Perry County **Active Transportation Plan**

DECEMBER 2019

OHIO DEPARTMENT OF TRANSPORTATION

Public Health
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Perry County
Health Department

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Contents

Tables

Figures

Maps

1 Introduction

Introduction

The 2019 Perry County Active Transportation Plan is the first official document to focus on pedestrian and bicycle improvements across the county. The Ohio Department of Transportation funded the plan's development, and the Perry County Health Department led the planning process, with support from a consultant team led by Toole Design Group. This chapter describes the Plan's purpose and structure, defines active transportation, and examines the benefits associated with active transportation.

Background

Developing a plan that addresses both walking and bicycling can be challenging because of the different geographic scales of these modes. Walking can be difficult to address on a regional level because it often involves site-specific issues. In this Plan, walking recommendations are focused on local improvements. Bicycling projects, on the other hand, can be well-suited for a regional plan since bicycle trips are typically longer. For both walking and bicycling, the Plan aims to develop a safe, well-connected, countywide network that everyone can use, regardless of age or ability.

Planning Process and Document Structure

The Plan was created under the leadership of an Advisory Committee (described in Chapter 2) which ensured that it represented the variety of interests and stakeholders in Perry County. The process to develop the Plan began with an assessment of existing conditions and a review of other relevant plans and studies. Public input provided a foundation for recommendations, supplemented by a technical analysis of regional connectivity. Public input, among other factors, was also used to prioritize the recommendations. Finally, guidance for implementation was developed to help ensure that the recommendations in the Plan are realized.

This document summarizes the findings of the planning process. To tell the story of the state of active transportation in Perry County and provide a roadmap for achieving its envisioned future, the document is organized into the following sections:

- **Community Engagement**
- **Existing Conditions**
- **Recommendations**
- **Implementation**

Defining Active Transportation

"Active transportation" emphasizes the role of physically active forms of transportation in improving community health. It reinforces that bicycling and walking are valid forms of transportation, not just forms of recreation, and it is a more inclusive term that reflects the use of mobility assistance devices, such as wheelchairs and scooters, and other modes, such as skating or skateboarding. Active transportation also implies a more comprehensive approach to the transportation system which recognizes the importance of active transportation in accessing public transit, and addresses associated infrastructure like bike racks and wheelchair ramps.

Benefits of Active Transportation

This section describes some of the many benefits of active transportation, such as public health, economic development, quality of life, and environmental quality. It also explains why it is important to invest in the infrastructure and programs that support active transportation.

Public Health

The health of Perry County's residents may be improved directly or indirectly through investments in active transportation infrastructure and programs. Active transportation, including walking and biking, can help people incorporate routine physical activity into their daily lives. This section describes the health benefits of active transportation, while Chapter 3 describes current health statistics of Perry County residents.

Physical Health

According to the U.S. Health and Human Services Department's (USHHSD) Physical Activity Guidelines for Americans, 150 minutes of moderate-intensity aerobic activity (for example, brisk walking) each week reduces the risk of many chronic diseases and other adverse health outcomes.[1] For young people ages 6–17 the USHHSD recommends participating in at least 60 minutes of physical activity every day. Engaging in physical activity beyond these amounts can impart additional health benefits.

Being overweight increases an individual's risk for many chronic diseases, including hypertension, diabetes, osteoarthritis, cardiovascular disease and stroke, gallbladder disease, arthritis, sleep disturbances, mental health issues, breathing problems, and certain cancers.[2] Increased opportunity for recreation and destination-oriented trips using active modes of travel are key to reducing obesity and, by extension, the risk for developing chronic diseases.

A 20-year study of 5,115 people in four U.S. cities found that walking and biking to work are associated with greater physical fitness among both men and women. Active commuting is also associated with lower obesity rates and better cardiovascular health for men. The study called strategies to enable and encourage active commuting "effective interventions to reduce obesity and improve cardiovascular disease risk."[3]

Research has also found that the health benefits of bicycling instead of driving far outweigh the risks.[4] For example, one study found that on average, individuals who shifted from driving to bicycling gained an estimated 3 to 14 months of life expectancy, compared to 5 to 9 days lost due to traffic crashes and inhaled air pollution.[5]

Mental Health

Physical activity, including walking and biking, can help prevent or treat some mental health conditions. Physical activity reduces depression, can improve the quality of sleep, and has been shown to improve cognitive function for older adults.[6] Active transportation can also improve social conditions in communities, which contributes to positive mental well-being among residents. While there may be many reasons people feel socially isolated, land-use and transportation systems designed around the automobile can exacerbate these feelings. Car dependence reinforces solitary lifestyles and reduces opportunities for positive social interaction in pubic spaces,[7] particularly in rural areas.

Economic Development

There is broad consensus across the country, and in Ohio, that investing in active transportation produces a positive return on investment for host communities. This is especially true when it comes to trails, which serve as major regional attractions for recreational riders. Trail-based tourism is an economic boon for many small communities, supporting local businesses, creating jobs, and increasing property values.[8] For example, annual trail tourism spending along the Great Allegheny Passage in Maryland and Pennsylvania exceeds $40 million. It has resulted in 54 new or expanded businesses, 83 jobs, and $7.5 million in local wages every year.[9]

In Ohio, The Mid-Ohio Regional Planning Commission's 2015 trails study found that one-fifth of Central Ohio Greenway users say they spend modest amounts of money, typically between $15 and $20 for refreshments and dining, on a trail visit. This is a significant amount when aggregated across all trail users. Sixty percent of study participants reported spending money on equipment, such as bicycles, shoes, and other items. These expenditures were substantial, exceeding $1,000 for bicycle purchases and over $100 for other items.[10] Similar to the recent rise in ATV tourism (see Chapter 3), Perry County could see a significant boost in local economic activity with sustained investment in active transportation infrastructure.

Quality of Life

Comfortable and accessible bicycling and walking provide a host of quality of life benefits. They increase the number of travel options for everyone and can lead to a sense of independence in seniors, young people, and others who cannot or choose not to drive. Providing a high quality active transportation network is important for Perry County's residents who do not have full access to a vehicle. This includes people who are under 16 years-old, unlicensed adults, suspended drivers, and people who live in households with more drivers than vehicles.

Active transportation options are associated with inviting places for people to live and work.[11] Bicyclists often report greater satisfaction with their commute than people who drive to work.[12] In communities that have invested in bicycling and walking infrastructure, bicyclists and pedestrian commuters report the highest levels of "commute well-being," which is a measure of commute-based stress, confidence in arrival time, boredom or enthusiasm, excitement, pleasure, and ease of trip.

Additionally, more "eyes on the street" improve safety and support more activity: one study found that violence and the fear of violence prevent people from being physically active and spending time outdoors, causing a ripple effect of reduced social interactions, reduced community cohesion, and more barriers to community investment.[13]

Environmental Quality

Support for bicycling and walking comes in part from concerns about greenhouse gas emissions, stormwater runoff from highway facilities, and other environmental implications of widespread personal vehicle use.[14] Shifting to bicycling and walking trips, and concentrating development in dense walkable and bikeable communities can reduce transportation-based emissions and sprawling land use that impacts the natural environment.[15]

Exhaust from automobiles increases local air pollution, which can cause or trigger respiratory and cardiovascular problems. People with sensitivities to air pollution, including older adults, children, and those with diseases such as asthma or congestive heart disease, are more likely to be affected by contact with pollution from particulate matter, which includes pollutants from automobile exhaust. [16,17] Multiple studies have found that low-income, minority communities bear the greatest burden of auto-related emissions due to proximity to high-volume roads.[18, 19, 20] Reducing the number of vehicles on the road can reduce air pollution and improve air quality.[21] Researchers have proposed that increasing the supply of active transportation facilities (e.g., sidewalks, bike paths, etc.) can help reduce exposure to harmful pollutants.[22]

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2 Community Engagement

Community Engagement

Community engagement was an essential tool in the plan development process. Involving the public builds trust in the Plan and improves the overall quality of the findings. Two primary means of public involvement were used during plan development: a project advisory team and public meetings and events.

Kick Off

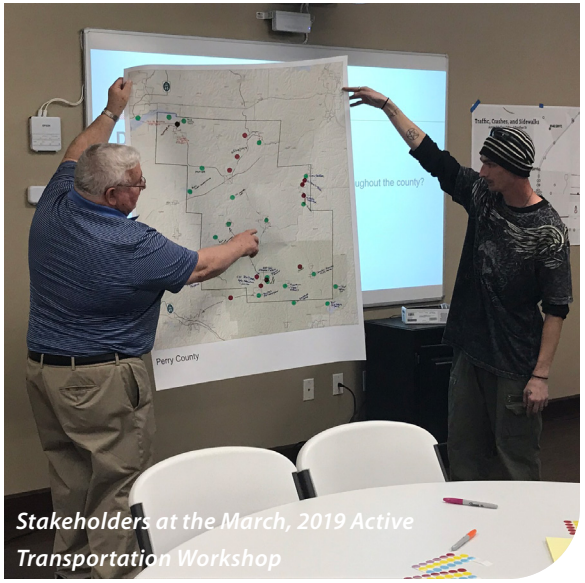
In March, 2019, the Perry County Active Transportation Workshop convened stakeholders from across the county. The workshop served as the unofficial kickoff for the Perry County Active Transportation Plan. Organized by the Perry County Health Department and the Ohio Department of Health, the purpose of the workshop was to:

- **Identify Perry County's challenges, strengths, and opportunities in active transportation;**
- **Establish a vision and goals for the planning process;**
- **Initiate countywide coordination on active transportation planning; and**
- **Solicit stakeholder input on active transportation priorities and planning involvement.**

Approximately 30 people were in attendance, including elected officials, law enforcement, active transportation advocates, health department staff, state agencies, regional planning organizations, local governments, and community members.

Participants engaged in a mapping activity to identify the gaps, barriers, generators, and other challenges and opportunities around bicycling and walking in Perry County. The consultant team that led the workshop used a real-time, online polling platform to generate discussion and solicit feedback on what active transportation plan components are most important to include in Perry County's plan.

The brainstorming, open discussion, and mapping activity successfully engaged workshop



Stakeholders at the March, 2019 Active Transportation Workshop

participants in developing a vision and priorities for the Perry County Active Transportation Plan.

Advisory Team Meetings

The Perry County Active Transportation Plan was guided by an Advisory Team comprised of local, county, and state agency representatives as well as local stakeholders. Advisory Team members are listed under Acknowledgments at the beginning of this document. The Advisory Team met three times over the course of plan development in Fall 2019. All meetings took place in the Perry Behavioral Health Choices Activity Center in New Lexington.

Meeting One

The first meeting occurred in August at the beginning of the planning process. Team members discussed their aspirations for the Plan and reviewed completed active transportation plans for other rural areas to understand the typical content and outcomes of a planning process. The team agreed that local improvements within communities were a priority, which was the genesis of the Pedestrian Priority Areas described in Chapter 4. Connections to other counties were also considered important to tie Perry County in with regional active transportation initiatives, such as state bicycle routes and trails in neighboring counties.

Following the meeting, Perry County staff and the consultant team embarked on a tour of the county to observe bicyclist and pedestrian issues in different communities. The group visited New Lexington, Shawnee, New Straitsville, Thornville, and Thornport. The consultant team visited Somerset, Crooksville, and rural parts of the county on subsequent trips.

Meeting Two

During the second meeting in September, the Advisory Team reviewed and discussed the partially completed plan, which included the existing conditions analysis and preliminary recommendations. The consultant team explained the recommendations and rationale behind the proposed network. Advisory team members provided feedback on specific recommendations and routes, as well as the overall flow and structure of the document.

Meeting Three

The third and final meeting occurred in November. The Advisory Team reviewed an updated draft of the plan, including results from a project prioritization exercise. Team members voted on their top priority projects, which were factored into the final prioritization scores. Minor edits and additions were suggested for the final draft, which individual members of the Advisory Team reviewed in December.

Pop-Up Events

Pop-up events have a broader reach than conventional public meetings. By leveraging existing events or popular destinations, the project team reached a wide cross-section of Perry County residents, especially those who might not want to or be able to participate in online or traditional forms of engagement.

Pop-up events included a booth with display boards explaining the Plan's purpose, handouts, and interactive mapping. This approach allowed residents to talk directly with each other and the project team about their mobility needs.

The project team held six pop-up events over the course of the project. The purpose of the pop-up events was two-fold: to gather information about existing walking and bicycling conditions during the first half of the project, and to share preliminary recommendations with the public during the second half.

Information Gathering

Perry County Health Department staff and consultant team members attended a series of events in Summer and Fall 2019 to gather public feedback about active transportation in Perry County.

- **Perry County Fair -** With a broad appeal and wide demographic reach, the Perry County Fair was an ideal venue for kicking off public engagement. The Plan's mapping activity booth was on display for two days, during which time dozens of people marked their preferred walking and bicycling routes on map boards and identified gaps and barriers that prevent them from using active transportation. Topics of interest included sidewalk gaps, lack of signage, better transportation options for seniors, and access to parks and recreational areas.

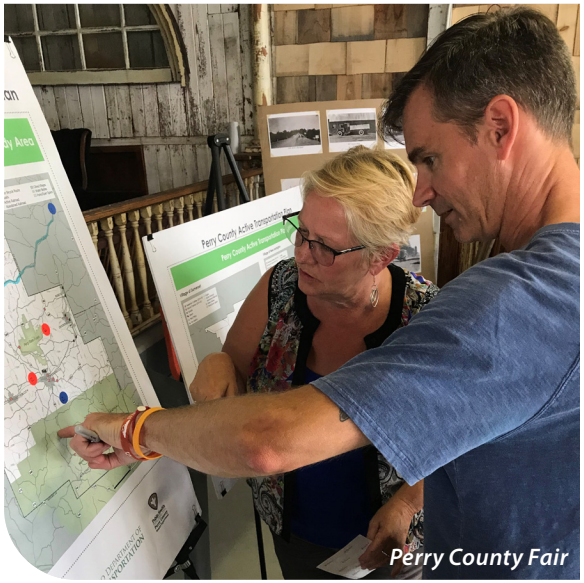
- **Back to School Bash -** Every year, the Perry County Back to School Bash serves thousands of families from across the county by providing school supplies and other resources. The project team spoke to dozens of families about transportation to school. Many parents expressed concerns about their children walking or bicycling due to high speeds, long distances, and lack of sidewalks or other facilities.
- **Tour de Buckeye Lake -** Organized by Bike Buckeye Lake, Tour de Buckeye Lake attracts 500 bicyclists from across Ohio every year. The route circumnavigates the six-mile-long Buckeye Lake on the fourth Saturday of August each year, including a 25-mile main route with optional spurs. Riders come from as far as Dayton and Cleveland, but Perry County residents were represented as well. Many riders confirmed that bicycling infrastructure would encourage them to visit Perry County for recreational riding.

Information Sharing

With a mostly completed draft in hand, the consultant team and Perry County Health Department staff organized a second round of pop-up events to present draft plan recommendations. They solicited feedback and public impressions of the draft plan and asked the public to vote on their top-priority projects.

- **Perry Behavior Health Choices Activity Center -** The project team held an open house and invited community groups to vote on their preferred bicycle and

Perry County Back to School Bash



Perry County Fair

Tour de Buckeye Lake

Perry County Back to School Bash

November open house

Tour de Buckeye Lake

pedestrian projects over two days in November.

- **Pre-Thanksgiving Event -** The project team set up a display in a grocery store parking lot the Monday before Thanksgiving, to capture as much public feedback as possible. Several dozen people voted on their top projects, which were factored into the final prioritization scores.
- **Perry County Health Department -** The proposed active transportation network was also on display at the health department in November and December, where department staff and members of the public could vote on their preferred projects.

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3

Existing Conditions

Existing Conditions

This chapter examines several elements of Perry County's transportation system. It presents a socioeconomic profile of the county, reviewing population trends and income, employment, and public health data. A plan and policy review summarizes existing active transportation and related efforts to date, framing the current planning process as a logical next step in the county's active transportation evolution. This chapter also summarizes existing programs that support active transportation. An infrastructure analysis provides an overview of the transportation system, describing the roadway network, traffic volumes, travel patterns, and crash data and inventorying active transportation facilities. A gap analysis synthesizes these elements into a list of active transportation weaknesses and challenges in Perry County, which are addressed in Chapters 4 and 5.

Sociodemographic Profile

This section discusses general demographic information about Perry County, as well as public health statistics. Perry County is 97% white and has a population of approximately 36,000 (0.3% of Ohio's total population). The region is largely rural and is characterized by low income, poor health, and low educational attainment. County residents face many challenges based on its limited resources and geographic isolation. 15.4% of residents over 25 years old do not have a high school diploma or GED and 19.2% of residents live below the federal poverty line. The largest industries are health care, manufacturing, retail, and public agencies, including the County government and school districts.

Income and Poverty

In 2017, the median household income in Perry County was $46,477, approximately $6,000 less than the median household income for Ohio. This number is higher than in neighboring rural counties, such as Muskingum and Morgan, but lower than in nearby suburban counties, such as Fairfield. As of June 2019, the unemployment rate was 4.8% compared with Ohio's rate of 4.2%. The Centers for Disease Control (CDC) notes that high poverty and unemployment rates, low education rates, and other social determinants of health are associated with poorer health status.

Perry County Job and Family Services provided employment search assistance to over 3,000 individuals in 2017 and education and employment services to 52 dislocated workers. Overall, the county is economically depressed, but wealth and income vary widely between communities. Income generally falls as one travels south through Perry County. The northern third of the county, closest to Buckeye Lake, Newark, and other urban areas, has the highest median income, at over $65,000. This areas includes Thornport and Thornville. The middle third of the county, including Somerset, has the second highest income, at over $55,000. The southern third of the county has median household incomes between $32,000 and $48,000. The census tracts encompassing New Lexington, in the center of the county, and Crooksville and Roseville, in the eastern part of the county, buck this geographic trend. They have the lowest median household incomes, between $32,000 and $34,000.

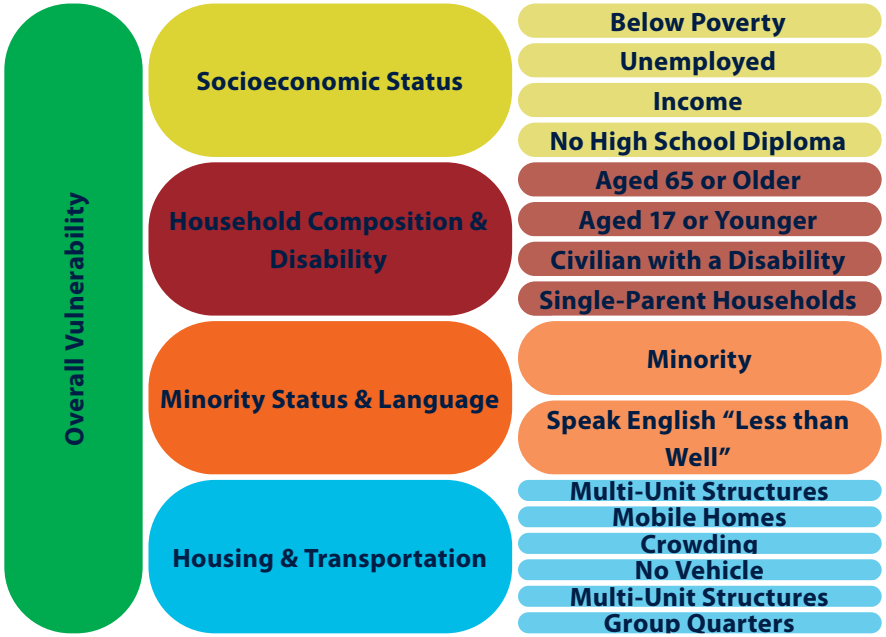
These numbers speak to a disconnect between northern Perry County, which is well-connected to larger communities and with convenient access to interstate commerce via I-70, and southern Perry County, which is sparsely populated and isolated. Much of the growth and development in the past 15 years has occurred in the northern part of the county, which is reflected in the higher incomes in communities around Buckeye Lake.

Communities in northern Perry County are more affluent and better connected than the rest of the county.

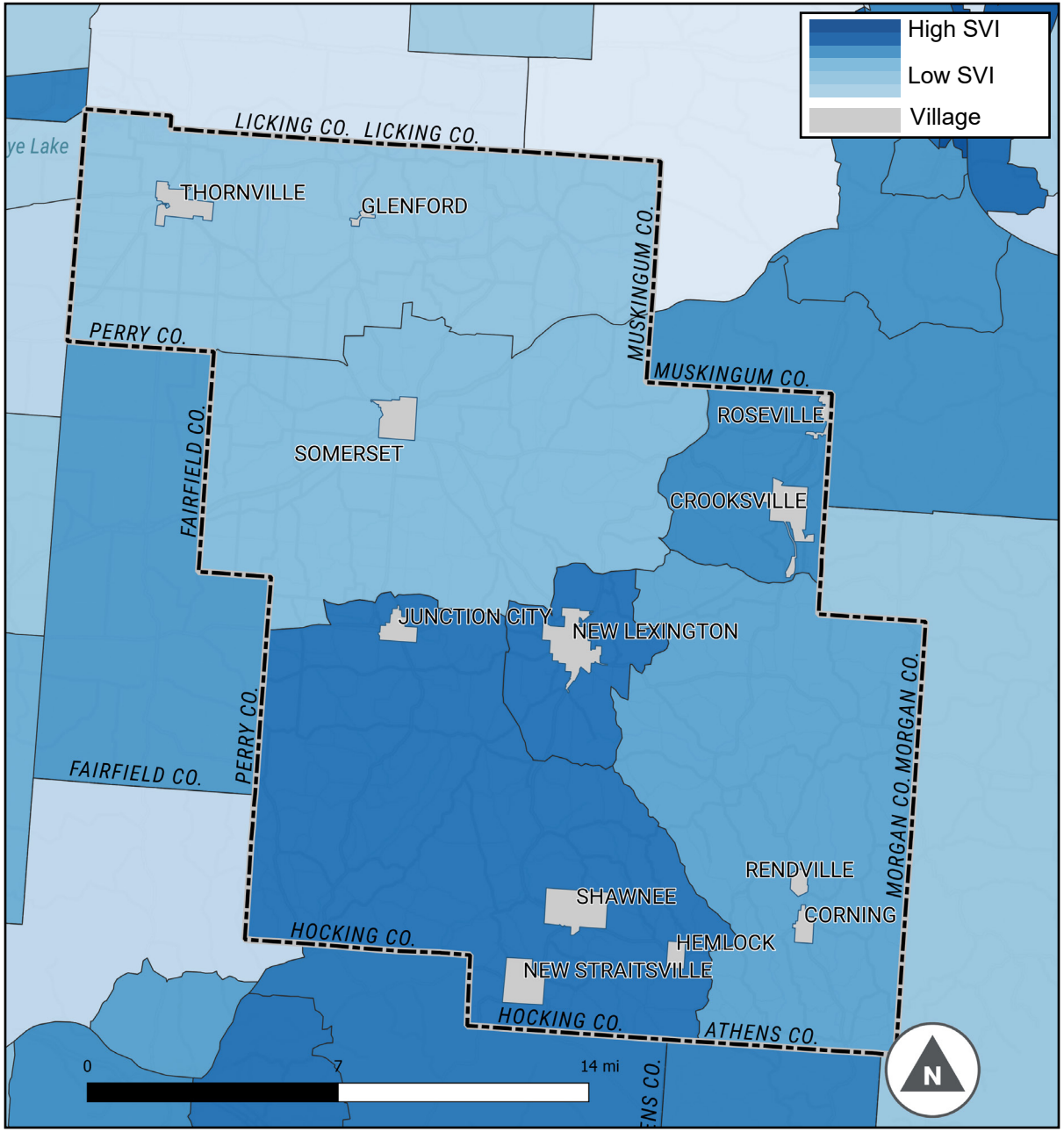
Social Vulnerability

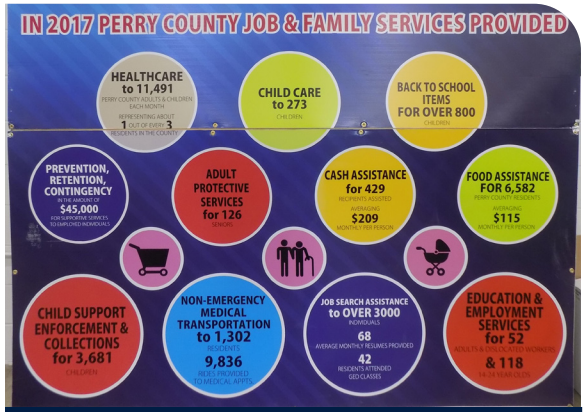
The CDC created the Social Vulnerability Index to measure the degree to which a community is able to prevent suffering and financial loss in the event of a disaster. The SVI assigns a composite score to every census tract based on factors like income, education, housing, and transportation. SVI is measured from zero to one; higher SVI values indicate greater vulnerability. As Map 1 shows, Perry County's SVI scores generally mirror the income pattern described above, with higher SVI scores in the southern part of the county. The census tracts covering New Lexington, Junction City, Shawnee, and New Straitsville each have scores of 0.78; the census tract for Rendville, Corning, and Hemlock has a score of 0.57; the Crooksville and Roseville census tract is

CDC's Social Vulnerability Index (SVI) Indicators



Map 1. Social Vulnerability Index





Poverty in Perry County

Costs for healthcare, transportation, child care, food, and other essentials take a toll on families in poverty.

