	Bicycle/pedestrian route on-shoulder	Route: E to W SR-7/Old SR-7/Market St/Ohio Some River Byway/Third St/Jefferson St/4th St/Old US-52/2nd St/2nd St continuous route to Jewell (west end) to Jewell (east end) to Jewell Drive in Proctorville (east end)
N-2	Study Area (Proctorville, Chesapeake, Ironton, Hanging Rock)	Bicycle/pedestrian route on-shoulder	SR-243 Bicycle/pedestrian shoulder connection from Ironton/Coal Grove (344 St) to Proctorville (Market St)
N-3	Proctorville	Bicycle route on-street	Bicycle route along SR-206/SR-7 from Market Street west of town to Market Street east of town
N-4	Proctorville	Shared-use path	SUP from Fairland East Elementary School north to Jewell Drive
N-5	Proctorville	Bicycle route on-street	On-Street Bicycle facilities along Cedar Street to Beulah Lane
N-6	Proctorville	Shared-use path	On-Street Bicycle facilities along Main Street north/south through Fairland West
N-7	Proctorville	Bicycle route on-street	On-Street Bicycle facilities along Main Street, between Market Street and Cedar Street
N-8	Proctorville	Bicycle route on-street	On-Street Bicycle facilities along Main Street
N-9	Proctorville	Bicycle route on-street	On-Street Bicycle facilities fence Road

ID	LOCATION	FACILITY TYPE	DESCRIPTION
N-10	Burlington	Bicycle route on-street	On-Street Bicycle facilities along Kentucky Road, from River Drive through Third to 6th 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/Soldiers Rd from 2nd St to Collins Ave
N-13	South Point	Bicycle route on-street	On-Street Bicycle facilities along Battlefield 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 of US-52 to bicycle/pedestrian-only, between Adams Ln/Union St, to 10th St, and between Adams Ln/Union St, to US-243
N-16	Ironton	Bicycle route on-street	On-Street Bicycle facilities along Union St/Adams Ln from 3rd St to 9th to 12th St
N-17	Ironton	Bicycle/pedestrian route on-shoulder	SR-144, east of US-52 - B-P, on shoulder, connect to existing private sidewalks north of interchange and connect to Jones Dr (1 mile west of US-52)
N-18	Ironton	Shared-use path	SR-144 west of US-52 - B-P connection through OU campus
N-19	Ironton	Bicycle route on-street	SR-144, west of US-52 - On-Street Bicycle facilities from OU 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 intermediate bridges