0.69; Somerset's census tract is 0.46; and Thornville and Thornport's is 0.43.

These data indicate a need for social services, including housing and transportation. While active transportation is not a panacea to solving Perry County's socioeconomic challenges, it would benefit all income levels by providing safe, comfortable, and convenient walking and bicycling opportunities for the entire community; however, county leaders must build consensus between disparate communities on the importance of bicycling and walking throughout the county to develop a connected and accessible active transportation system for people of all backgrounds.

Equity Analysis

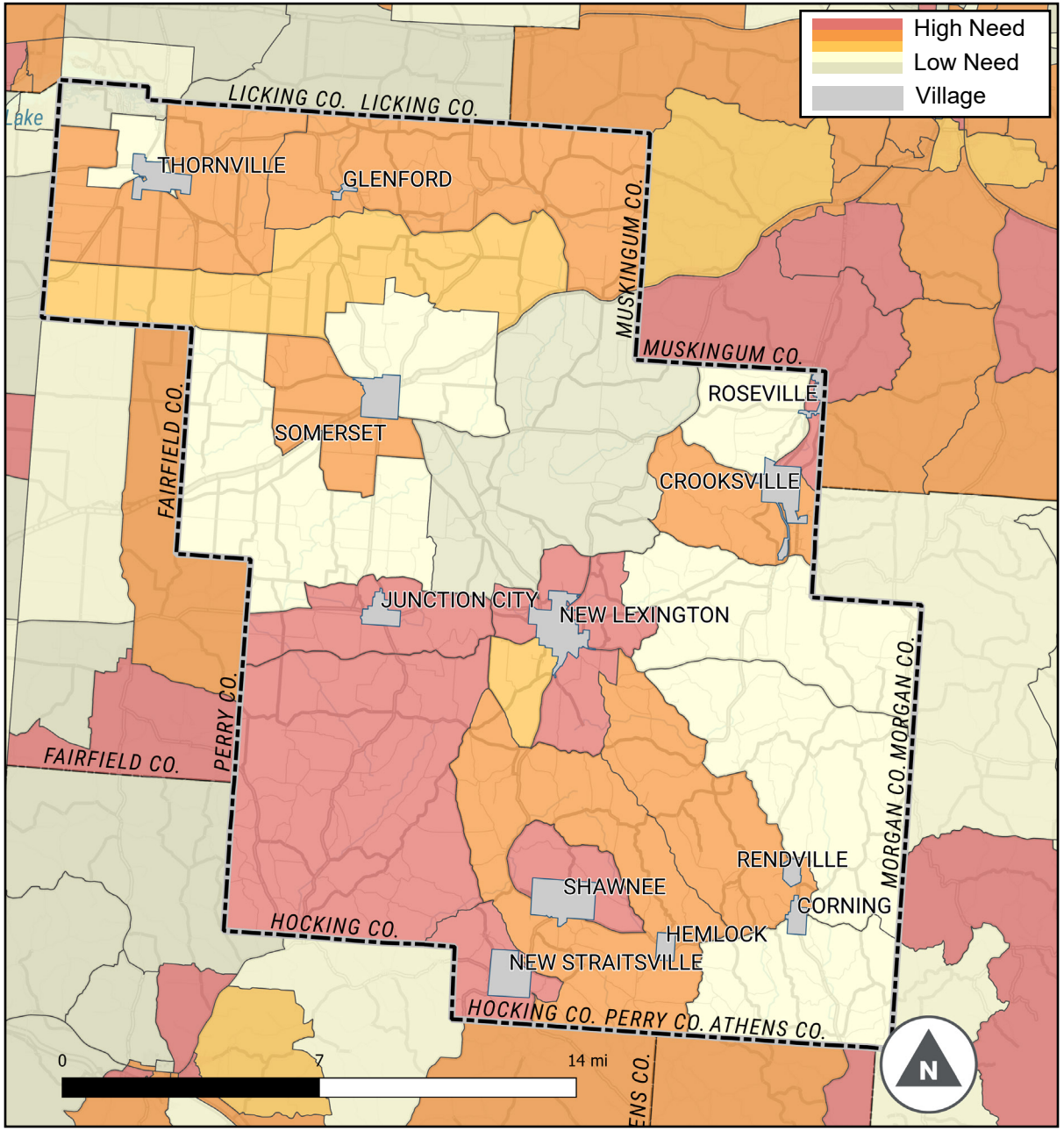
As part of its statewide bicycle and pedestrian plan, Walk Bike Ohio, the Ohio Department of Transportation (ODOT) performed an equity analysis for the entire state. It created a composite equity score for every census tract in the state, with scores assigned based on the presence of non-white groups, youth, older adults, poverty, low educational attainment, limited English proficiency, and low motor vehicle access. Higher scores correspond to a higher presence of underserved groups and indicate a greater need to increase equitable outcomes. Scores in Perry County vary widely and are a reflection of communities' social vulnerability, as identified in the CDC analysis. The New Lexington and Shawnee census tracts are the highest scoring areas in the county, followed by the southwest quadrant of the county, including New Straitsville, Junction City, and Hemlock. Along with other criteria, the Walk Bike Ohio equity analysis scores are used to prioritize projects in Chapter 5.

Together, the CDC's SVI tool and ODOT's equity analysis indicate an undeniable need for investment in Perry County's most impoverished communities. In addition to jobs, education, and social services, walking and bicycling infrastructure must be a part of the solution to improve quality of living in these communities.

Public Health

The relationship between active transportation and chronic disease is noteworthy since most chronic conditions can be prevented by getting

Map 2. Walk Bike Ohio Equity Analysis



the recommended amounts of physical activity. As of 2014, 60% of American adults had at least one chronic condition, such as obesity or heart disease, and 42% had more than one. The Centers for Disease Control and Prevention recommend 2.5 – 5 hours of moderate-intensity physical activity weekly for adults. Reaching this goal is easier when it is part of a daily routine. Twenty-eight percent of adults in Perry County report no physical activity, which is higher than the statewide average of 25%,[23] and 35% of adults in the county have obesity, which is higher than the state average of 33.8%.[24] People are more likely to walk, bicycle, or take the bus while going about their daily business if education and infrastructure improvements make the active choice the easy choice. The strategies and recommendations in this plan will make it safer and more comfortable for people to walk, bike, or take the bus to meet their physical activity goals.

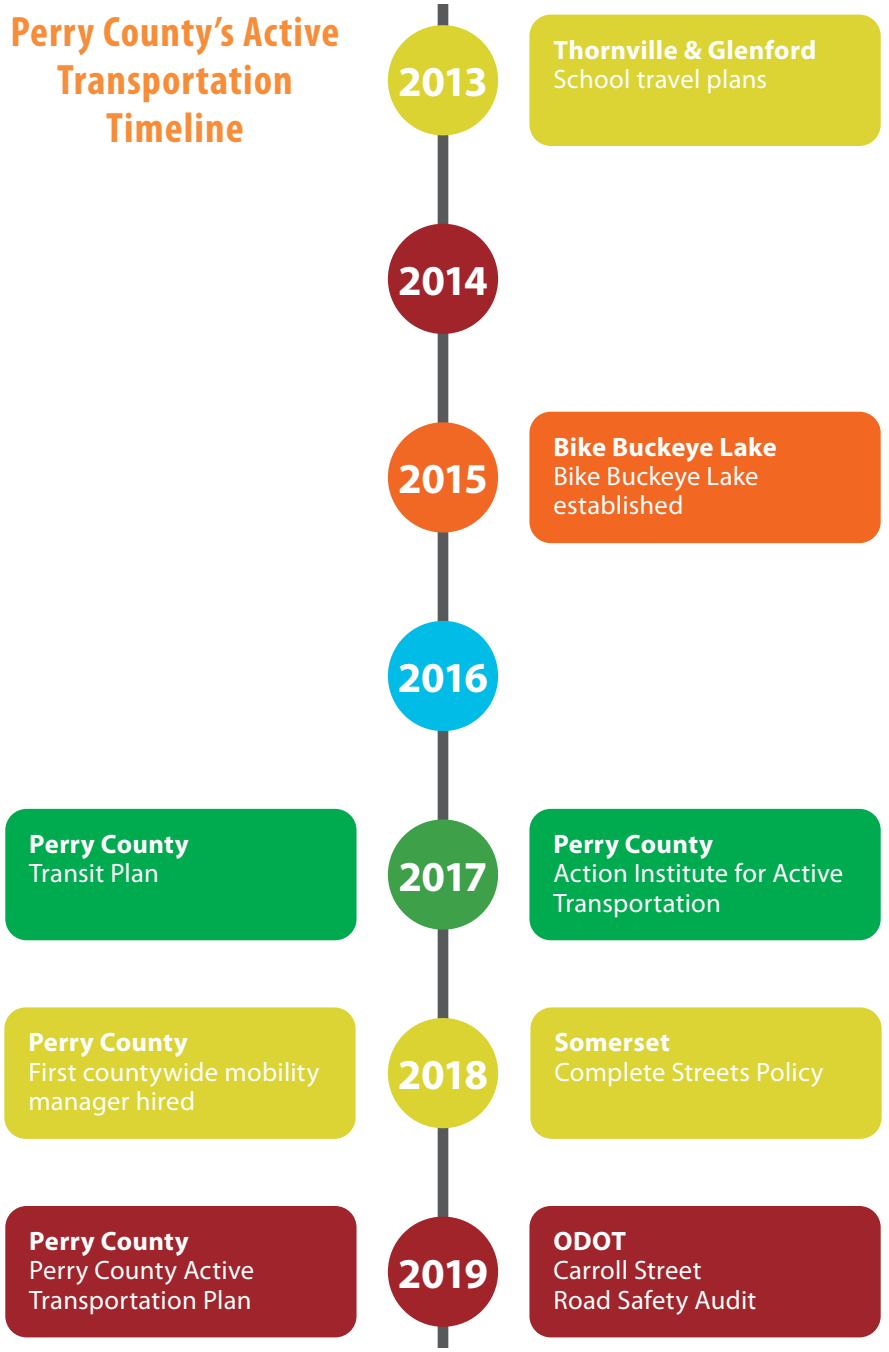
Plans, Policies, and Supportive Programs

This plan builds on prior plans and initiatives developed by entities within Perry County. It relies on these plans for existing conditions data, issue identification, and recommendations support. The graphic to the right shows key milestones of Perry County' active transportation evolution.

Local Plans and Policies

In 2013 the **Villages of Thornville and Glenford** developed a school travel plan to help improve the safety of students walking or bicycling to school. As a result of the plan, students learned about active transportation safety and received encouragement items. Since then, momentum has stalled. This planning process may be a good time to reinvigorate interest in Safe Routes to School.

In 2018 the **Village of Somerset** passed a Complete Streets Policy. The policy established Somerset's vision of an equitable, balanced, and effective transportation system where every roadway user can travel safely and comfortably, providing the best possible blend of service, mobility, and safety for residents of all ages, income levels, and abilities.



Locally Developed Coordinated Public Transit-Human Services Transportation Plan

In 2017, **Perry County Job and Family Services** developed a plan to identify and prioritize community transportation needs. The Locally Developed Coordinated Public Transit-Human Services Transportation Plan was approved by ODOT and fulfills the county's requirements for federal transit dollars. Developed with community input, the plan focuses on serving individuals without private vehicle access, including seniors, individuals with disabilities, and people with low incomes. While transit is a valuable tool to support these disadvantaged groups, it is also a community-wide benefit that supports economic development, individual mobility, and safer roads. The plan includes an assessment of available transit services offered by public and private agencies in Perry County and a transportation needs and gaps analysis. It establishes goals and strategies for addressing unmet mobility needs and action steps to achieve those goals. Goals related to active transportation include Complete Streets policy adoption, sidewalk network expansion, and bike lane installation on SRs 13 and 93. As a result of the plan, Perry County hired its first county-wide mobility manager in 2018.

Carroll Street Road Safety Audit

In 2019, **ODOT, Buckeye Hills, Perry County Health Department, Perry County Job and Family Services**, and a consultant team conducted a road safety audit (RSA) of the Carroll Street corridor in New Lexington. The RSA analyzed pedestrian and vehicular activity along the corridor and recommended infrastructure improvements to create a safer walking environment. Active transportation related recommendations include the following:

- Reprogram traffic signal at Lincoln Park Drive to eliminate conflict between pedestrians and turning vehicles.
- Replace and update existing pedestrian signals and pushbuttons.
- Install ADA-compliant pedestrian curb ramps during next resurfacing/ reconstruction of Carroll Street.
- Construct sidewalk and/or multi-use path along one or both sides of Carroll Street.
- Consider installation of corridor lighting along Carroll Street and coordinate pole locations with any new or proposed pedestrian facilities.
- Install marked crosswalk with rectangular rapid flashing beacon (RRFB) at East Jefferson Street intersection.

The Carroll Street corridor holds regional significance as the county's primary commercial district. As such, Carroll Street should be included in any discussion about active transportation improvements in Perry County. More information on proposed improvements can be found in Chapter 5.

Regional Planning Efforts

In addition to local initiatives, several entities outside Perry County are working to improve active transportation options. Regional planning commissions supply data, assist with planning, and support funding applications. Perry County is within the jurisdiction of the **Buckeye Hills Regional Council** and the **Mid-Ohio Regional Planning Commission** (MORPC). The Buckeye Hills Regional Council coordinates transportation planning across eight counties in Southeast Ohio; it has representation on the Active Transportation Plan Advisory Team. MORPC offers technical assistance, crash data, and additional tools available for its member jurisdictions.

Ohio Action Institute for Active Transportation

In 2017, Perry County participated in an Action Institute hosted jointly by **ODOT** and the **Ohio Department of Health.** The Action Institute helped local communities develop work plans for active transportation, including objectives for education, infrastructure, planning, and policy. It established an Active Transportation Team in Perry County, including the Village of Somerset's mayor, the Perry County Health Department, a New Lexington School Board Member, and Perry County Commissioners. The team developed

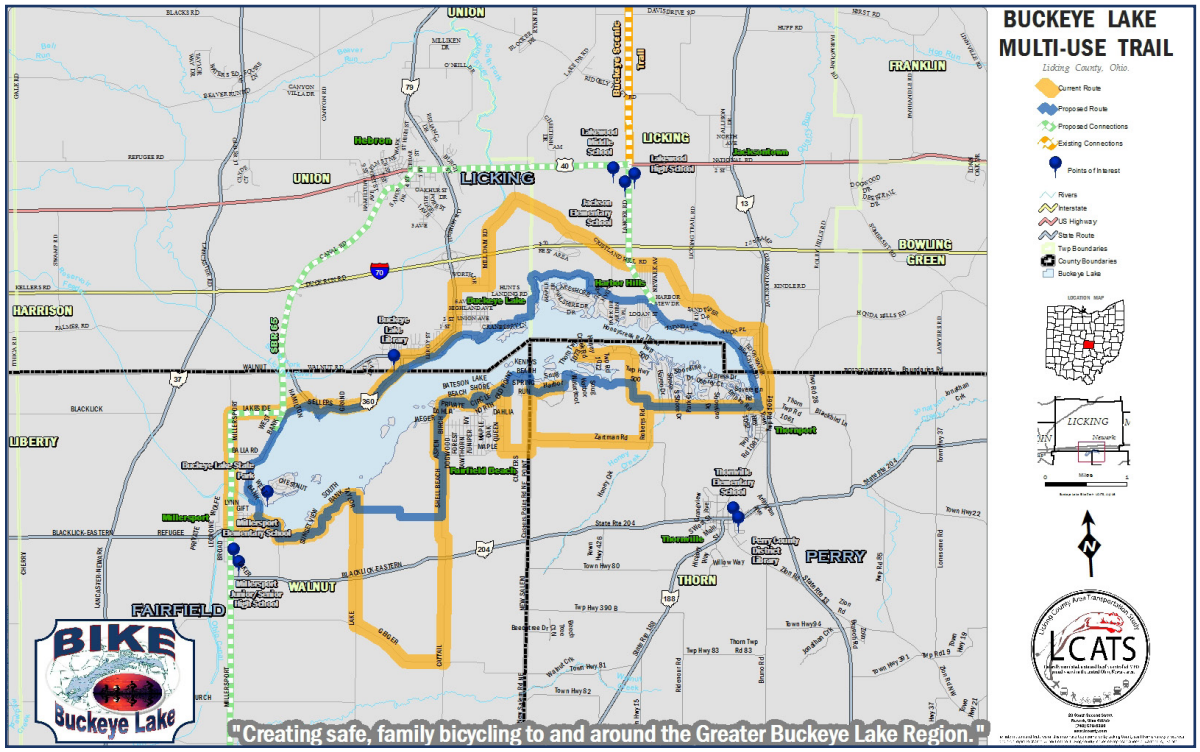
a plan to improve safety and increase the number of residents and visitors participating in active transportation.

Perry County has already achieved certain work plan objectives, including:

- Sharrows and signage installed on Tile Plant Road.
- Increasing the use of Your Move educational materials provided by ODOT.
- Developing a rural bike share program in New Lexington, which is expected to become a model for other areas in Ohio.
- Launching the process for this countywide active transportation plan.

Bike Buckeye Lake

Bike Buckeye Lake was established by residents of Fairfield, Licking, and Perry Counties in 2015 to coordinate a safe multi-use trail system linking towns, villages, and tourist locations around Buckeye Lake. These linkages will connect to surrounding communities, eventually feeding into the State and U.S. Bike route system in Ohio and beyond. A major regional destination for recreational bicycling and walking, Buckeye Lake is an important asset for Perry County to attract visitors and encourage residents to use active transportation. Bike Buckeye Lake hosts a group ride every year to raise awareness about bicycling and emphasize the need for expanding bicycle infrastructure. Tour de Buckeye Lake attracts 500 bicyclists from across Ohio every August. The route circumnavigates the six-mile-long Buckeye Lake, including a 25-mile main route with optional spurs.



Bike Buckeye Lake developed a Five-Year Strategic Plan in 2019 to promote the development and maintenance of a multi-use trail system around the lake. The proposed 22-mile trail network is partially built, with an existing four-mile segment spanning parts of the north shore along Buckeye Lake Dam in Fairfield and Licking Counties. The proposed alignment would extend this trail into Perry County, along the lake's eastern edge, and use a combination of trails and on-road segments to connect to the western edge and start of the existing trail in Fairfield County. Bike Buckeye Lake estimates the cost of developing the remaining trail system at approximately 12 million dollars, including segments in surrounding counties.

Infrastructure

Transportation System Overview

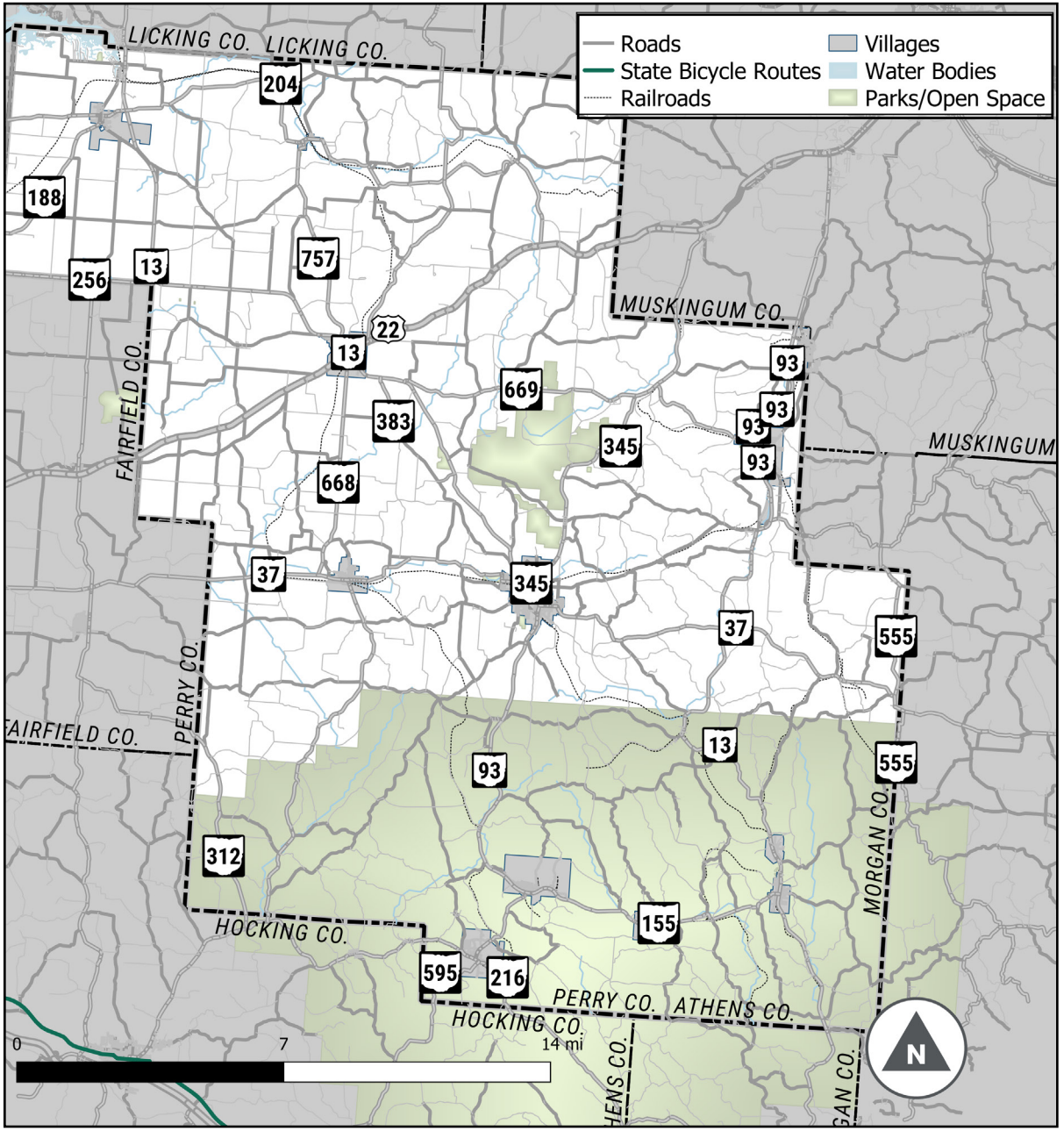
Perry County is on the cusp of Ohio's Appalachian region. Flat farmland and subtle terrain in the northern half of the county give way to rolling foothills farther south, which pose obstacles for street connectivity. In New Straitsville, Shawnee,

Corning, and other communities in southern Perry County, local street networks are disconnected and bisected by water features and steep terrain. Many communities are oriented along state routes that follow the relatively flat terrain of riverbeds or abandoned railroads. Local streets branch off from these main roads and up sharp inclines that are generally not suitable for bicycling. Most local roads in the small, rural communities throughout the county do not have sidewalks. Some villages are served by local libraries, post offices, and churches, but grocery stores and other daily needs are usually farther away. The difficult terrain combined with a lack of infrastructure and long distances to destinations make these areas inhospitable for people walking and bicycling.

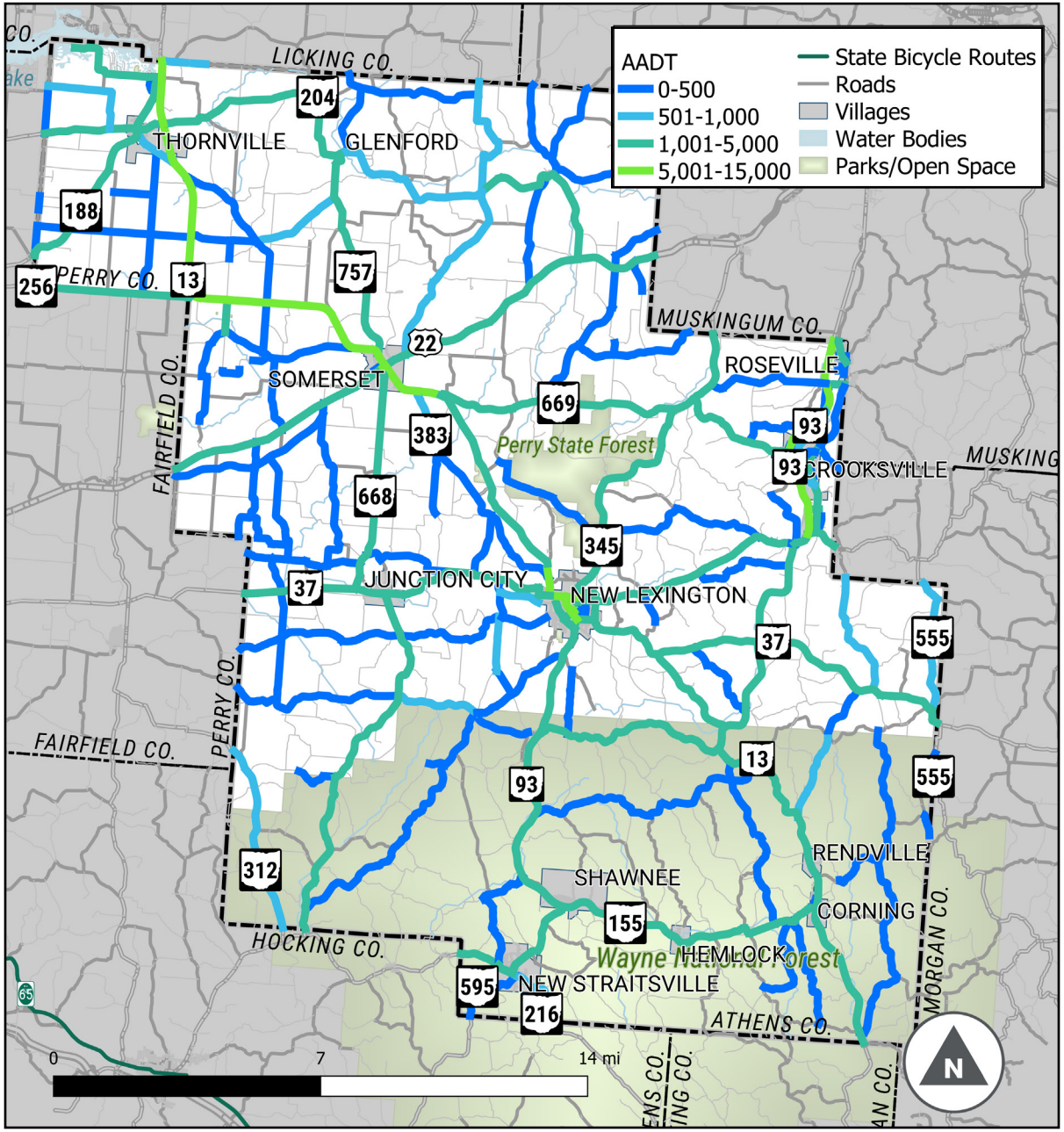
Perry County's transportation system is a reflection of its rural character. The majority of road miles in the county are low-volume local routes (county roads and local streets within village limits). Major roads connect Perry County to neighboring regions and the rest of the state. These include 16 state routes, comprising 373 miles of ODOT-maintained roads. US 22 is the only US route that traverses the county, traveling northeast from Lancaster, into Perry County and through Somerset, and onto Zanesville. Interstate 70 (I-70) is 1.5 miles from the county's northern border, connecting northern Perry County to Columbus and other destinations across Ohio.

Perry County's transportation system is a reflection of its rural character.

Map 3. Transportation System



Map 4. Traffic Volumes (Average Annual Daily Traffic)

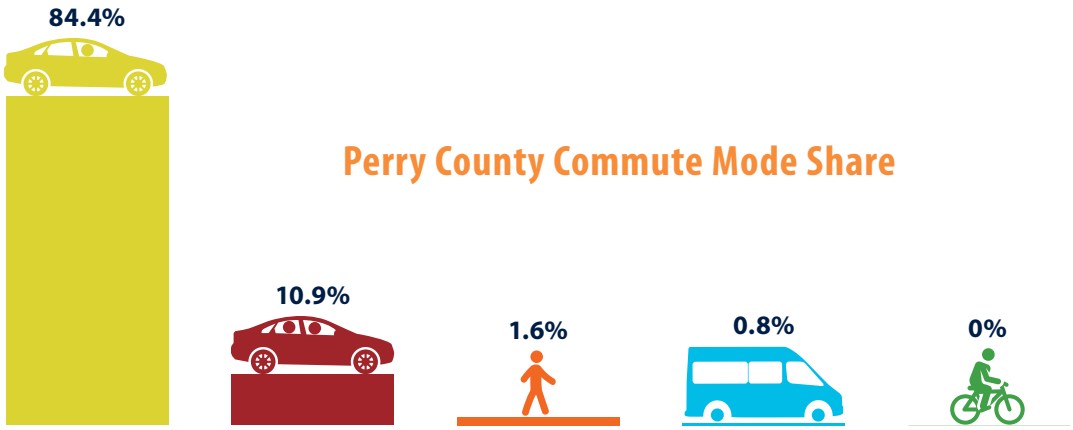


New Lexington, the county seat, is served by a moderately connected street grid, with Main Street, Broadway Street, and Carroll Street as the primary corridors. Other communities in the county are oriented along state routes that connect to small grids of residential streets. Beyond the developed areas in the county, the transportation network comprises rural county roads and state routes.

Most roads in Perry County carry less than 500 vehicles per day. In the county's larger communities, main roads carry between 6,000 and 9,500 vehicles daily. These include SR 13 through New Lexington and Somerset, SR 93 through Crooksville, and East Brown Street/Brook Street in New Lexington. These traffic volumes are similar to those of other rural counties in Central and Southeastern Ohio.

Travel Patterns

The US Census collects information on travel patterns, including methods of travel and commute times. In Perry County, these data reflect the auto-oriented transportation networks that many rural communities have. The vast majority of commuters (84%) drive alone. Alternative modes, such as walking, bicycling, and transit, are not prevalent for commuting in Perry County. Only 1.6% of people walk to work, 0.8% take transit, and virtually no residents of Perry County bicycle to work; these data do not capture people using alternative modes for other types of trips. The average commute time is 30 minutes and average vehicle ownership is two cars per household, similar to neighboring counties.



Perry County Commute Mode Share

These numbers may be disheartening for communities who want to encourage walking, bicycling, and transit, but looked at another way, they also indicate Perry County's vast potential for growth in active transportation. With the right infrastructure improvements, supportive policies, and programs in place, Perry County's communities can boost walking, bicycling, and transit mode share, becoming role models for other small towns and rural areas who want to diversify their transportation choices.

With the right infrastructure improvements, supportive policies, and programs in place, Perry County's communities can boost walking, bicycling, and transit mode share.

Bicycle Facilities

There are virtually no existing bicycle facilities or routes within Perry County. This is common in many rural parts of Ohio, due to long distances between destinations, difficult terrain, and auto-oriented transportation networks. Because Perry County is building its bicycle network from scratch, there is ample opportunity to introduce innovative bicycle infrastructure that can accommodate people of all ages and abilities, and strengthen connections between communities.

Regional Network

Ohio is establishing a network of State and US bicycle routes that will span over 4,000 miles, combining on and off-street facilities. There are no routes in Perry County, but several routes travel through adjacent counties: State Bike Routes (SBR) 65 and 33 in Fairfield County, SBR 65 in Hocking County, SBRs 65 and 20 in Athens County, SBR 20 in Morgan County, US Bike Route (USBR) 50 in Muskingum County, and SBR 65 and USBR 50 in Licking County. Ensuring that Perry County is not isolated from the statewide and national routes in Ohio should be a consideration during implementation of this Plan.

On-Road

Bicycles are permitted to ride on most roads in Perry County, but there are almost no on-road bicycle facilities in the county. Shared lane markings, or sharrows, on Tile Plant Road are an exception. On-road bicycle facilities, such as wide paved shoulders and bike lanes, are an important part of any bikeway network. They improve safety, encourage more ridership, connect people directly to their destinations, and provide a degree of separation from motorized traffic. They also increase the visibility of bicyclists, and signal to motorists that people are allowed – and encouraged – to bike on the road.

Sharrow on Tile Plant Road

Shoulder widths vary on state routes but are generally too narrow for bicycling

Off-Road

Perry County does not have any off-road bicycle facilities, such as shared use paths or trails. In the 1980's, the county had the opportunity to convert an abandoned railroad into a trail that would have spanned the county from north to south. This trail could have formed the basis of the county's active transportation network. Shawnee and other communities near the abandoned railroad could have benefited economically, joining the ranks of Xenia, Canal Fulton, and other communities across Ohio that have embraced trail tourism. At the time, the proposed trail in Perry County did not receive community support. This planning process could revive it. Nearby Athens County, with similar geography, features the 21-mile Hockhocking Adena Bikeway, connecting Nelsonville to Athens and Wayne National Forest. In Washington County, Marietta's riverfront trail is a valuable community asset, and bicycle advocates in Belpre are lobbying for a trail to connect with neighboring Parkersburg, West Virginia. Efforts are underway to connect the recently completed Buckeye Lake Dam trail to Perry County. Unpaved trails are also growing in popularity. In 2018, Wayne National Forest announced plans for an 88-mile single-track trail in Athens County. The Baileys Mountain Bike Trail System will connect to the Hockhocking Adena Bikeway and create a new recreation area as part of a sustainable economic development strategy for the surrounding communities. Given this activity, Perry County could capitalize on regional momentum around trail development and leverage state and federal funding sources to connect its active transportation network with neighboring communities.

Pedestrian Facilities

Recent Accomplishments

Several communities have made improvements to their pedestrian networks in recent years. In 2017, **Roseville** developed a multi-use walking trail in the City Park. In 2018, **Somerset** made multiple improvements to its pedestrian network, including ADA-accessible curb ramps, new sidewalks on Main Street and Columbus Street, new marked trails at the Finck's Nature Preserve, and new connecting sidewalks in areas without them. Other areas are planning additional active transportation routes around the county, including the Emerald Necklace Greenway in Somerset and the Shawnee Area Trail System. **New Lexington** has also improved walkability in recent years through crosswalks

Sidewalk Summary

Corning – Sidewalks exist on portions of Main Street and Valley Street but are lacking on smaller residential streets.

Crooksville – Crooksville has a well-developed sidewalk network, centered along Main Street and State Street,and including Buckeye Street, Maple Avenue, Winter Street, and other residential streets.

Glenford – Isolated sidewalk segments exist on Mill Street, Main Street, and Broad Street. There are sidewalks on both sides of High Street from Main Street to Glenford Elementary School.

Hemlock – There are no sidewalks in Hemlock.

Junction City – Junction City has sidewalks along Main Street and parts of Logan Street, its primary arteries. Hill Street, Poplar Street, Elizabeth Street, and several other residential roads have partial sidewalks.

Somerset – In Somerset, the sidewalk network extends for several blocks from the town square at Main Street and Columbus Street, but is interrupted by frequent gaps beyond the central historic district. Low-density, outlying neighborhoods in Somerset do not feature sidewalks at all.

Sample walking conditions on Carroll Street in New Lexington

Sample walking conditions on Carroll Street in New Lexington

and marked walking paths where sidewalks are lacking, and the village has plans for additional investments in its sidewalk network (see Sidewalk Summary). **Crooksville** and **Corning** recently received $750,000 and $375,000, respectively, in revitalization funding, some of which will go toward sidewalk improvements.

Sidewalks

Sidewalks are intended for exclusive use by pedestrians. They are adjacent to but separated from the roadway by a curb or buffer, such as a treelawn or drainage ditch. As roadway speeds and volumes increase, a greater degree of separation is needed to maintain a safe and comfortable walking environment for pedestrians. Sidewalks are the primary type of pedestrian infrastructure in most communities. Typically, sidewalk networks are supported by and connect to other facilities, such as curb ramps, crosswalks, warning signage and flashing beacons, refuge and crossing islands, shared use paths and sidepaths, and curb extensions. Most of these elements are lacking in Perry County but could be included with improved pedestrian facilities.

Sidewalks are confined largely to densely settled developments in Perry County, including New Lexington, Crooksville, Somerset, Roseville, and Thornville as well as some smaller isolated communities, such as New Straitsville, Shawnee, and Junction City.

Crosswalks

Marked crosswalks are rare outside town centers in Perry County. In New Lexington, there are

crosswalks along Main Street, Broadway Street, and Mill Street, where there are many shops and businesses within walking distance of homes. Crosswalks are missing on Carroll Street, which is dominated by fast food chains, auto shops, big box stores, and other auto-oriented developments. Carroll Street leads to New Lexington Elementary, Middle, and High Schools on Panther Drive, where pedestrian facilities are lacking entirely. Students who do walk to school have created a goat path from the Creno's Pizza and Church of Christ parking lots up the hill to Panther Drive and the school campus. Goat paths, or desire lines, are unpaved trails created by frequent use, typically along a roadway, that indicate a need for pedestrian facilities where none exist.

Trails

In addition to sidewalk networks, several communities do have off-road walking paths, including:

- Somerset Community Park – half-mile track
- Finck's Nature Preserve (Somerset) – three trails
- New Lexington Schools – quarter-mile track and one-mile paved walking trail
- Crooksville Schools – paved walking trail
- Southern Local Schools (Miller Middle and High Schools) – one-mile hiking trail
- Glenford – three quarter-mile trail

Newly installed ADA curb ramps in Somerset

Sample walking conditions in Crooksville

Sidewalk Summary, cont.

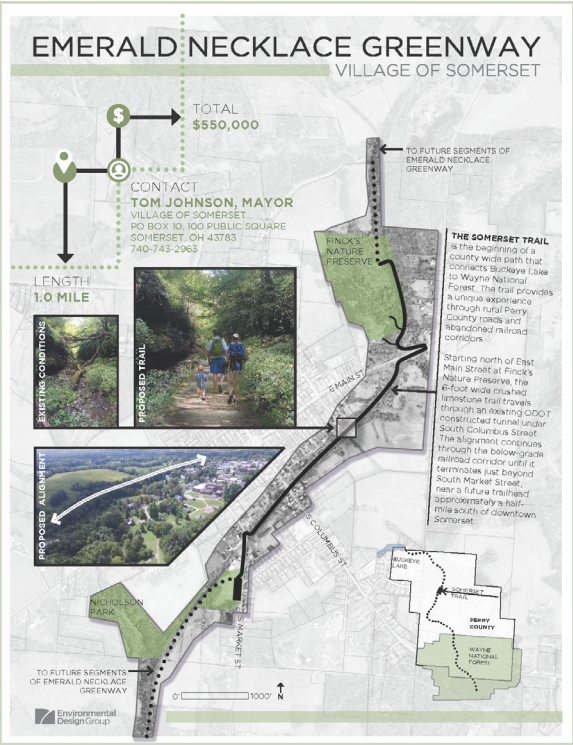
New Lexington – New Lexington has a large sidewalk network covering most neighborhoods and major roads. Carroll Street is an exception, which has no sidewalks north of East Broadway Street. There are frequent gaps in other parts of the network, with missing curb ramps and sections of sidewalk in disrepair. A streetscape project planned for the spring of 2020 will improve walking conditions along Main Street.

New Straitsville – SR 93 (Main and Clark Streets) in New Straitsville has sidewalks on at least one side of the street spanning almost the entire village. Beyond SR 93, there are no sidewalks within village limits.

Roseville – Main Street in Roseville has wide sidewalks on both sides in the center of town. Parts of 1st Street, Athens Road, and Zanesville Road have partial sidewalks.

Shawnee – Shawnee's sidewalk network extends along parts of Main Street and several blocks on other local streets.

Thornville – Thornville has a well-developed sidewalk network, covering both sides of its main corridors (Main Street and Columbus Street), and many residential streets as well. However, sidewalks are lacking entirely in the northern part of town.



The Emerald Necklace Greenway is a trail system planned to connect Buckeye Lake to Wayne National Forest. It would run through rural Perry County roads and abandoned railroad corridors. The Somerset portion of the trail is already built.

Alternative Modes

Bicycling and walking are not the only alternatives to private automobile travel. Ten percent of the population uses carpooling to commute to work, as is evidenced by the well-used park and ride lot at the SR 13 and I-70 interchange. Other alternative modes are described below.

Transit

Fewer than 1% of county residents use transit to commute to work, although expanding transit service could increase this number. Perry County does not have the high-density development needed to support frequent fixed-route transit service, but it does have rural transit options that are common in much of the state. There are plans for specified routes on certain days to popular destinations. Perry County Transit (PCT) is the area's demand response transit service. Over 40 employees and 31 vehicles serve the entire county, which is divided into seven zones with varying fares. The starting fare for trips within New Lexington is two dollars; trips outside of the New Lexington area range from $2.50 to $7.50, and there is a $10 fee for out of county trips. All trips must be scheduled at least 24 hours in advance and are subject to availability. Annual one-way trips total over 56,000. Fourteen other entities, including public agencies, private companies, and nonprofits provide direct transportation services in Perry County.

Data collected by PCT show that employment destinations are the most common trip type, followed by medical, shopping, and recreation. After Perry County Transit, Perry County Job and Family Services is the second-largest transportation provider in the county, with over 10,000 annual one-way trips. The Perry County Mobility Manager helps schedule trips and identify the best options for riders to get to their destination across all of these providers.

Because PCT generally operates during regular business hours, with extended hours on Wednesday evenings and very limited weekend service, it is not a viable transportation option to second and third shift jobs. Transportation costs are also a barrier due to high poverty rates in much of the county. PCT started installing bike racks on transit vehicles in 2019, which offers customers more flexibility in reaching their destinations.

All-Terrain Vehicles

All-terrain vehicles (ATVs) are used in Perry County for both transportation and recreation. Residents use ATVs to travel short distances within communities. Over 120 miles of public and private trails in Wayne National Forest attract recreational users from across the state and stimulate economic development in the southern part of the county. Capitalizing on this trend, local entrepreneurs have opened private trail networks and campgrounds, such as Begley's ATV Campground in New Straitsville and Tecumseh Trails near Shawnee. Five townships, including Roseville and New Straitsville, have passed ATV-friendly resolutions, allowing them to operate adjacent to roads where state law would normally restrict them. New Straitsville passed such a law in 2008, when Wayne National Forest sold over 21,000 ATV permits. Visitor numbers have dropped since then, due in part to increased enforcement against alcohol use on ATV trails and a lack of convenient fuel sources, but ATV tourism continues to be a mainstay of the local economy.

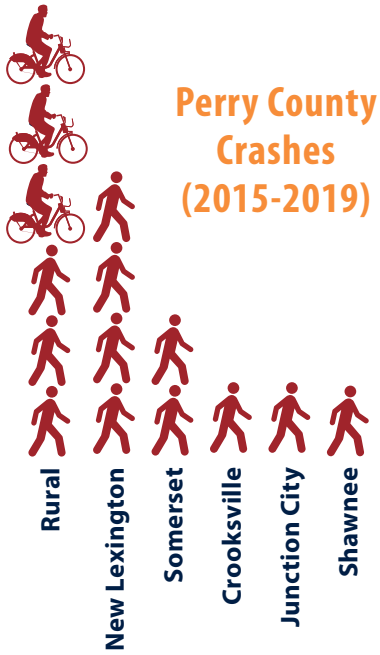
Crash Analysis

Five years of crash data were reviewed and mapped using ODOT's GIS Crash Analysis Tool; this exercise identified problem locations for people walking and bicycling. During the time period reviewed (2015-2019), there were 15 crashes involving bicyclists and pedestrians in Perry County, four of which resulted in serious injuries. Crashes occurred in New Lexington, Somerset, Crooksville, and Junction City, and on rural state routes in the northern part of the county. The majority of the crashes involved pedestrians; bicyclists were involved in only three crashes. The most common crash context was pedestrians in urban areas during early morning or evening hours.

Perry County Transit vehicle

ATV campground in New Straitsville

ATV signage in New Straitsville



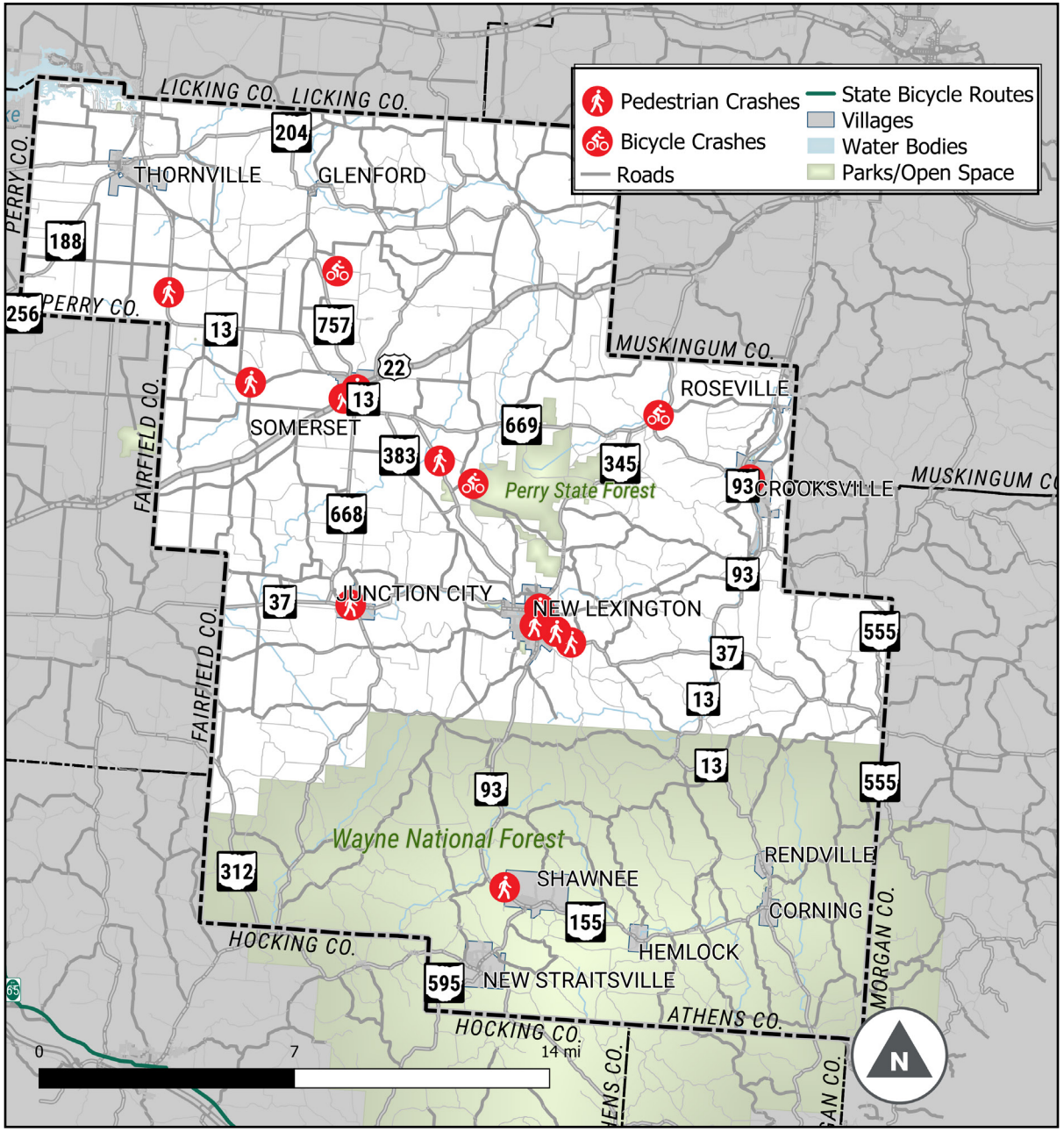
Gap Analysis and Change Catalysts

A gap analysis examines physical breaks in an active transportation network, such as sidewalk gaps or missing connections between bicycle facilities. It can also identify deficiencies in policy, planning, and programming that pose barriers to walking and bicycling. Because active transportation facilities are largely absent within Perry County, a comprehensive inventory of network gaps is unnecessary. Instead, this section discusses two countywide deficits that must be addressed to improve active transportation conditions. Changes to Perry County's auto-oriented culture and political priorities are critical to implementing this Plan.