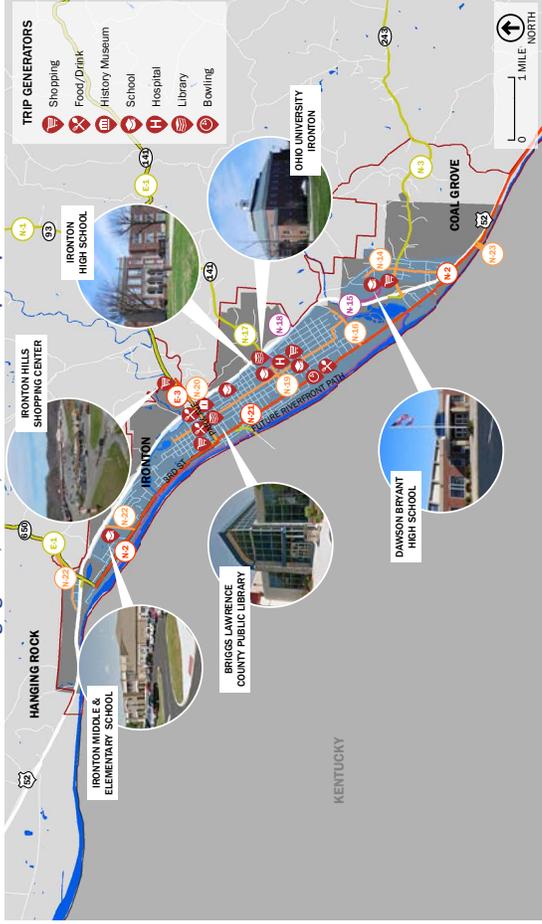
Study Area Concept Map



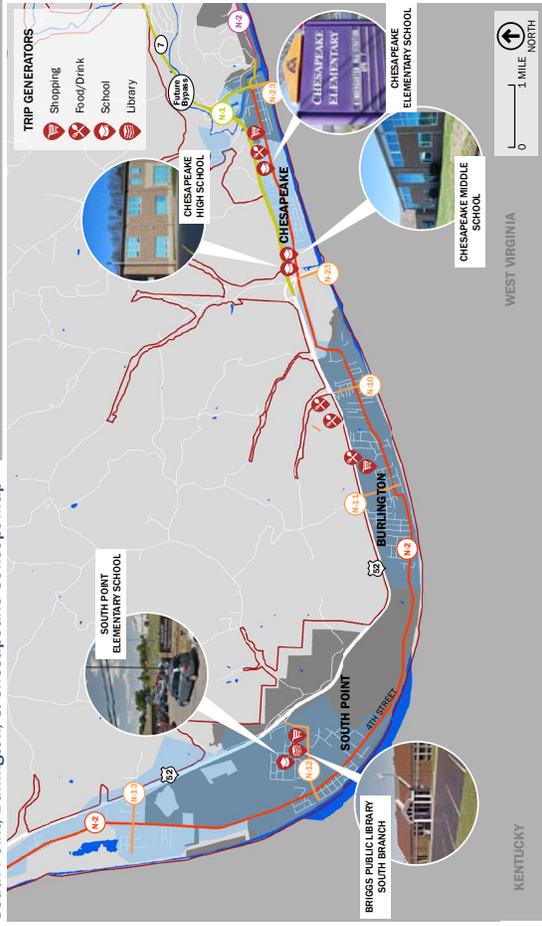
Lawrence County Bicycle & Pedestrian Plan | Preliminary Concept Routes



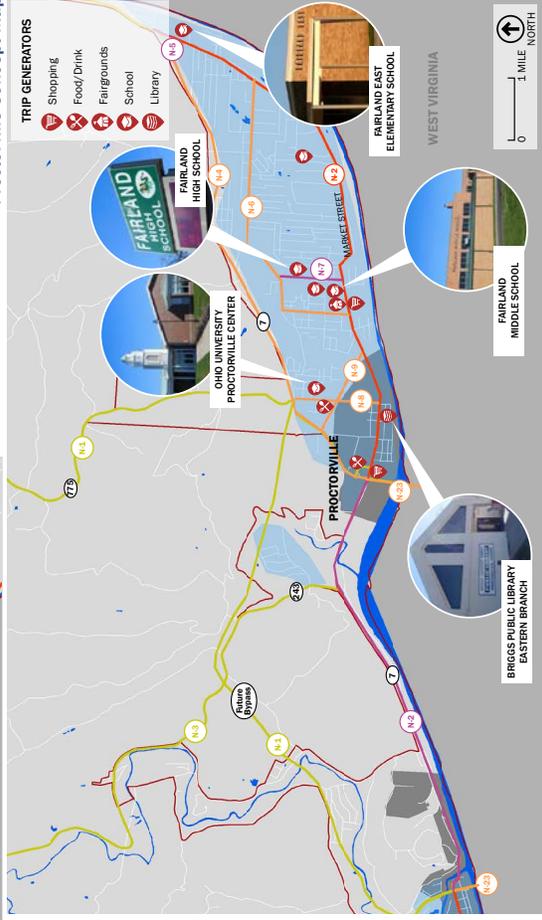
Hanging Rock, Ironton, & Coal Grove Concept Map



South Point, Burlington, & Chesapeake Concept Map



Proctorville Concept Map



APPENDIX D

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.

Appalachian Regional Commission Project Grants

The Appalachian Regional Council has funded bicycle and pedestrian projects in the past that are substantially connected to economic development.

<https://www.arc.gov/funding/GrantsandFunding.asp>

Community Development Block Grant Program

Administered by the Department of Housing and Urban Development, the Community Development Block Grant (CDBG) program provides funding for streetscape revitalization, which includes bicycle and pedestrian improvements.

https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs

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 and Program Actions

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 E

PROJECT PRIORITIZATION

SCORES

Figure E.1: Proposed Routes by Phase