Culture

During community engagement, many people expressed support for expanding walking and bicycling options in Perry County. Community members want to walk to schools, parks, libraries, grocery stores, and other destinations to meet their daily needs; however, very few residents walk or bicycle for transportation because they feel unsafe doing so. Speeding vehicles, lack of street lighting, difficult terrain, and long distances deter most people from using active transportation. In addition to these built environment barriers, social and environmental factors also discourage people from walking and bicycling in certain areas, especially for families with young children. As a result, most people drive to their destinations if they are able to do so. Some people related their

Map 5. Bicycle and Pedestrian Crashes



surprise when seeing pedestrians and bicyclists on the road, an indication of Perry County's auto-oriented culture.

Establishing a culture that is friendly to people walking and bicycling is a years-long process that requires strong leadership, infrastructure improvements, and a commitment to safety. Most importantly, communities must rethink the way in which they approach transportation planning. Auto-centric policies that prioritize vehicle throughput, level of service, and motorist convenience over all else are detrimental to vulnerable road users. Community leaders and decision makers across the county must recognize active transportation as a valid means of travel, invest in much-needed infrastructure, and establish programs and policies that encourage residents to walk and bike.

Priorities

Communities face a number of challenges, from healthcare access to unemployment, and while active transportation can play a key role in fixing these issues, it often falls to the bottom of the list. Most local governments in Perry County do not have the funding or ability to invest in active transportation improvements. There are notable exceptions, such as Somerset's Complete Streets policy. However, attention to improving walking and bicycling conditions is generally absent in many local communities. Given the lack of local resources available, countywide leadership through this plan is especially important.

Bicycle art on SR 13 between Somerset and New Lexington

4

Recommendations

Recommendations

Recommendations for this plan are divided into two categories: 1) infrastructure and 2) policy and programs. This chapter focuses primarily on infrastructure recommendations at countywide and local levels. Programs and policies that support active transportation are suggested at the end of the chapter.

Infrastructure Recommendations

Infrastructure recommendations for this plan are divided into two parts based on geography and user type: regional routes focus on bicyclists, and local routes focus on pedestrians. Regional routes traverse the entire county, or large portions of it; they provide long-distance bicycle connections between communities and also facilitate local bicycle trips in communities along those routes. Local routes focus on improving pedestrian accommodations within communities, linking everyday destinations to residential neighborhoods. Bicycle recommendations are discussed first, followed by pedestrian recommendations.

Bicycle Facility Recommendations

Before detailing the specific recommendations to improve bicycling in Perry County, several elements of bikeway planning are described below. Completing each step in the planning process results in a more informed and nuanced set of recommendations for communities. It also ensures that this Plan adheres to national guidance on bikeway planning while recognizing and responding to the unique bicycling needs in Perry County's small towns and rural areas.

Facility Toolkit

Countywide recommendations include three bicycle facility types to accommodate riders of varying ability and in different riding environments, shown in Table 1.

While there are many variations of bikeways, from standard bike lanes to trails, the three facility types described on the following pages are most appropriate for accommodating a broad range of bicyclists in rural areas.

Design Users

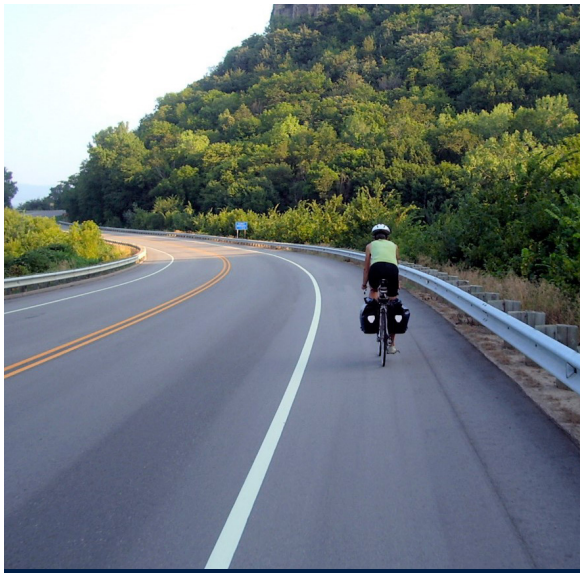
There are several important factors to consider during bicycle facility selection, but the final decision depends in large part on the types of bicyclists that are expected on a particular route. Understanding which types of bicyclists feel comfortable using a given facility is critical to building a safe, convenient, and well-used network. This section discusses the three types of bicyclists and how their confidence levels inform facility selection.

Understanding which types of bicyclists feel comfortable using a given facility is critical to building a safe, convenient, and well-used network.

Research shows that the provision of low-stress, connected bicycle networks improves bicyclist safety and encourages bicycling for a broader range of user types. The most common characteristics used to classify bicyclists are comfort level, bicycling skill and experience, age, and trip purpose. These characteristics can be used to develop generalized profiles of various bicycle users and trips, also known as "design users," which inform bicycle facility design. However, people may not fit into a single user profile, and a bicyclist's profile may change in a single day; for example, a commuter bicyclist who is comfortable bicycling within a bicycle lane when traveling alone may prefer to bicycle on a sidewalk or shared use path when traveling

Source: Bike Buckeye Lake

Shared Use Path



Paved Shoulder

Shared Road

Signed Route

Table 1. Bicycle Facility Types

	Shared Use Trails and Sidepaths	Paved Shoulders	Signed Routes/Shared Roads
Description	Shared-use trails and sidepaths are typically designed as two-way facilities physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. Shared use paths provide a low-stress and comfortable travel environment for users of all confidence levels. They are used for recreational opportunities in addition to transportation. Shared use paths that run parallel to roads, referred to as sidepaths, are preferred when traffic volumes surpass 6,500 AADT.	Paved shoulders provide additional pavement width outside of the travel lanes that reduce crashes, aid maintenance, and provide space for bicyclists and pedestrians (although they typically do not meet accessibility requirements for pedestrians). The majority of recommendations in this Plan are paved shoulders. Benefits include reducing pavement edge deterioration, accommodating oversize and maintenance vehicles, and providing emergency refuge for public safety vehicles and disabled vehicles. In this plan, paved shoulder recommendations include signage as well as increased pavement width.	Where traffic volumes and speeds are low, many bicyclists can comfortably share lanes with motor vehicles. In rural areas, no treatments are usually needed, although signage is beneficial. Signed routes may include warning signage, regulatory signage, and wayfinding or directional signage.
Intended Users	Bicyclists and Pedestrians	Bicyclists	Bicyclists
Context	Urban and Rural	Rural and Urban Periphery	Urban and Rural
Posted Speed Limit	Urban: Any speed (typically 30 mph or higher) Rural: Any speed (typically 55 mph or higher)	Any speed (typically 45 mph or higher)	Urban: 25 mph or lower (preferred); 35 mph or lower (acceptable) Rural: 55 mph or lower
Motor Vehicle Traffic Volume	Urban: Any volume (typically 15,000 ADT or greater) Rural: Any volume (typically 6,500 ADT or greater).	6,500 ADT or lower (preferred) Any volume (acceptable) Shoulder width to accommodate bicyclists depends on traffic volume. See figures on page 36 for guidance on selecting appropriate width.	Urban: 3,000 ADT or lower (preferred) 5,000 ADT or lower (acceptable) Rural: 1,500 ADT or lower*
Other Considerations	Sidepaths should be at least 10 feet wide (wider where higher bicycle and pedestrian traffic is expected, e.g., urban areas). Special consideration must be given to the design of roadway crossings to increase visibility, clearly indicate right-of-way, and reduce crashes. Alternative accommodations should be sought when there are many intersections and commercial driveway crossings per mile.	Provides more shoulder width for roadway stability. Shoulder width should be dependent on characteristics of the adjacent motor vehicle traffic. Placement of the rumble strip is critical to providing usable space for bicyclists and pedestrians.	May be used in conjunction with wide outside lanes. Explore opportunities to provide parallel facilities for less confident bicyclists. Where motor vehicles are allowed to park along shared lanes, place markings to reduce potential conflicts with opening car doors. On low speed (<25 mph) low traffic (<3,000 ADT) streets, traffic calming and diversion can be used to slow traffic or create a bicycle boulevard.

*Due to constrained terrain and limited resources for implementation, certain proposed signed routes in Perry County exceed this threshold. In these cases, it is better to install signage as a short-term measure and consider long-term alternatives that offer more separation from motor vehicles, such as paved shoulders and shared use paths.

with children. The following sections examine how comfort, skill, and age may affect bicyclist behavior and preference for different types of bicycle facilities.

Selecting a design user profile is often the first step in assessing a street's compatibility for bicycling. The design user profile should be used to select a preferred type of bikeway treatment for different contexts.

People who bicycle are influenced by their relative comfort operating with or near motor vehicle traffic. Many people are interested in bicycling for transportation, but are dissuaded by the potential for stressful interactions with motor vehicles. Of adults who have stated an interest in bicycling, research has identified three types of potential and existing bicyclists, [23] which are explained below and shown in Figures 1 and 2. Children were not included in the research and require special consideration in the design of bicycle facilities.

Highly Confident Bicyclist

Highly Confident Bicyclists are the smallest group identified by research. While some of these individuals bicycle less frequently, when they do, they prefer direct routes and do not avoid operating in mixed traffic, even on roadways with higher motor vehicle operating speeds and volumes. Many also enjoy bikeways separated from traffic. Similarly, they may avoid bikeways which they perceive to be less safe, too crowded with pedestrians or other slower moving bicyclists, or require deviation from their preferred route.

Somewhat Confident Bicyclist

Somewhat Confident Bicyclists are the next-smallest group. They generally bicycle more than Highly Confident Bicyclists, and are comfortable on most types of bicycle facilities. They have a lower tolerance for traffic stress than the Highly Confident Bicyclist and generally prefer striped or separated bike lanes on major streets and low-volume residential streets, but they are willing to tolerate higher levels of traffic stress for short distances.

Figure 1. Bicyclist confidence levels

Interested but Concerned Bicyclist

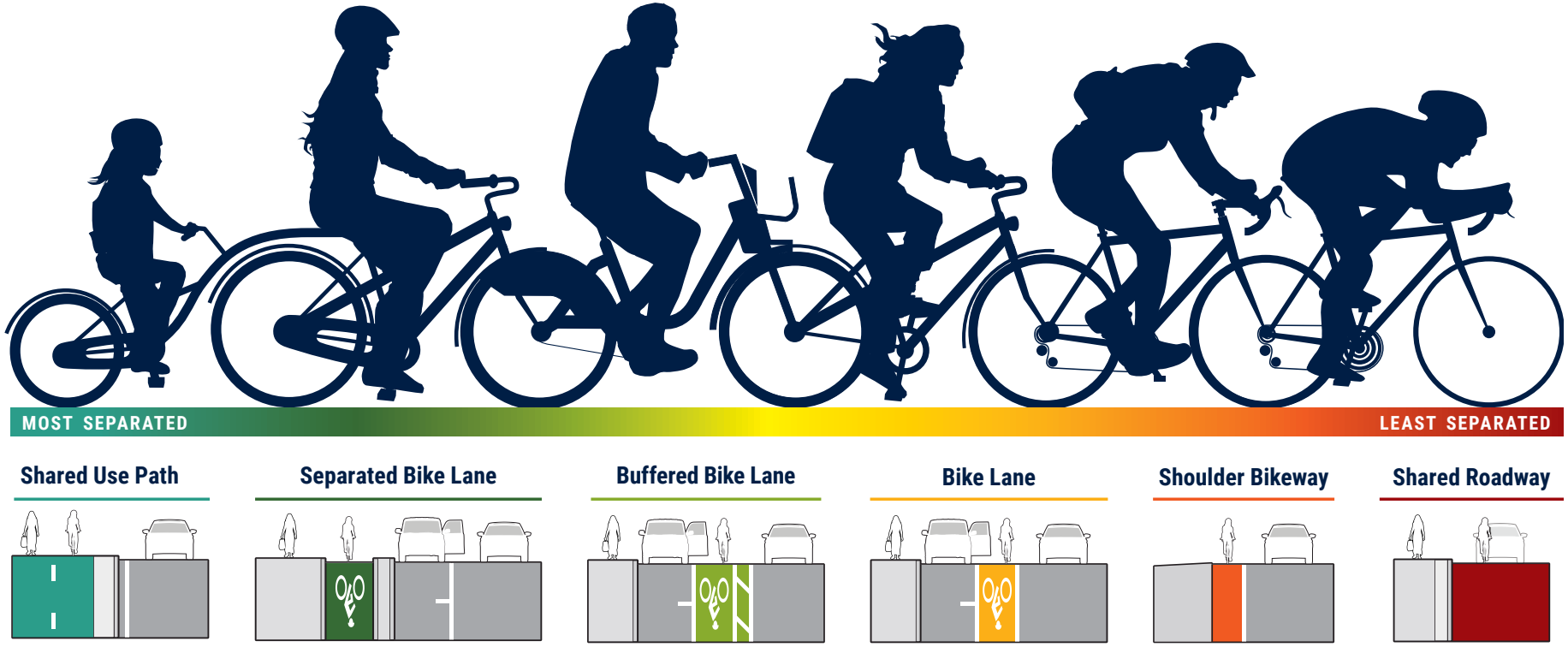
Interested but Concerned Bicyclists are the largest group identified by the research and have the lowest tolerance for traffic stress. Bicycling by this group is suppressed in many communities, as those who fit into the group avoid bicycling except where they have access to networks of separated bikeways or very low-volume streets with safe roadway crossings. This group tends to bicycle for recreation but not transportation. To maximize the potential for bicycling as a viable transportation option, it is important to design bicycle facilities to meet the needs of the Interested but Concerned Bicyclist category. This is generally the recommended design user profile.

Network Rationale and Facility Selection Methodology

Bicycle networks should be continuous, connect seamlessly across jurisdictional boundaries, and provide access to destinations. Anywhere a person would want to drive to for utilitarian purposes, such as commuting or running errands, is a potential destination for bicycling. As such, planning connected low-stress bicycle networks is not achieved by simply avoiding motor vehicle traffic. Rather, planners should identify solutions for lowering stress along higher traffic corridors so that bicycling can be a viable transportation option for the majority of the population.

Various methodologies can be used to select the appropriate bicycle facility based on roadway width, traffic volumes, speeds, and other considerations. Bicycle facility selection methodology used in this plan relies on the forthcoming American Association of State Highway Transportation Officials Guide for the Development of Bicycle Facilities and a similar model used in the Iowa Department of

Figure 2. Bicyclist facility preferences

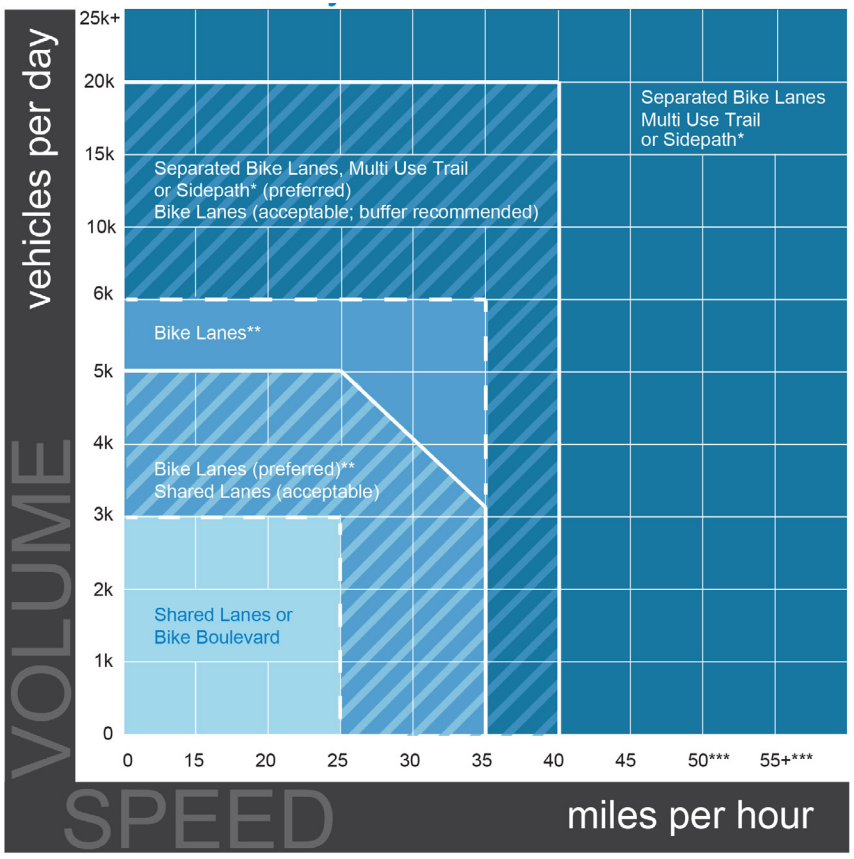


Transportation's Bicycle and Pedestrian Long-Range Plan; the latter focuses specifically on rural areas.

To select an appropriate facility based on traffic volume and speed, consult the figures below. These matrices include preferred and acceptable values for each facility type. Designers should utilize forecast traffic volumes if available. Additionally, designers should default to selecting the preferred facility when possible.

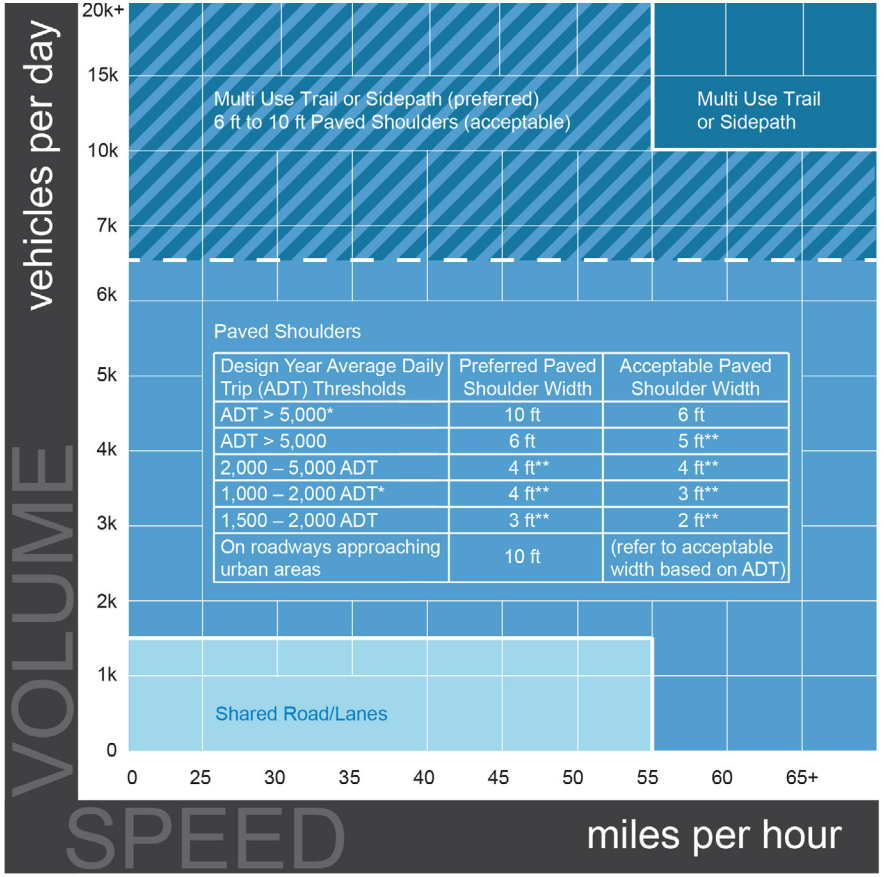
The typical bicyclist type on roadways in rural areas is the recreational bicyclist. Signed routes with shared lanes, paved shoulders, and shared use paths are appropriate bikeway types in rural areas. Shoulder width is an important consideration to accommodate these bicyclists based on traffic volumes and posted speeds in the rural context. It is often desirable to provide shared use paths along rural roads with higher speeds (45 miles per hour or greater). This is especially true for locations that attract larger volumes of recreational bicyclists or for routes

Figure 3. Urban Bicycle Facility Selection Matrix



*To determine whether to provide a multi use trail/sidepath or separated bike lane, consider pedestrian and bicycle volumes or, in the absence of volume, consider land use.
**Advisory bike lanes may be an option where traffic volume < 4,000 ADT
***Speeds 50 mph or greater in urban areas are typically found in urban/rural transition areas.

Figure 4. Rural Bicycle Facility Selection Matrix



*On roadways where a higher level of bicycle traffic is expected (e.g., bike routes identified by cities, counties, RPAs, and MPOs, as well as official US Bicycle Routes and national trails).
**Paved width exclusive of rumble strips.

that serve as key bicycle connections between destinations. Paths are also an important consideration for families and children making connections in rural areas. Shared use paths are also generally preferred on rural roads with Annual Average Daily Traffic above a certain threshold (e.g. above 6,000 or 7,000 AADT depending on context). In highly constrained conditions where sufficient shoulder width cannot be achieved, it is preferable to provide a narrow shoulder rather than no shoulder.

Urban areas in Perry County may experience a mix of recreational riders and utility riders: those making short trips around town for commuting, running errands, etc. These riders may be less confident than the typical recreational rider, and should be accommodated accordingly.

Countywide Bicycle Recommendations

Countywide bicycle recommendations include 80 miles of signed routes/shared roads, 90 miles of paved shoulders, and 40 miles of shared use paths, totaling 210 miles of proposed improvements. With the exception of a major north-south trail (the Emerald Necklace Greenway), countywide recommendations focus exclusively on bicycling. Walking trips are simply not feasible between most communities due to distance and terrain. Countywide recommendations are labeled RR for Regional Route in the following tables and maps. County routes consist of ten long-distance bicycle routes composed of 37 unique segments. Recommendation tables display detailed information on all proposed countywide routes by route segment, including location, extents (beginning and end points), facility type, project description, connections to other facilities, and priority. The Connections column denotes connections to other facilities, identifying other proposed projects that connect to the facility in question, as well as connections to the existing network. Map IDs corresponds to the route labels in the maps. Due to their length, countywide recommendations are divided into segments, which also allows for a more nuanced prioritization approach (different segments of the same route can receive unique prioritization scores; see Chapter 5).

The proposed 22-mile trail loop around Buckeye Lake is pictured on the recommendations maps, but is not included in the tables or total mileage of recommendations.

Countywide bicycle recommendations include 210 miles of proposed improvements.

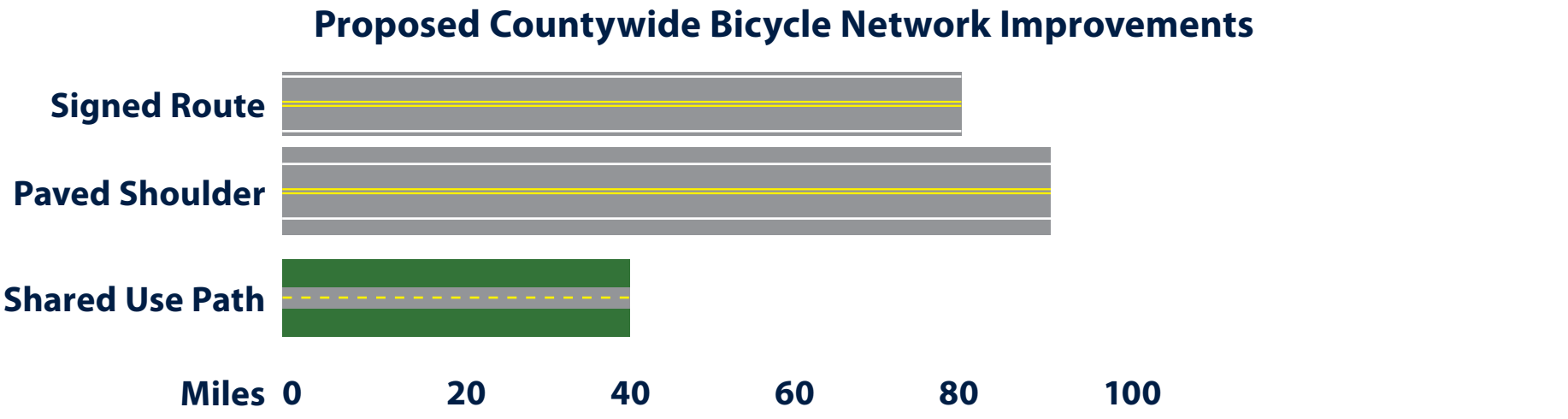


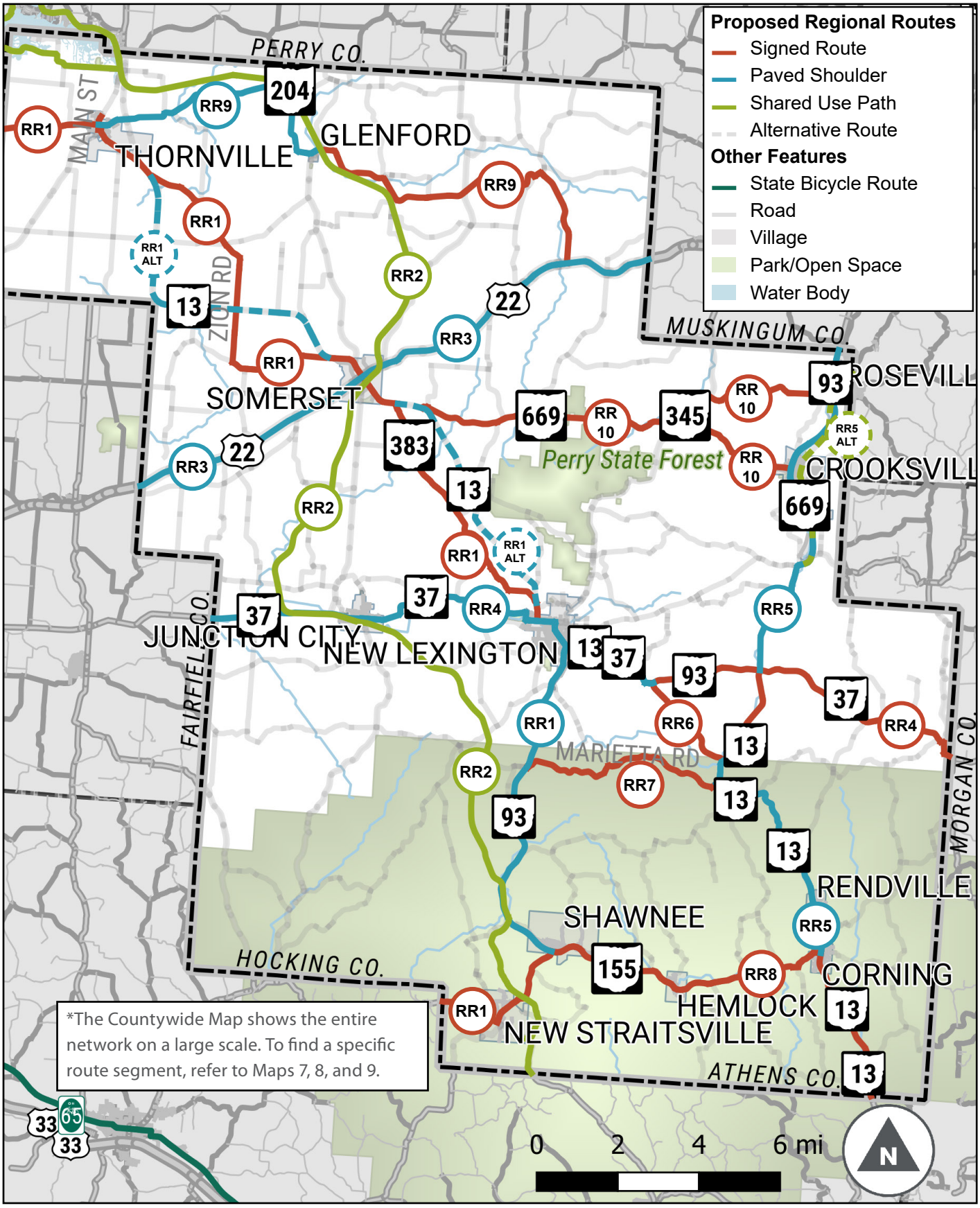
Table 2. Countywide Bicycle Recommendations (Regional Routes)

Map ID	Segment ID	Location	Extents	Facility	Description	Connections	Priority
RR1	1A	SR 93	Hocking County Line to New Straitsville	Signed Route	Signed route continues west on SR 93, connecting New Straitsville and Shawnee to Logan and SUSBR system on a low-volume signed route (maximum AADT in Perry County segment is 1,574).	1B	3
	1B	SR 93	New Straitsville to Shawnee	Paved Shoulders	Short segment with paved shoulders connects New Straitsville and Shawnee via medium-volume signed route (maximum AADT 2,085).	1A, 1C, 2B, 8A	13
	1C	SR 93	Shawnee to New Lexington	Paved Shoulders	Paved shoulders connect Shawnee to New Lexington via medium-volume signed route (maximum AADT 2,785).	1B, 2B, 2C, 4B, 4C, 8A, RR7	6
	1D	SR 13, Old Somerset Rd/ SR 383, SR 13	New Lexington to Somerset	Signed Route	Signed route connects New Lexington to Somerset via low-volume signed route (maximum AADT 753); provides low-stress alternative to SR 13.	1E, 2D, 2E, 3A, 3B, 4B	24
	1D ALT	SR 13	New Lexington to Somerset	Paved Shoulders	Potential long-term alternative to RR1D, paved shoulders on SR 13.	10A, 1D	26
	1E	SR 13, Rush Creek Rd, Zion Rd	Somerset to Thornville	Signed Route	Signed route connects Somerset to Thornville via low-volume signed route on local roads (maximum AADT 277); provides low-stress alternative to SR 13.	1D, 1F, 3A, 3B, 9A	11
	1E ALT	SR 13	Somerset to Thornville	Paved Shoulders	Potential long-term alternative to RR1E, paved shoulders on SR 13.	1E	4
	1F	SR 204	Thornville to Fairfield County Line	Signed Route	Signed route continues west on SR 204, connecting Thornville to Millersport in Fairfield County and SUSBR system on low-volume signed route (maximum AADT 1,260). Connects to existing Buckeye Lake network.	1E, 9A	15
RR2	2A	Abandoned Rail Right-of-Way	Hocking to County Line New Straitsville	Shared Use Path	Shared Use Path (Emerald Necklace Greenway) attracts recreational users and long distance commuters traveling north-south through Perry County.	2B	30
	2B	Abandoned Rail Right-of-Way	New Straitsville to Shawnee	Shared Use Path	Shared Use Path (Emerald Necklace Greenway) attracts recreational users and long distance commuters traveling north-south through Perry County. Provides low-stress alternative to RR1B.	1B, 1C, 2A, 2C	31
	2C	Abandoned Rail Right-of-Way	Shawnee to Junction City	Shared Use Path	Shared Use Path (Emerald Necklace Greenway) attracts recreational users and long distance commuters traveling north-south through Perry County. Provides partial low-stress alternative to RR1C and RR4B.	1C, 2B, 2D	21

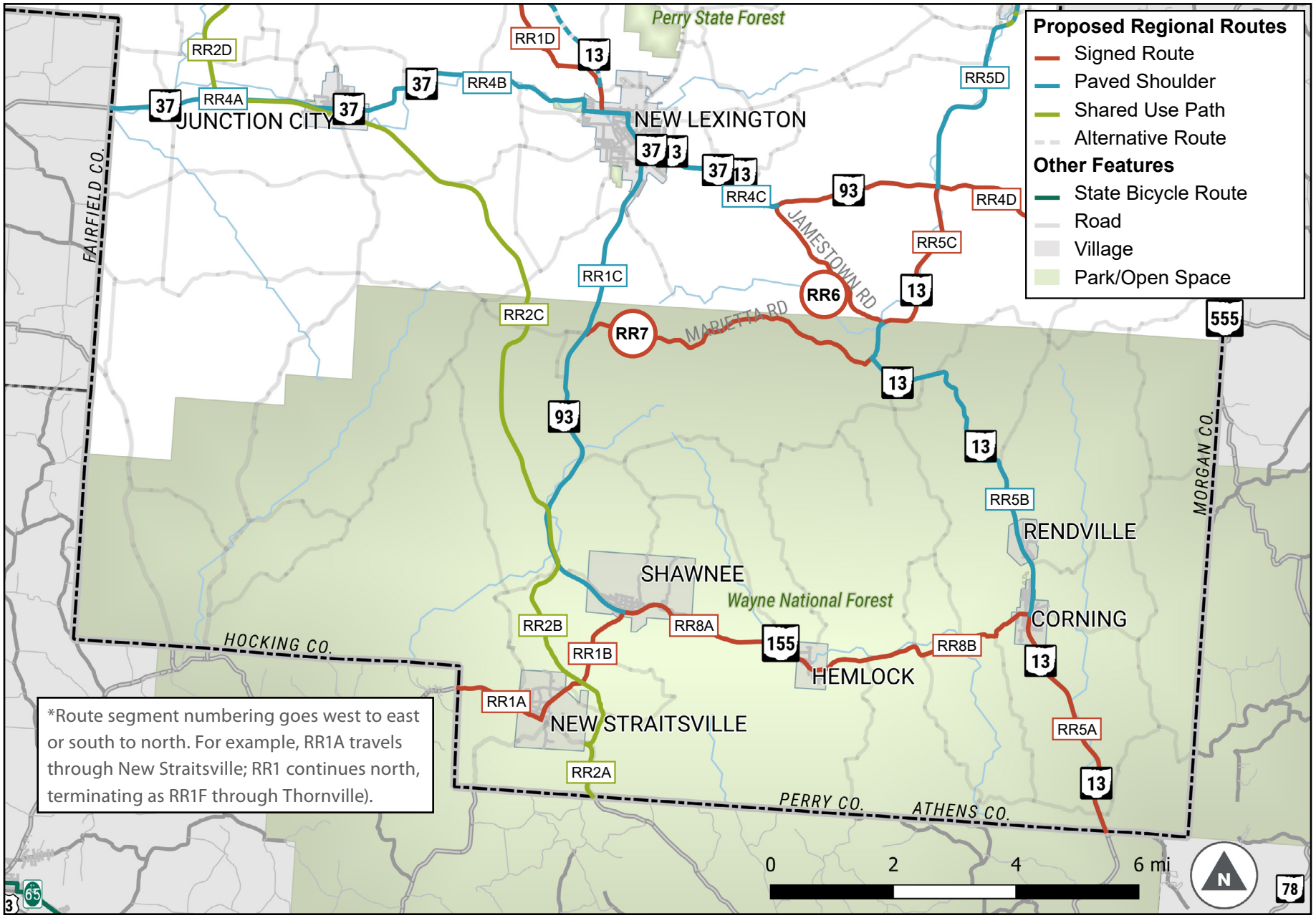
Map ID	Segment ID	Location	Extents	Facility	Description	Connections	Priority
	2D	Abandoned Rail Right-of-Way	Junction City to Somerset	Shared Use Path	Shared Use Path (Emerald Necklace Greenway) attracts recreational users and long distance commuters traveling north-south through Perry County.	1D, 2C, 2E, 4A	37
	2E	Abandoned Rail Right-of-Way	Somerset to Glenford	Shared Use Path	Shared Use Path (Emerald Necklace Greenway) attracts recreational users and long distance commuters traveling north-south through Perry County.	1D, 2D, 3B, 9A, 9B	36
	2F	Abandoned Rail Right-of-Way	Glenford to Licking County Line	Shared Use Path	Shared Use Path (Emerald Necklace Greenway) attracts recreational users and long distance commuters traveling north-south through Perry County.	2E	32
RR3	3A	US 22	Fairfield County Line to Somerset	Paved Shoulders	East-west route connects Somerset to Lancaster and SBR 65 in Fairfield County; widened shoulders accommodate bicyclists on medium-volume road (maximum AADT 2,468).	1D, 1E, 2D, 3B	9
	3B	US 22	Somerset to Muskingum County Line	Paved Shoulders	East-west route connects Somerset to Muskingum County; widened shoulders accommodate bicyclists on medium-volume road (maximum AADT 3,279).	1D, 1E, 2E, 3A, 9B	14
RR4	4A	SR 37	Fairfield County Line to Junction City	Paved Shoulders	East-west route connects Junction City to Lancaster and SBR 65 in Fairfield County; widened shoulders accommodate bicyclists on medium-volume road (prevailing AADT 4,113).	2D, 4B	7
	4B	SR 37	Junction City to New Lexington	Paved Shoulders	East-west route connects Junction City to New Lexington; widened shoulders accommodate bicyclists on medium-volume road (maximum AADT 4,185).	1C, 1D, 4A	8
	4C	SR 13/37/93	New Lexington to Jamestown Rd	Paved Shoulders	East-west route connects New Lexington to eastern Perry County and Morgan County; widened shoulders accommodate bicyclists on medium-volume road (maximum AADT 4,437).	1C, 4D, RR6	2
	4D	SR 13/37/93	Jamestown Rd to Morgan County Line	Signed Route	East-west route connects New Lexington to eastern Perry County and Morgan County on medium-volume signed route (maximum AADT 2,057).	4C, 5C, 5D, RR6	12
RR5	5A	SR 13	Athens County Line to Rendville and Corning	Signed Route	Low-volume signed route connects southern Perry County to Athens County with potential connections to SBRs 20 and 65 (maximum AADT 1,804).	5B, 8B	10
	5B	SR 13	Rendville and Corning to Jamestown Rd	Signed Route	Medium-volume signed routes connects Rendville and Corning to RR6, continuing to New Lexington (maximum AADT 2,413). Partial long-term alternative: sidepath on abandoned rail right-of-way along SR 155 along SR 13 north of Rendville.	5A, 5C, 8B, RR6, RR7	29
	5C	SR 13	Jamestown Rd to SR 37	Signed Route	Low-volume signed routes connects Rendville and Corning to RR4 and Crooksville (maximum AADT: 1,563).	4D, 5B, 5D, RR6	28

Map ID	Segment ID	Location	Extents	Facility	Description	Connections	Priority
	5D	SR 93/669	SR 37 to Crooksville	Paved Shoulders	North-south route connects Crooksville to RR4; widened shoulders accommodate bicyclists on high volume road (maximum AADT 7,743).	4D, 5C, 5E	27
	5E	SR 93	Crooksville to Roseville	Paved Shoulders	North-south route connects Crooksville to Roseville; widened shoulders accommodate bicyclists on high volume road (maximum AADT 6,191).	10B, 5D	5
	5D/E ALT	SR 93, Ceramic Rd	Crooksville to Roseville	Shared Use Path	Preferred long-term alternative: shared use path along SR 93 and Ceramic Rd through Crooksville, continuing onto Roseville.	10B	33
RR6	RR6	Jamestown Rd	SR 13/37/93 to SR 13	Signed Route	Alternative route to RR4 and RR5, connecting New Lexington to Rendville and Corning via low-volume local road (maximum AADT 1,920).	4C, 4D, 5B, 5C	35
RR7	RR7	Marietta Rd	SR 93 to SR 13	Signed Route	Minor connection on low volume route between RR1 and RR5 (maximum AADT 1,491).	1C, 5B	23
RR8	8A	SR 155	Shawnee to Hemlock	Signed Route	Low-volume signed route connects Shawnee to Hemlock (maximum AADT 1,282). Long-term alternative: sidepath on abandoned rail right-of-way along SR 155.	1B, 1C, 8B	16
	8B	SR 155	Hemlock to Corning	Signed Route	Low-volume signed route connects Hemlock to Corning (maximum AADT 1,282). Long-term alternative: sidepath on abandoned rail right-of-way along SR 155.	5A, 5B, 8A	20
RR9	9A	SR 204	Thornville to Glenford	Paved Shoulders	East-west route connects Thornville to Glenford; widened shoulders accommodate bicyclists on medium-volume road (maximum AADT 1,552). Preferred alternative: signed route (traffic volumes are only slightly above the threshold for warranting paved shoulders).	1E, 1F, 2E, 9B	19
	9B	SR 204	Glenford to US 22	Signed Route	Route connects Glenford to US 22 and Northeastern Perry County. Signed route accommodates bicyclists on low-volume road (maximum AADT 1,143).	2E, 3B, 9A	18
RR10	10A	SR 669, SR 345	SR 13 to SRs 345/669 Intersection	Signed Route	East-west route connects Roseville and Crooksville to Somerset. Signed route accommodates bicyclists on low-volume road (prevailing AADT 1,279). Widened shoulders could be installed on the short segment on SR 345, where volumes reach 3,240.	1D ALT, 10B, 10C	34
	10B	SR 345, Old Rainer Rd	SR 669 to Crooksville	Signed Route	East-west route connects Roseville to Somerset. Signed route accommodates bicyclists on low-volume road (prevailing AADT 287).	10A, 10C, 5E	22
	10C	SR 669	SRs 345/669 Intersection to Crooksville	Signed Route	East-west route connects Crooksville to Somerset. Signed route accommodates bicyclists on low-volume road (prevailing AADT 1,374).	10A, 10B	25

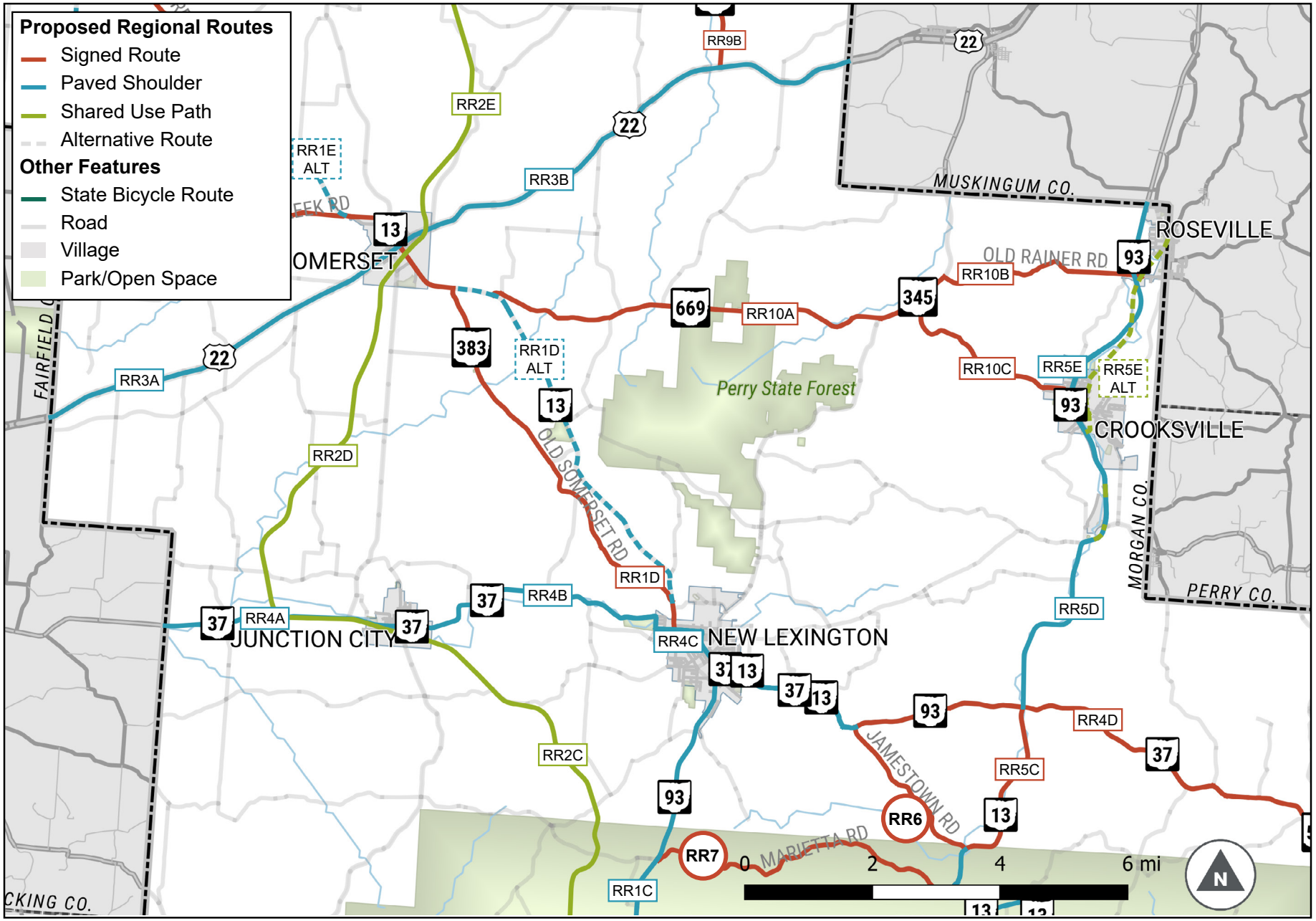
Map 6. Countywide Recommendations*



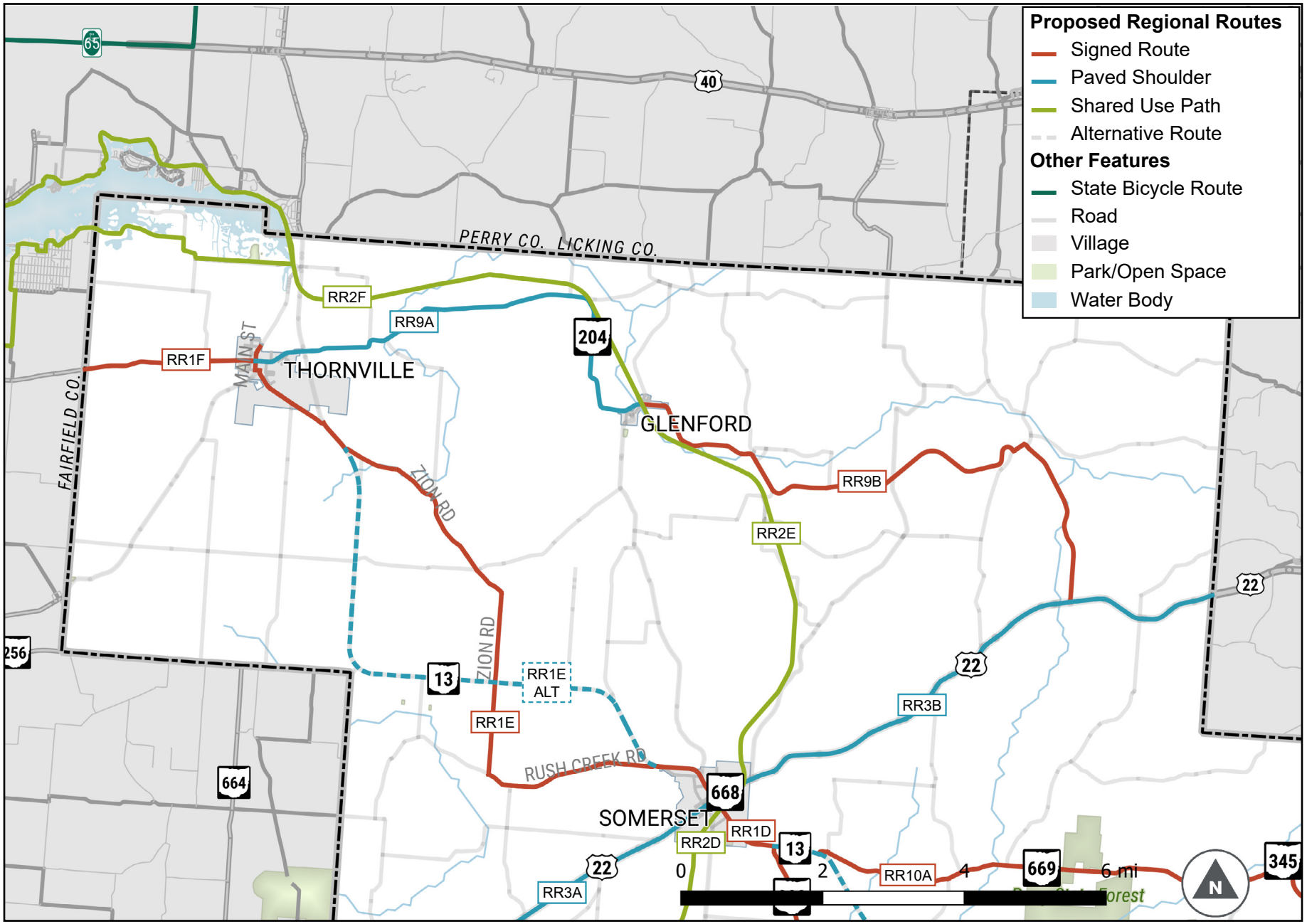
Map 7. Southern Perry County Recommendations*



Map 8. Central Perry County Recommendations



Map 9. Northern Perry County Recommendations



Local Recommendations: Pedestrian Priority Areas

During a public workshop led by the Ohio Department of Health prior to the start of this planning process, participants identified a lack of pedestrian facilities in Perry County's larger communities. Addressing these gaps is as an important focus of infrastructure recommendations. To respond to stakeholders' priorities and ensure that this plan includes an equitable distribution of recommendations for both bicycle and pedestrian facilities, the project team developed a set of Pedestrian Priority Areas (PPA). PPAs are higher density settlements with compact built environments and many destinations within walking distance. They typically have some pedestrian accommodations in place, but existing infrastructure often suffers from disrepair, gaps, and lack of connectivity.

Perry County's larger communities and certain travel corridors within these communities were identified for priority pedestrian improvements. The tables and maps in this section display detailed information on all proposed PPA projects, including location, extents, facility type, project description, connections to other facilities, and priority.

Facility Types

Pedestrian infrastructure is primarily provided in the form of sidewalks or multi-use trails. However, there are many unique treatments that can be implemented to improve the pedestrian experience, encourage more walking, and decrease the number of crashes that occur.

PPA recommendations include five treatments to improve the walking environment in small town and rural contexts. These facility types are described in Table 3. Of particular note are sidewalks, the most common pedestrian facility type. The presence of sidewalks on both sides of the street corresponds to an approximately 88% reduction in "walking along road" pedestrian crashes.

Nine miles of pedestrian facilities are proposed for PPAs in Perry County, as well as 20 spot treatments, shown in the graphic below.

Proposed Pedestrian Priority Area Improvements

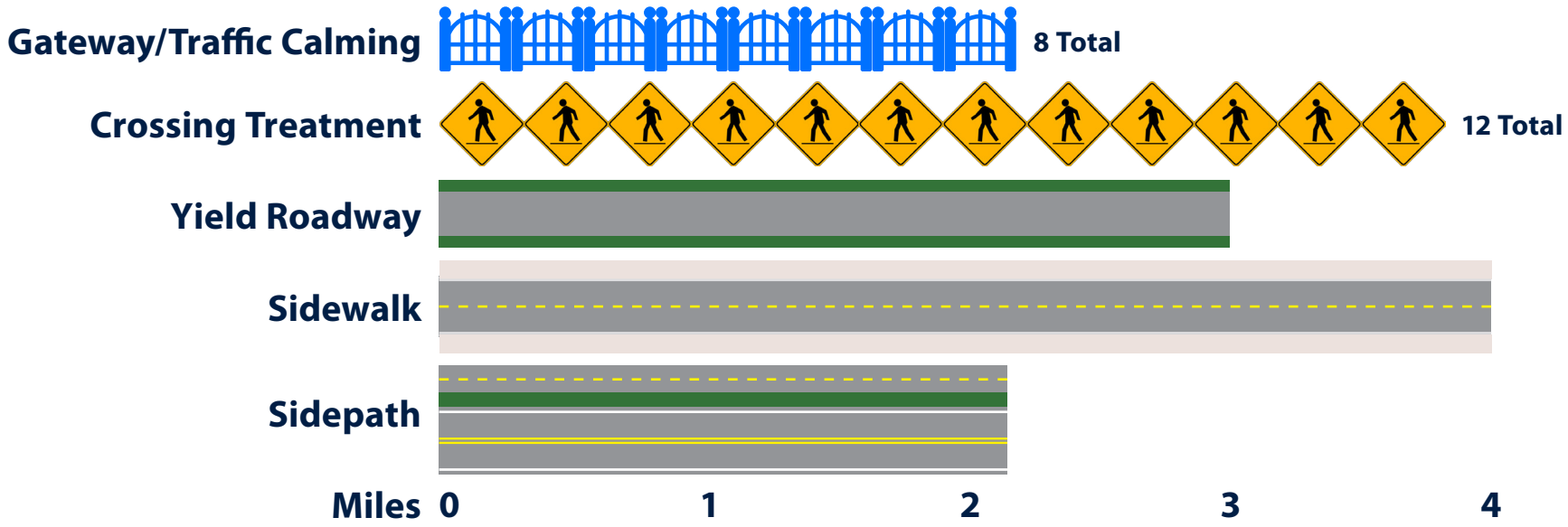


Table 3. Pedestrian Facility Types

	Sidepath	Sidewalk	Yield Roadway
Description	Sidepaths are typically designed as two-way facilities physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users. They provide a low-stress and comfortable alternative to parallel roadways. They are used for recreational opportunities in addition to transportation.	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 tree lawn. As roadway speeds and volumes increase, a greater degree of separation is needed to maintain a safe and comfortable walking environment for pedestrians. Sidewalks are common in urban areas but they may also be necessary in rural areas with pedestrian generators, such as schools and businesses. Sidewalks reduce "walking along roadway" crashes and may notably increase levels of walking in areas with high traffic speeds and/or volumes.	Yield roadways, also known as shared streets, accommodate pedestrians, bicyclists, and motor vehicles in slow-speed, low-volume shared travel areas. They are typically narrow (12 to 20 feet), unmarked, two-way streets found in residential neighborhoods, where most users are familiar with local road conditions. Paved or unpaved shoulders may be used by pedestrians, for motor vehicle parking, and as a yield zone to oncoming traffic. The lack of pavement markings creates an ambiguous travel environment, encouraging caution and slow operating speeds.
Intended Users	Bicyclists and Pedestrians	Pedestrians	Bicyclists, Pedestrians, and Motorists
Context	Urban and Rural	Urban	Small Town Rural
Posted Speed Limit	Urban: Any speed (typically 30 mph or higher) Rural: Any speed (typically 55 mph or higher)	30 mph (preferred) 50 mph (acceptable)	20 mph (preferred) 30 mph (acceptable)
Motor Vehicle Traffic Volume	Urban: Any volume (typically 15,000 ADT or greater) Rural: Any volume (typically 6,500 ADT or greater).	12,000 ADT or lower (preferred)	500 ADT or lower (preferred) 2,000 ADT (acceptable)
Other Considerations	Sidepaths should be at least 10 feet wide (wider where higher bicycle and pedestrian traffic is expected, e.g., urban areas). Special consideration must be given to the design of roadway crossings to increase visibility, clearly indicate right-of-way, and reduce crashes. Alternative accommodations should be sought when there are many intersections and commercial driveway crossings per mile.	N/A	Roadways used by pedestrians must meet the same accessibility guidelines for walkways, as required by the Americans with Disabilities Act (ADA). Warning signs can be used to inform motorists that they may encounter pedestrians and/or bicyclists sharing the road.

	Crossing Improvement	Gateway/Traffic Calming
Description	A variety of solutions can be employed to make intersections safer and more convenient for people walking. These treatments range from painted facilities, such as high-visibility crosswalks, to lights and signals, such as rectangular rapid flashing beacons (RRFB). Painted crosswalks delineate the safest pathway for pedestrians and RRFBs enhance user safety and convenience at crossing points when full signalization is not warranted.	Signage, public art, and landscaping at entrances to communities, commercial areas, town centers, or busy places of activity are all used to alert motorists that they are entering special areas. In addition to their traffic calming and streetscape functions, gateways can showcase the history and unique qualities of communities. With strong community involvement, gateway projects can become highly effective placemaking tools and a key ingredient in revitalizing commercial districts.
Intended Users	Bicyclists and Pedestrians	N/A
Context	Urban and Rural	Small Town Rural
Posted Speed Limit*	Any Speed	Any Speed
Motor Vehicle Traffic Volume*	Any Volume	Any Volume
Other Considerations	N/A	N/A

Sidewalk

Crossing Treatment

Gateway/Traffic Calming

Sidepath

Sidewalk

Yield Roadway

Source: Alyson Fletcher

Pedestrian Lane (see page 62 for more information.)

Crossing Treatment

Gateway/Traffic Calming

Table 4. Crooksville Recommendations

Map ID*	Location	Extents	Facility	Description
CV1	Ceramic Way and SR 93	Intersection	Crossing Improvement	Install high-visibility crosswalk and Rectangular Rapid Flashing Beacon to assist students crossing SR 93.
CV2	Ceramic Way/SR 669	SR 93 to Ceramic Rd	Sidewalk	Install sidewalk on north side of street to connect housing to village center and Crooksville Schools campus.
CV3	Ceramic Rd	SR 669 to Corporation boundary	Sidewalk	Install sidewalk on west side of street to connect housing to village center and Crooksville Schools campus.
CV4	S State St/Ceramic Rd	Corporation boundary to Amerine St	Sidewalk	Install sidewalk on west side of street to connect apartment complexes and single-family housing to village center.
CV5	N State St	E Main St to Baker St	Yield Roadway	Install share the road signage to alert motorists of people walking and bicycling along narrow roadway.
CV6	Ridge Ave	Bennet St to China St	Yield Roadway	Install share the road signage to alert motorists of people walking and bicycling along narrow roadway.
CV7	Ridge Ave and SR 93	Intersection	Crossing Improvement	Install high-visibility crosswalk and Rectangular Rapid Flashing Beacon to connect east and west sides of village.
CV8	Walnut St	Short St to North St	Sidewalk	Fill in sidewalk gap.
CV9	Walnut St	McKeever St to Vaughn St	Sidewalk	Fill in sidewalk gap.

*Map IDs corresponds to the recommendation labels in the maps. Abbreviations refer to the community in which the recommended project is located; for example, CV-1 denotes a project in Crooksville.

Map 10. Crooksville Recommendations*

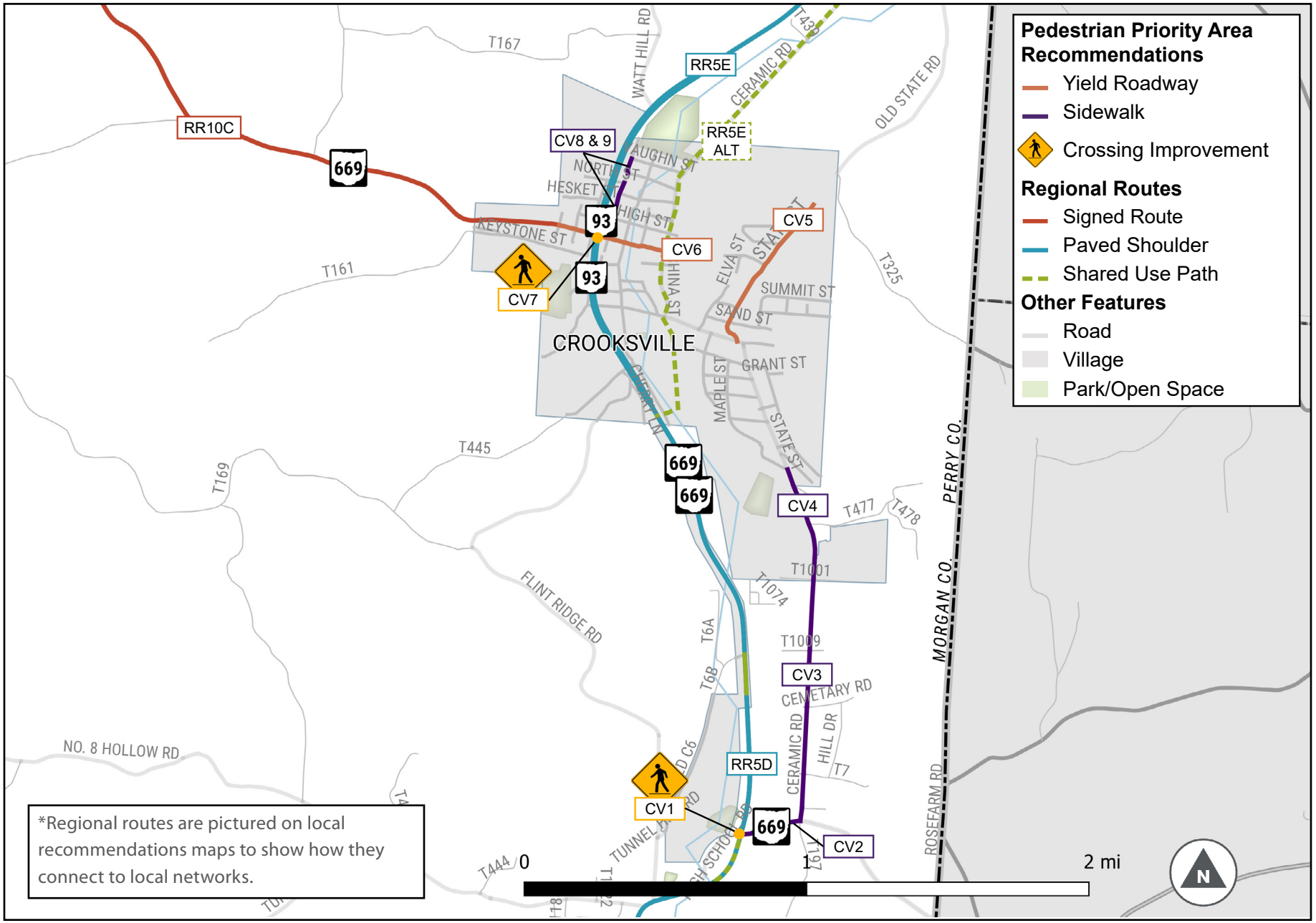


Table 5. New Lexington Recommendations

Map ID	Location	Extents	Facility	Description
NL1	W Brown St	Corporation Boundary to W Water St	Sidewalk	Fill in sidewalk gaps.
NL2	Rush St	Corporation Boundary to W Brown St	Yield Roadway	Install share the road signage to alert motorists of people walking and bicycling along narrow roadway.
NL3	Fowler St	Rush St to S State St	Yield Roadway	Install share the road signage to alert motorists of people walking and bicycling along narrow roadway.
NL4	Church St, Fowlers Ln, and S Main St	Intersection	Crossing Improvement	Install pedestrian island, high-visibility crosswalks, and Rectangular Rapid Flashing Beacons to connect homes on west side of Main St to Jim Rockwell Stadium and Artheusa Springs Park.
NL5	Fowlers Ln	S Main St to corporation boundary	Sidewalk	Install sidewalks on both sides of street to connect homes to destinations on Main St, Jim Rockwell Stadium, and Artheusa Springs Park.
NL6	3rd Ave/Maple Heights Rd	Fowlers Ln to 1st St	Sidewalk/ Sidepath	Install sidewalk or sidepath on east side of street to connect homes to Jim Rockwell Stadium.
NL7	Dallas Ave/Lovers Ln	Mill St to Tunnel Hill Rd	Yield Roadway	Install share the road signage to alert motorists of people walking and bicycling along narrow roadway.
NL8	Lincoln Park Dr	Carroll St to Jadwin Dr	Sidewalk	Install sidewalks on both sides of street to connect New Lexington Village Apartments to Kroger, Perry County Health Department, and destinations on Carroll St.
NL9	Carroll St	Elizabeth St to Panther Dr NE	Sidewalk	Install sidewalks or sidepaths on both sides of street to serve destinations along Carroll St and connect to New Lexington Schools campus; install marked crossing with Rectangular Rapid Flashing Beacon at key locations; upgrade existing signalized crossings to high-visibility markings. Refer to the Priority Projects section in Chapter 5 for detailed recommendations.
NL10	Panther Dr NE	School entrance to Carroll St/SR 345	Sidepath	Install sidepath on north side of street to connect New Lexington Schools campus to village.
NL11	Lincoln St	Carroll St to Clayton St	Yield Roadway/ Bicycle Boulevard	Install share the road signage/bicycle boulevard pavement markings to alert motorists of people walking and bicycling along narrow roadway. Provides low-stress alternative route to Broadway St.
NL12	W Broadway St	SR 13 to Lowden St	Sidewalks	Install sidewalks on both sides of street for access to commercial destinations on Broadway.
NL13	SR 37/W Main St/Thorn St/W Broadway St	Perry County Fairgrounds main entrance to SR 13	Sidepath	Install sidepath on south and west sides of street to connect fairgrounds to village.
NL14	W Broadway St, N Main St, and Monument St	Intersection	Crossing Improvement	Install high-visibility crosswalks along W Broadway St and across Monument Park to connect east and west sides of town.
NL15	N Main St at railroad crossing	Railroad crossing	Crossing Improvement	Extend sidewalk to railroad ROW on both sides of street; mark path delineation for pedestrians and bicyclists to safely navigate rail crossing. See ODOT guidance for "Selecting Supplemental Treatments and Traffic Control Devices for Pedestrian and Bicycle At-Grade Crossings of Rail Lines."
NL16	Union St and N Main St	Intersection	Crossing Improvement	Install high-visibility crosswalk and Rectangular Rapid Flashing Beacon to connect homes on west side of Main St to Save A Lot/Dollar General.
NL17	Water St and N Main St	Intersection	Crossing Improvement	Install Rectangular Rapid Flashing Beacon to connect destinations on both sides of Main St and alert motorists of pedestrian activity.

Map 11. New Lexington Recommendations

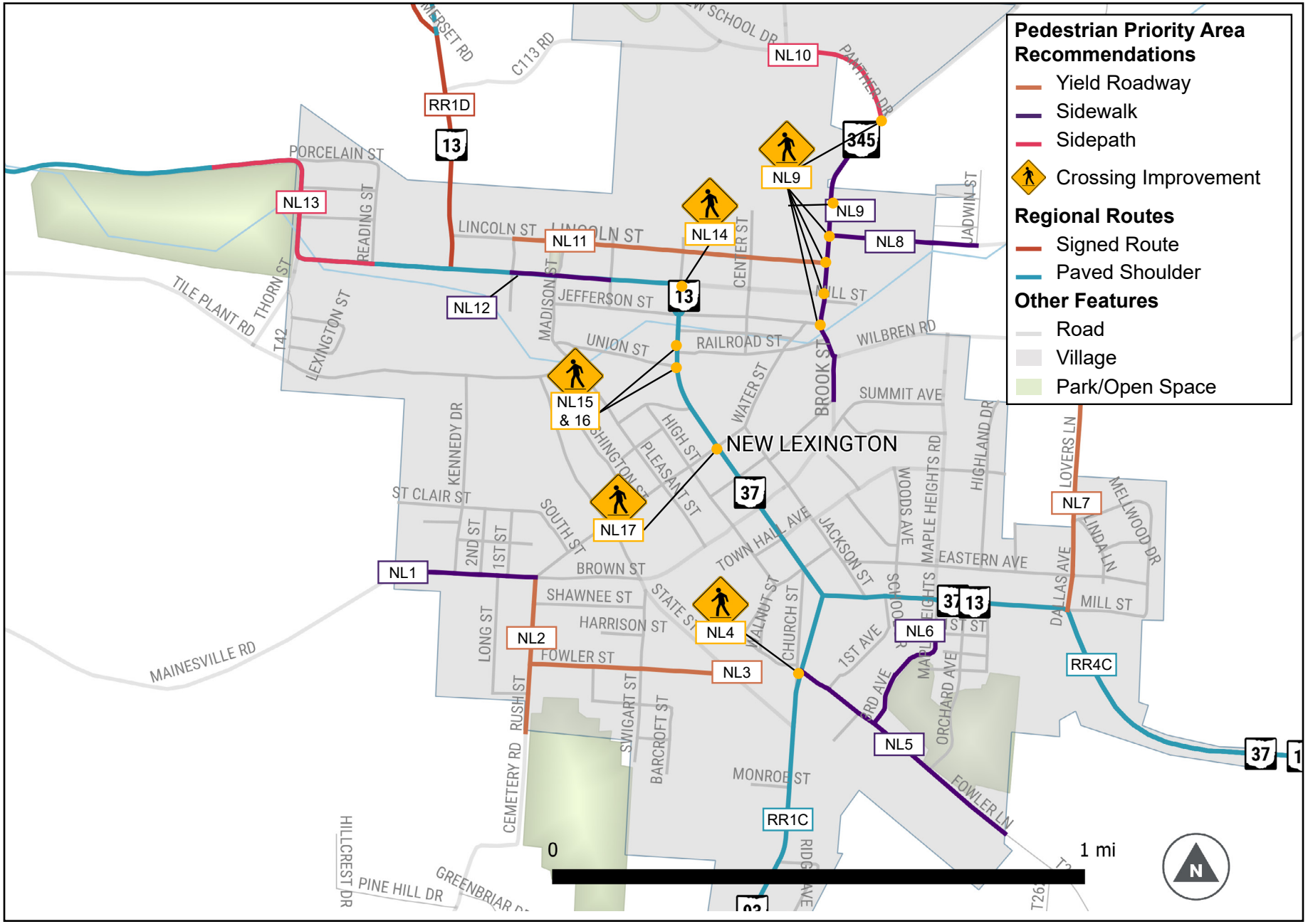


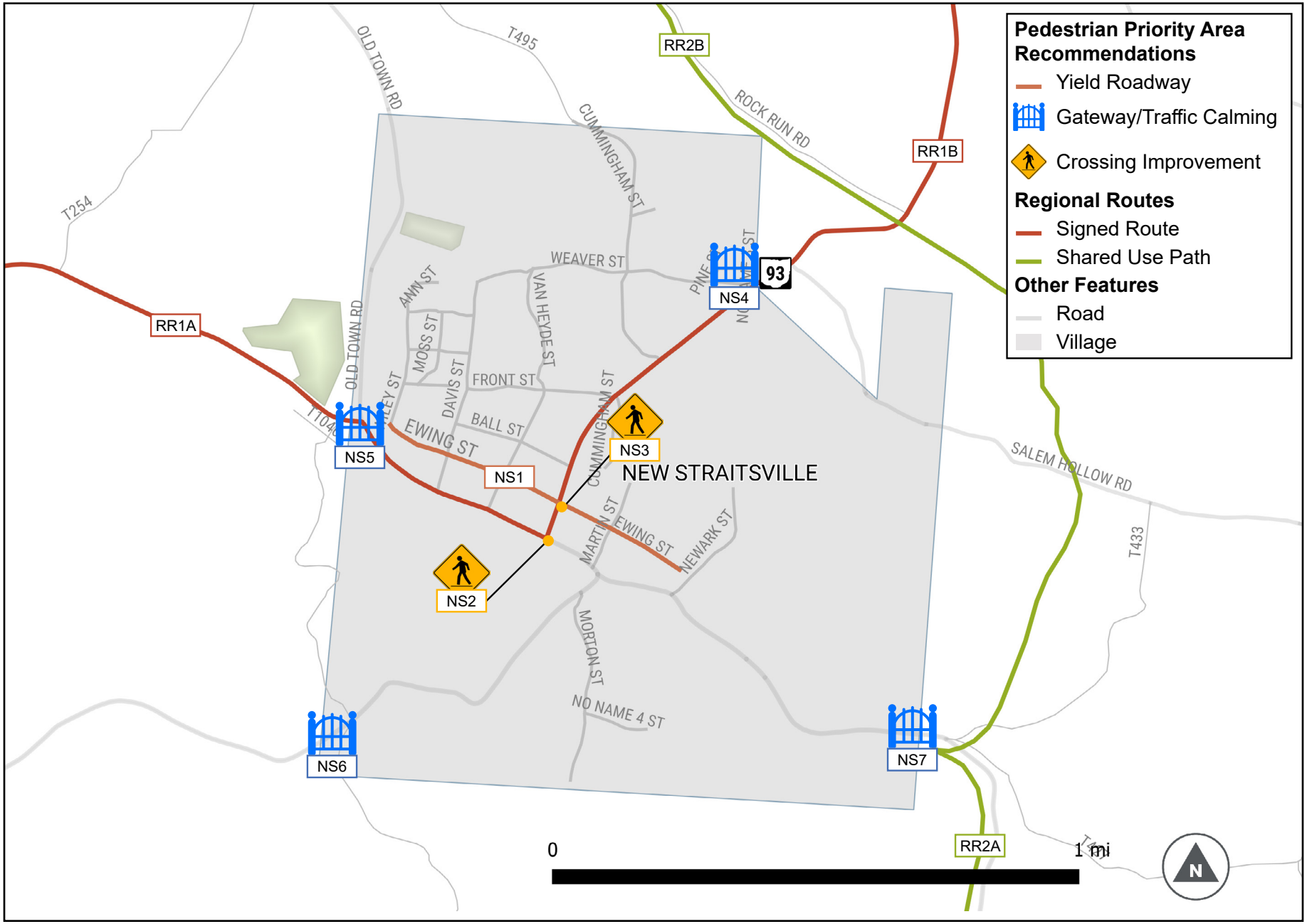
Table 6. New Straitsville Recommendations

Map ID	Location	Extents	Facility	Description
NS1	Ewing St	Moss St to eastern terminus	Yield Roadway	Install share the road signage to alert motorists of people walking along narrow roadway.
NS2	Main St and Clark St	Intersection	Crossing Improvement	Upgrade standard crosswalks on all intersection legs to high-visibility markings.
NS3	Ewing St and Clark St	Intersection	Crossing Improvement	Upgrade standard crosswalks on all intersection legs to high-visibility markings.
NS4	Northern Corporation Boundary on SR 93	Corporation Boundaries on SR 93	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.
NS5	Western Corporation Boundary on SR 93	Corporation Boundaries on SR 93	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.
NS6	Western Corporation Boundary on SR 595	Corporation Boundaries on SR 595	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.
NS7	Eastern Corporation Boundary on SR 216	Corporation Boundaries on SR 216	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.

Table 7. Somerset Recommendations

Map ID	Location	Extents	Facility	Description
SO1	Main St/US 22 and Columbus St/SR 13	Intersection	Crossing Improvement	Upgrade standard crosswalks on all intersection legs to high-visibility markings.
SO2	RR2D Shared Use Path Crossing at SR 13	Trail Crossing	Crossing	Install high-visibility crosswalk and Rectangular Rapid Flashing Beacon for trail users crossing SR 13.
SO3	Eastern Corporation Boundary on SR 13	Corporation Boundaries on SR 13	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.
SO4	Eastern Corporation Boundary on US 22	Corporation Boundaries on US 22	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.
SO5	Northern Corporation Boundary on SR 13	Corporation Boundaries on SR 13	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.
SO6	Western Corporation Boundary on US 22	Corporation Boundaries on US 22	Gateway/Traffic Calming	Install landscaping, welcome signage, art, and/or other gateway elements to encourage reduced speeds and caution from motorists.

Map 12. Straitsville Recommendations

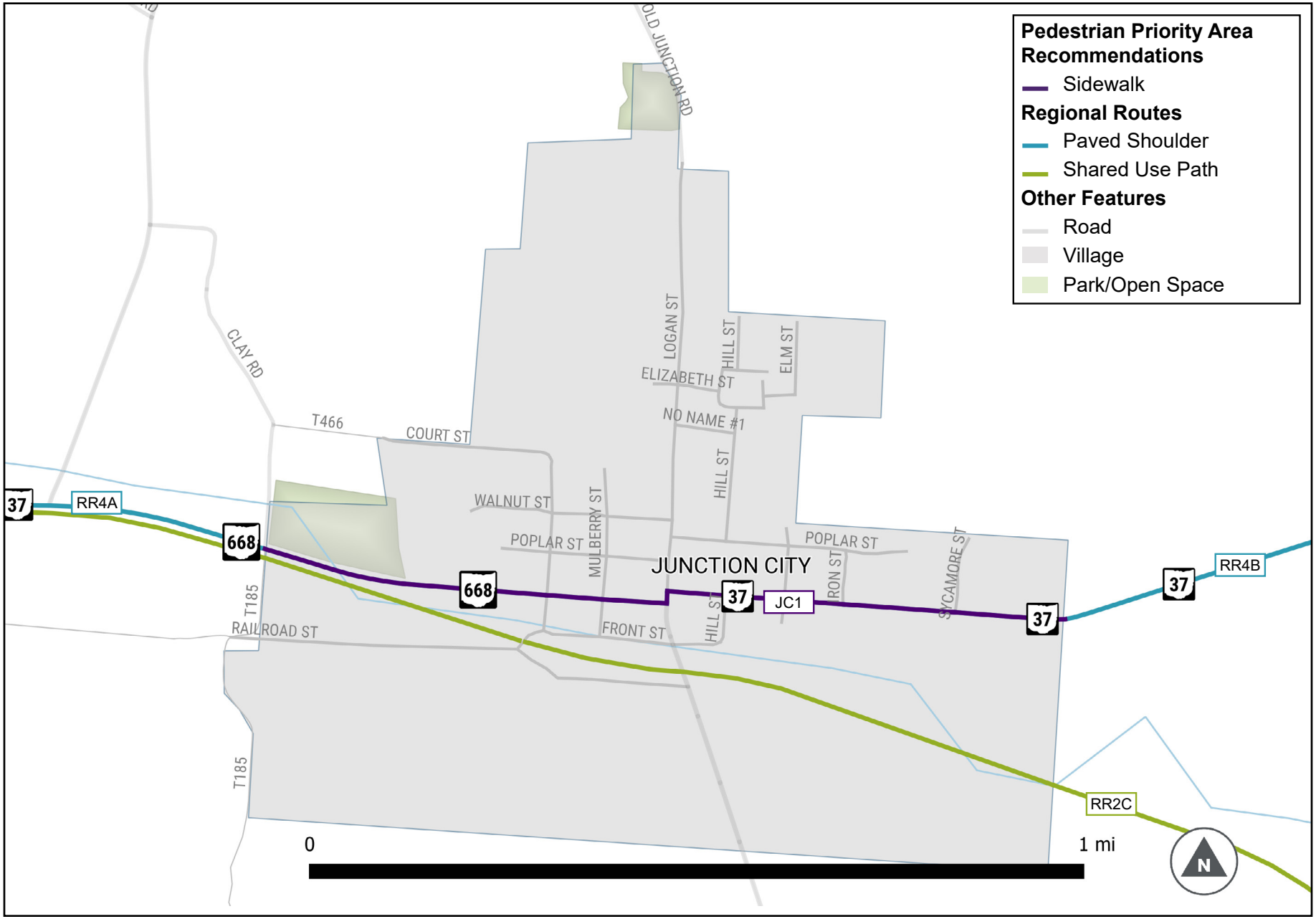


Map 13. Somerset Recommendations

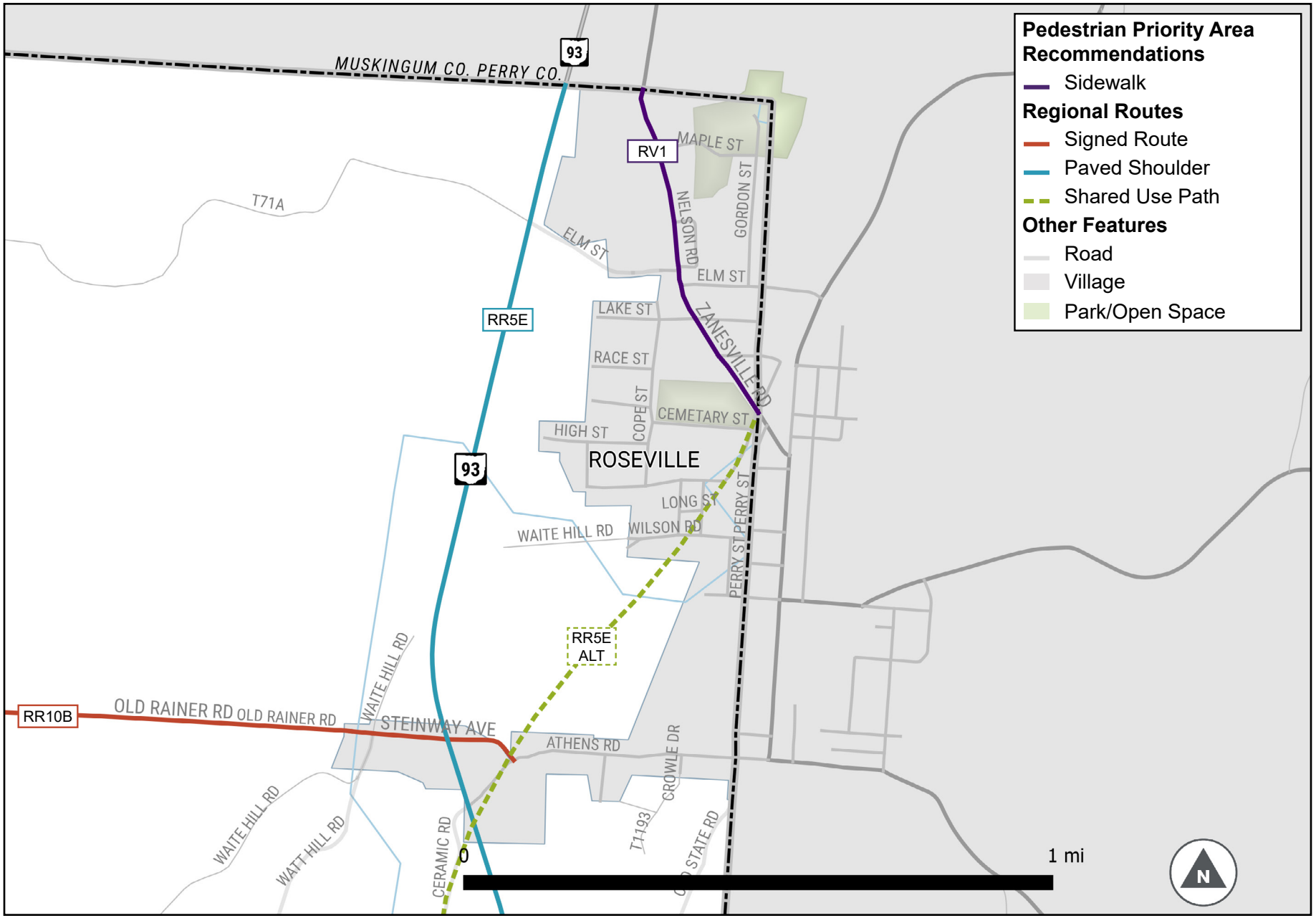
Table 8. Other Local Recommendations

Map ID	Location	Extents	Facility	Description
Corning				
CO1	SR 13/Jefferson Street	Corporation Boundaries	Paved Shoulder	Long-term alternative to RR5A (signed route): paved shoulder through Corning, extending to Athens County Line (not pictured on map).
Junction City				
JC1	SR 37/Main Street	Corporation Boundaries	Sidewalk	Fill in sidewalk gaps, widen sidewalks in commercial district, and add streetscape features (trees, street furniture, decorative lighting, etc.)
Roseville				
RV1	Zanesville Rd	Railroad St to N Main St	Sidewalk	Install sidewalk on west side of street to connect north part of village to downtown.
Shawnee				
SH1	SR 93 and 2nd St	Intersection	Crossing Improvement	Install high-visibility crosswalk to connect Shawnee to Tecumseh Lake Trail.
Thornville				
TV1	Zion Rd	N West St to Town Hwy 1062/1099	Sidepath	Install sidepath on east side of street to connect Thornville to Thornport and Autumn at the Lake Rehabilitation and Nursing Center.
TV2	Zion Rd	Town Hwy 1062/1099 to SR 13	Sidepath	Install sidepath on east side of street to provide pedestrian and bicyclist accommodations through Thornport.

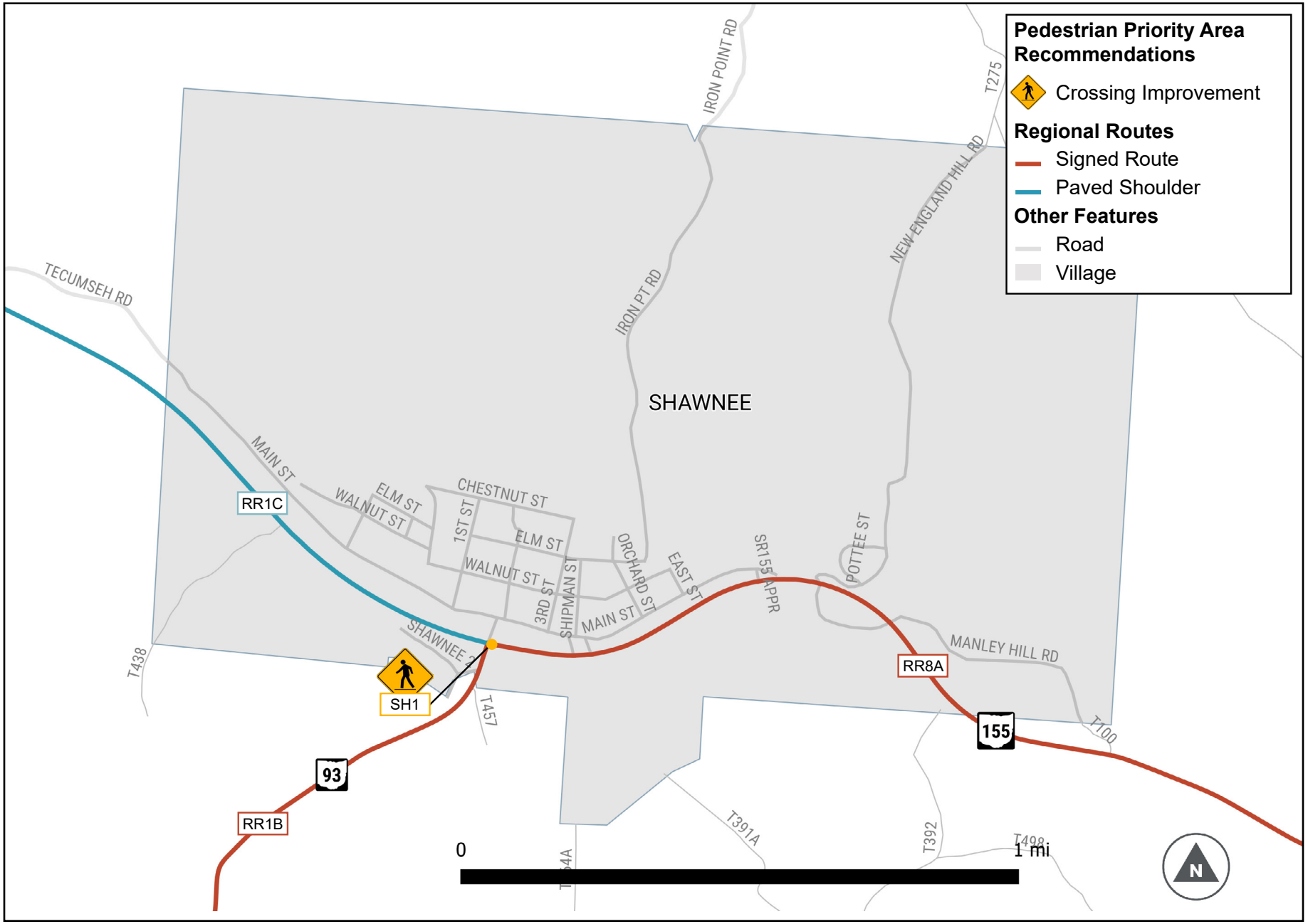
Map 14. Junction City Recommendations



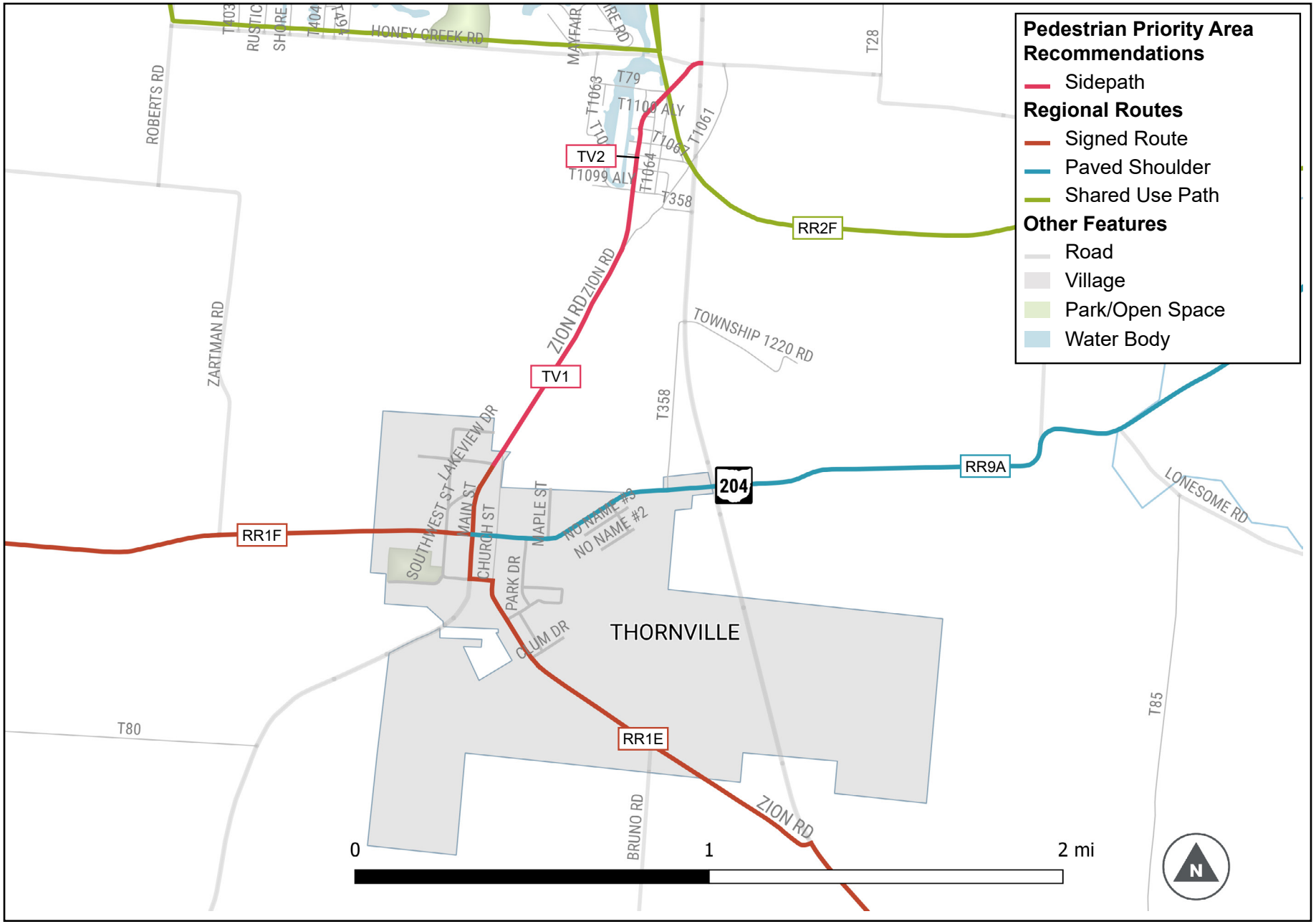
Map 15. Roseville Recommendations



Map 16. Shawnee Recommendations



Map 17. Thornville and Thornport Recommendations



27,297 people live within **1 mile** of the proposed active transportation network


75% of the county's population

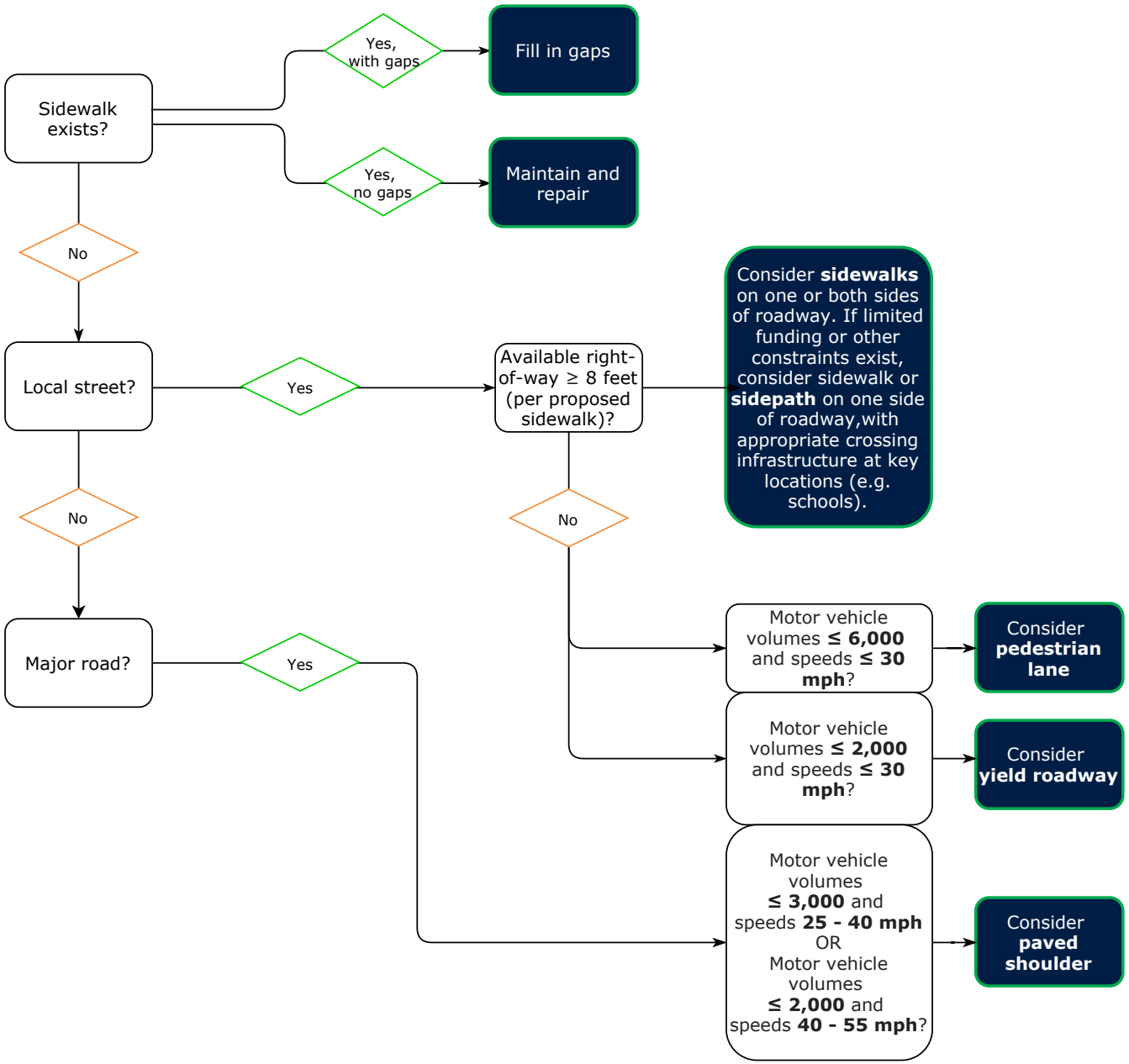

Pedestrian Improvements in Non-Priority Areas

The above recommendations would improve the walking environment in most of Perry County's villages and larger communities. Walking is more likely to occur in these areas because many destinations are in close proximity. However, there are many smaller communities throughout the county where walking may occur, albeit at lower levels. Two Census-designated places and 21 unincorporated communities lay beyond village limits in Perry County. Generally, the focus of pedestrian transportation planning is decidedly urban, but it is important to consider pedestrian mobility in these isolated rural areas. Rural pedestrian travel constitutes a fraction of total pedestrian trips, but it still occurs in several ways:

- **Walking for exercise –** Rural roads are often the only place for rural residents to walk or jog.
- **Short to moderate walks at the edge of communities –** It is not uncommon for people to walk from just outside an urban area to a destination. For example, the New Lexington Kroger on Carroll Street is only half a mile from township residents on Tunnel Hill Road.
- **Walking to rural destinations –** Nearby gas stations, neighbors' homes, places of employment, and rural schools are all destinations to which rural residents might walk rather than drive.

It is beyond the scope of this plan to provide detailed recommendations for every inhabited area throughout the county. The decision matrix on the following page provides guidance to smaller communities seeking to improve their walking environments. It considers several factors in determining the most appropriate pedestrian treatment: motor vehicle speeds, traffic volumes, right-of-way, and existing pedestrian facilities.

Figure 6. Rural Pedestrian Facility Selection Matrix



Programs and Policies

Establishing safe and convenient active transportation infrastructure is critical to improving walking and bicycling conditions throughout Perry County. But without programs and policies in place to support active transportation, infrastructure projects can only go so far. This section proposes several non-infrastructure recommendations to improve the regulatory and political environment for active transportation in Perry County.

Encouragement

Encourage communities to apply for bicycle friendly and walk friendly community status.

Lead Agency: Perry County Health Department

The League of American Bicyclists' Bicycle Friendly Community program provides a roadmap to enhance conditions for bicycling, ranking applicant communities on their level of "bicycle friendliness" on a scale from "Honorable Mention" through "Platinum." The application process will help communities recognize their strengths and weaknesses regarding bicycling, and the response from the League of American Bicyclists will help guide each community in improving bicycling.

The Pedestrian and Bicycle Information Center (PBIC) awards communities that improve and prioritize pedestrian safety, access, mobility, and comfort with either a bronze, silver, or gold designation. PBIC, which is a partnership between the Federal Highway Administration and the University of North Carolina, provides a community assessment tool to evaluate existing pedestrian conditions and programs largely based on "4 E's"—education, encouragement, engineering, and enforcement.

The Perry County Health Department should encourage local communities to work toward and apply for both awards. These agencies should also provide support for communities that wish to apply by reviewing applications and providing suggestions for improvements.

Encourage transit integration with bicycle and pedestrian networks.

Lead Agency: Perry County Job and Family Services/ Perry County Transit

Connected bicycle and pedestrian networks increase the reach of transit systems by expanding the number of accessible destinations. Perry County Transit should continue to work toward providing bike racks on all transit vehicles in the near future. This is a relatively inexpensive action that can provide significant benefit to people without motor vehicles. Perry County Transit began installing bike racks on its vehicles in 2019.

Encourage more people to walk and bicycle in conjunction with education efforts.

Lead Agency: Perry County Health Department

The adage of "knowledge is power" is true for bicycling and walking. When people receive training on how to safely bicycle and walk while interacting with other users, they become empowered and encouraged to use active transportation regularly. The design of online and print safety and how-to materials, training courses, maps, and other education efforts should consider the need for encouragement and espouse the health, safety, environmental, and economic benefits of bicycling and walking discussed in Chapter 1. Ready-made materials are available through existing programs, such as ODOT's Your Move campaign.

Expand bicycle parking.

Lead Agencies: Perry County Health Department, Local Governments

Secure and convenient bicycle parking is lacking in most communities throughout the county. Local agencies could takes requests for bicycle parking locations and work with adjacent property owners to install new parking. Depending on available funding, local agencies could pay for racks or share the cost with business owners. Local communities could develop unique "U-rack" designs to help brand bicycle parking in their communities. The Downtown Dayton Partnership installed almost 100 branded bike racks throughout Downtown.

Bicycle parking in Downtown Dayton

Enforcement

Incorporate bicycle safety-related education into training for new and experienced law enforcement officers.

Lead Agency: Perry County Sheriff
Supporting Agencies: Local Law Enforcement

Bicycle-related training for law enforcement officers equips officers with the skills and knowledge to enforce the law on bikes. However, this training usually does not include content regarding traffic interactions between motorists, bicyclists, and pedestrians. Law enforcement officers are not always aware of the types of traffic violations that are most likely to result in crashes between bicyclists and motorists.

Brief education courses for local law enforcement officials can provide information about these topics and potentially count toward continuing education requirements that many officers are required to pursue. In addition, annual reviews of bicycle and pedestrian crash statistics and reports will provide law enforcement agencies with knowledge of the specific behavioral issues and high-risk crash locations within Perry County. Furthermore, law enforcement officers should consider seeking League of American Bicyclists Cycling Instructor certification, which will allow them to effectively teach bicycle safety and skills courses to other officers and the general public.

Develop a speed reduction program.

Lead Agencies: Perry County Sheriff
Supporting Agencies: Local Law Enforcement

Speed reduction programs strengthen enforcement and assure that vehicle speeds are safe for vulnerable users such as bicyclists and pedestrians. A comprehensive speed reduction program may include speed feedback trailers along key corridors where crashes or frequent speeding occur.

Focus on positive reinforcement.

Lead Agencies: Perry County Sheriff
Supporting Agencies: Local Law Enforcement

Positive reinforcement includes recognition for safe and slow driving, yielding to pedestrians, bicyclists who signal their turns, and pedestrians looking both ways before crossing the street. Police in some communities hand out coupons for free coffee or other incentives to people who are observed practicing safe behavior.

Evaluation and Planning

Measuring the performance of active transportation networks is essential. Bicycle and pedestrian counts, crash records, and other data contribute to a business case for continued investment in multimodal infrastructure.

Conduct regular bicycle and pedestrian counts.

Lead Agency: Perry County Health Department
Supporting Agencies: MORPC, Buckeye Hills Regional Council, ODOT

To determine how many people are walking and bicycling every day in Perry County, local agencies should conduct several days of bicycle and pedestrian counts every year. This program would help identify popular active transportation corridors and how levels of walking and bicycling change over time. Perry County Health Department, Buckeye Hills Regional Council, and the Mid-Ohio Regional Planning Commission should coordinate this effort across the county to ensure consistent data collection. Data should be corroborated with third party data sources, such as Street Light (available to all public agencies in Ohio through ODOT).

Count locations should include a mix of rural and urban locations, key infrastructure such as bridges or trails, and locations for which data already exist.

The UCLA Bike Count Data Clearinghouse has resources for starting a count program: www.bikecounts.luskin.ucla.edu.

Develop local walking plans for each community in Perry County.

Lead Agency: Perry County Health Department
Supporting Agencies: Local Governments

Formalizing a village's walking network will help to identify gaps, maintenance issues, and opportunities for improvement. Local walking plans should build upon the recommendations suggested for Pedestrian Priority Areas and the pedestrian infrastructure decision matrix for non-PPA communities in this Plan.

Adopt a countywide Complete Streets policy.

Lead Agency: Perry County Engineer
Supporting Agency: Perry County Health Department

Perry County Commissioners should consider adopting a countywide Complete Streets policy. The Village of Somerset already has a policy in place; elevating this effort to the regional level would ensure consistent accommodations for people walking and bicycling throughout Perry County.

Adopt a Vision Zero plan.

Lead Agency: Perry County Health Department
Supporting Agencies: Perry County Engineer, Perry County Sheriff, Local Law Enforcement

Vision Zero is a policy that strives for zero fatalities or serious injuries on our roads each year. All aspects of a jurisdiction's decision-making revolve around achieving this goal systematically, from infrastructure design to enforcement approaches to motorist education.

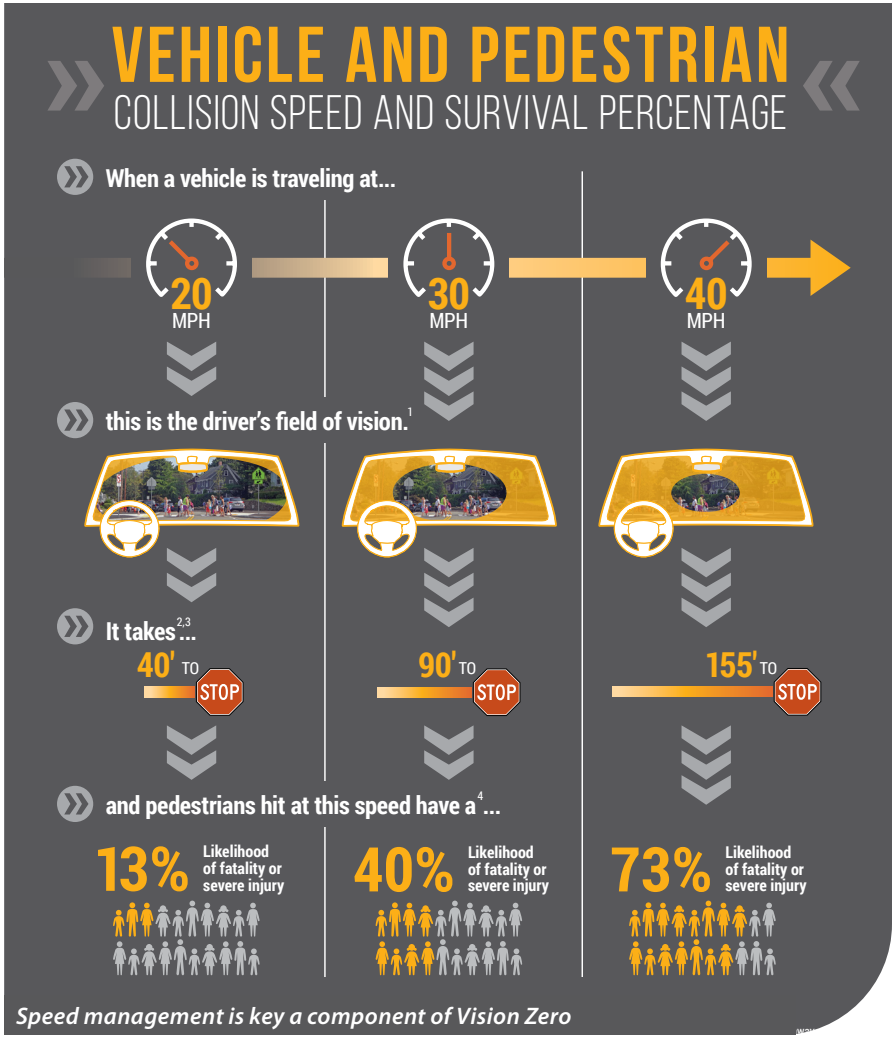
Vision Zero is about creating an environment where deaths and injuries are not avoided by sheer luck, but because proactive street design prevents them from happening by keeping speeds low, improving visibility, and encouraging a culture of safe and law-abiding road users.

In small towns and rural areas where fatalities may not be a regular occurrence, local agencies can still employ Vision Zero to further existing goals, such as revitalizing downtowns, attracting or retaining young professionals, and encouraging tourism through safer, more livable streets.

Perform Regular Plan Updates.

Lead Agency: Perry County Health Department

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



Speed management is key a component of Vision Zero

5

Implementation

Implementation

This chapter describes the major factors involved in plan implementation. It defines the roles of key stakeholders, provides funding and maintenance strategies, and describes the process used to prioritize infrastructure recommendations. The implementation of this plan is a longterm investment in maintaining and expanding the use of active transportation in Perry County, and the steps below will serve as a guide to implementation leaders.

Roles and Responsibilities

A concerted effort in inter-jurisdictional collaboration is the first step towards successful implementation of the Perry County Active Transportation Plan. While the Perry County Health Department and Perry County Engineer should play leading roles during implementation, many other organizations must support this effort. Stakeholders identified in the list on this page will be collectively responsible for the design, funding, construction, maintenance, monitoring, and/or evaluation of the network.

The proposed network would add over 183 miles of improvements to ODOT-owned roads. This comprises the majority of the network, so cooperation between ODOT and Perry County will be critical during plan implementation.

Cooperation Between ODOT and Perry County will be critical during plan implementation.

Funding Strategies

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 between public agencies to succeed. Active transportation projects comprise a fraction of

Primary Implementation Stakeholders

- Bike Buckeye Lake
- Buckeye Hills Regional Council
- Buckeye Trail Association
- Mid-Ohio Regional Planning Commission
- ODOT Central Office
- ODOT District 5
- Perry County Commissioners
- Perry County Engineer
- Perry County Health Department
- Perry County Job and Family Services/Perry County Transit
- Perry County Park District
- Village Hemlock
- Village of Corning
- Village of Crooksville
- Village of Glenford
- Village of Junction City
- Village of New Lexington
- Village of New Straitsville
- Village of Rendville
- Village of Roseville
- Village of Shawnee
- Village of Somerset
- Village of Thornport
- Village of Thornville

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 studies 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 (see Chapter 1 for more information). 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.

Several state and federal funding sources can be used to build out Perry County's active transportation network and fund related programming efforts.

Clean Ohio Trails Funds Recreational Trails Program

Infrastructure recommendations include several trail and shared use path projects that could be funded through the Clean Ohio Trails Fund. The Clean Ohio Trails Fund works to improve outdoor recreational opportunities for Ohioans by funding trails for outdoor pursuits of all kinds. Eligible projects include: Land acquisition for a trail, trail development, trailhead facilities, engineering, and design. Local governments, park and joint recreation districts, conservancy districts, soil and water conservation districts, and non-profit organizations are eligible to receive grants for conservation projects from the Clean Ohio Trails Fund. Applicants must provide a 25% local match, which can include contributions of land, labor, or materials. Up to 75% matching State of Ohio funds are reimbursed under the Clean Ohio Trails Fund. All projects must be completed within 15 months from the date that they are signed into contract. The Clean Ohio Trails Fund has supported a dozen projects in neighboring counties totaling more than $2.7 million (see Table 9).

Highway Safety Improvement Program

Eighty-five percent of recorded bicycle and pedestrian crashes in Perry County are on roads with proposed infrastructure improvements in this Plan. These projects may be eligible for Highway Safety Improvement Program (HSIP) funding. Most of Ohio's fatalities, serious injuries, and total crashes occur on local roads, and ODOT recognizes the public safety benefit of engineering improvements in high-crash locations beyond the ODOT network. ODOT works with MPOs and local governments to identify locations with severe safety problems and fund infrastructure improvements in these areas through HSIP. HSIP can cover up to 100% of funding for a given project.

Safe Routes to School

Safe Routes to School (SRTS) projects include traffic calming, enhanced crossing treatments, signal upgrades, sidewalks, and other countermeasures. These treatments are most effective when used in combination with non-infrastructure solutions (i.e. education, encouragement, enforcement, and evaluation). All public schools in Perry County are located on or near roads with proposed infrastructure improvements as part of this Plan. Projects that meet the requirements of ODOT's SRTS program are eligible for SRTS funding. Information on the SRTS program, requirements for funding, and resources on developing School Travel Plans can be found at walk.ohio.gov. SRTS can cover up to 100% of funding for a given project.

Green Space Conservation Program

The Green Space Conservation Program is administered by the Ohio Public Works Commission. Its goals include enhancing eco-tourism and economic development related to outdoor recreation in economically challenged areas and providing pedestrian or bicycle passageways between natural areas and preserves. Applicants must provide a 25% local match. Green Space Conservation Program funding can also be used to match federal sources. The program has funded dozens of projects in Southeastern Ohio, including the Somerset portion of the Emerald Necklace Greenway.

Transportation Alternatives Program

The Transportation Alternatives Program (TAP) is one of the most common funding sources of active transportation projects. ODOT's TAP funds are for those projects sponsored by local governments outside the county boundaries of MPOs.

Table 10 lists additional federal funding sources for bicycle and pedestrian infrastructure projects based on project type and eligibility.

Other Funding Resources

ODOT and the Ohio Department of Health developed an Active Transportation Funding Matrix. Communities may use this tool to search for potential funding sources to support infrastructure and non-infrastructure projects that advance walking and biking. The tools is available for download on ODOT's bicycle and pedestrian homepage: dot.state.oh.us/Divisions/Planning/SPR/bicycle/Pages/default.aspx

Table 9. Clean Ohio Trails Fund Projects near Perry County

Agency	Year	Project	Description	Award
City of Athens	2006	East State Bike Path	Construction of a 1.2-mile asphalt trail to provide bicycle access to new medical facilities and hiking trails.	$100,000
City of Athens	2001	East State Bike Path	Construct 9,400 linear feet of trail and acquire 2,200 linear feet of right-of-way to extend the East State Street Bikeway.	$160,000
City of Athens	2010	The Plains & High School Connector	Construction of .79 miles of asphalt paved bikeway to connect the existing Hockhocking Adena Bikeway with the Athens High School and the unincorporated area of the Plains.	$182,163
City of Nelsonville	2006	Hockhocking Adena Bikeway	Construction of 1.86 miles of asphalt trail and bicycle access over the Hocking River, connecting existing Hockhocking Adena Bikeway to the city.	$180,000
City of Lancaster	2002	Fairfield Heritage Trail-Phase 2	Design and construct 5.2 miles of urban trail in Lancaster linking parks, schools, waterways, public spaces and the Fox Trail.	$420,000
City of Lancaster	2004	Fairfield Heritage Trail-Phase 3	Engineering and planning for 2.2 miles of new trail - to be phase III of existing Fairfield Heritage Trail. Includes paving, underpasses and bridge.	$400,000
City of Lancaster	2010	Lancaster City Bike Trail	Phase IV is a 2.30 mile Northern extension of the Lancaster City Bike Trail.	$373,605
The City of Pataskala	2010	Cross Town Line, Phase I	Construction of an 8 ft. wide 3,400 LF between the Bright Water Sub-division and Pataskala Ridge Subdivision along with one wooded bridge.	$189,339
City of Heath	2004	Irviningwick Connection	Engineering and construction of new 3,400-linear foot asphalt trail	$290,000
City of Newark	2010	Church Street Bike Trail Connector	Construction of bike trails, bike lanes, a mid-block pedestrian/bike crossing, and a trail head. There will be 3,300 LF of multi-use trail and 8,800 LF of bike lanes along Church Street, 4th Street, Market Street, 1st Street, and Main Street. One mid-block pedestrian/bicyclist crossing located at Church Street at the Board of Education service drive across from the YMCA, a trailhead facility with restrooms and bicycle parking.	$139,000
Muskingum Valley Park District	2002	Muskingum Recreational Trail	Design and construct 2.3 miles of trail. This project is broken up in two sections, the first section is from Main St. in Jefferson Twp. to the old Longaberger plant on the north end of Dresden. The second section will connect all recreational facilities.	$290,000

Table 10. Applicability of Federal Funding Sources for Active Transportation Projects

Project Type	Funding Sources											
	BUILD	TIFIA	FTA	ATI	CMAQ	HSIP	NHPP	STBG	TA	RTP	COTF	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

BUILD: Better Utilizing Investments to Leverage Development 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

Maintenance Strategies

The long-term performance of bicycle and pedestrian networks depends on both the construction of new facilities and an investment in continued maintenance. Maintaining bicycle and pedestrian facilities is critical to ensuring those facilities are accessible, safe, and functional. The two primary strategies in this section are focused on maintaining bicycle facilities located on ODOT-owned roads in Perry County. These strategies and actions are considered short term, with the goal of achieving them within five years. ODOT District 5 would be the lead party responsible for these strategies, with support from ODOT Central Office and local agencies. Additional maintenance recommendations are listed in Table 11.

Planning for Maintenance

Creating a strong maintenance program begins in the design phase. ODOT District 5, local public works departments, or other responsible agencies should be party to discussions about the placement of infrastructure and its design, as well as maintenance investment decisions. Maintenance staff should help identify typical maintenance issues, such as areas with poor drainage or frequent public complaints. They may have suggestions for design elements that can mitigate these issues or facilitate maintenance activities, and can provide estimates for ongoing maintenance costs for existing and proposed facilities.

Strategy 1: Clarify maintenance responsibilities for bicycle facilities within ODOT right-of-way

Action 1.1: Use maintenance agreements with local jurisdictions and partner agencies to identify responsibilities for maintenance activities.

The jurisdiction that owns the facility is generally responsible for maintenance and operations. However, a maintenance agreement can be used to assign maintenance responsibilities to another agency and specify reimbursement of maintenance costs. Without maintenance agreements, confusion over maintenance responsibilities can occur. Effective maintenance programs include coordination between the government agencies that own and maintain the infrastructure.

Maintenance agreements can transfer responsibility from ODOT to local agencies and can provide for payments to local agencies for performing maintenance responsibilities that ODOT maintenance operations would normally perform. For example, New Lexington may agree to conduct plowing, mowing, and other maintenance activities on its segment of RR1, the proposed signed route that spans the county from north to south, primarily using state routes.

Clarifying responsibilities for maintenance costs and operations ensures that maintenance problems can be directed to the responsible party and resolved in a timely manner to maintain safe facilities for users. Ideally, one agency would be responsible for the length of an individual facility. Facilities managed by a single entity are more likely to have a consistent level of maintenance that users come to expect.

Strategy 2: Develop a proactive pavement preservation program

Pavement Preservation and Repair

All types of bikeways and walkways will become damaged, worn, lifted, or cracked over time. Pavement preservation methods and repairs can help increase the lifespan of those facilities and delay the need for resurfacing or reconstruction. Many repairs will have an immediate beneficial impact on the safety of pedestrians and bicyclists by reducing hazards.

Sidewalks are the most common pedestrian facility and need on-going maintenance attention. Ignoring repairs will often result in tripping hazards for pedestrians. Short-term repair measures for concrete sidewalks include patching, grinding (or horizontal cutting), and wedges to temporarily deal with uneven sidewalk blocks. Mudjacking, or pumping dirt or filler below sunken sidewalk slabs, is also used to lift the pavement back to its original position. Grinding and horizontal cutting methods are becoming more

Poorly maintained sidewalks are a hazard to pedestrians

common and used when upheaved sidewalk pieces are showing minor vertical displacements.

Maintenance measures for on-road bikeways are similar to those needed for roadway maintenance. These measures include patching, micro surfacing, crack sealing, and seal coating. On shared-use paths, it is especially important to cut back intrusive tree roots and install root barriers or root trenches where appropriate to prevent surface breakup.

Action 2.1: Conduct pavement preservation repairs to ODOT-owned bicycle facilities on an as-needed basis, including crack sealing, patching, fog sealing, microsurfacing, and asphalt resurfacing.

Many short- and mid-term maintenance techniques are used for pavement preservation. These include crack sealing, patching, fog sealing, microsurfacing, asphalt resurfacing, grinding and cutting, and tree root barriers. ODOT can perform minor repairs and maintenance activities for bikeway pavement preservation as needed. The need for repairs could be identified through various channels, such as requests from local agencies or public demand.

Action 2.2: Notify the responsible agency about maintenance issues on bicycle facilities.

Where an existing maintenance agreement identifies a local agency as the responsible entity, ODOT can inform that agency and offer support as it addresses the problem, if needed. Where no maintenance agreement is in place and the facility in need of maintenance is within a local jurisdiction's boundaries, ODOT could inform the appropriate agency of the problem and request that it be addressed.

Project Prioritization

The infrastructure recommendations in Chapter 5 are conceptual routes, meant to show the potential of a comprehensive active transportation system in Perry County. The recommendations are planning level in scope and 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. Project prioritization uses measurable data to determine which projects are both feasible, given real-world constraints, and align with stakeholders' priorities.

As with most government agencies, Perry County has a limited amount of funding with which to build bicycle infrastructure. Because of this, it is imperative that the projects providing the most benefit be prioritized over others. A data-driven prioritization process uses GIS datasets to score and rank projects based on conditions in their relative locations.

Countywide recommendations (Regional Routes) were prioritized in an effort to build consensus between communities and develop shared active transportation goals. Local recommendations are not included in project

Table 11. Additional Maintenance Recommendations

	Maintenance Activity	Strategy
Shared Use Paths	Concrete Pavement Preservation	Develop and implement a comprehensive pavement management system for Perry County's shared use path network.
	Snow and Ice Control	Design shared-use paths to accommodate existing maintenance vehicles.
	Drainage Design	Clear debris from all drainage devices to keep drainage features functioning as intended and minimize trail erosion and environmental damage.
		Check and repair any damage to trails due to drainage issues.
	Sweeping	Implement a routine sweeping schedule to clear shared-use paths of debris.
		Provide trail etiquette guidance and trash receptacles to reduce the need for sweeping.
	Vegetation Management	Implement a routine vegetation management schedule to ensure user safety.
		Trim or remove diseased and hazardous trees along trails.
		Preserve and protect vegetation that is colorful and varied, screens adjacent land uses, provides wildlife habitats, and contains prairie, wetland and woodland remnants.
	ADA Requirements	Conduct walk and bike audits to assess accessibility of new, proposed, and existing shared-use paths.
		Ensure that ADA compliance is incorporated into the design process for new facilities.
Paved Shoulders	Pavement Markings	Explore approaches to routinely inspect pavement markings for bicycle infrastructure and replace as needed.
		Consider preformed thermoplastic or polymer tape on priority bikeways (identified in this Plan) adjacent to high-volume motor vehicle routes (preformed thermoplastic or polymer tape are more durable than paint and requires less maintenance).
	Snow and Ice Control	Clear all signed or marked shoulder bicycle facilities after snowfall on all state-owned facilities that do not have a maintenance agreement with a local governmental unit in place.
	Sweeping	Implement a routine sweeping schedule to clear high-volume routes of debris.
Signed Routes	Sign Replacement	Repair or replace damaged or missing signs as soon as possible.
Sidewalks	Pavement Preservation and Repair	Conduct routine inspections of high-volume sidewalks and apply temporary measures to maintain functionality (patching, grinding, mudjacking).
		Consider using public agency staff or hiring contractors for sidewalk repairs, rather than placing responsibility on property owner (property owner can still be financially responsible).
	Snow and Ice Control	Educate the public about sidewalk snow clearance.
		Require sidewalk snow clearance to a width of five feet on all sidewalks.
		Establish required timeframes for snow removal.
		Implement snow and ice clearing assistance programs for select populations.

prioritization - local government agencies and community members should prioritize these projects during implementation based on their communities' unique needs.

It would be infeasible to fund, design, and construct a facility that spans the entire county all at once. Each Regional Route was divided into route segments to facilitate prioritization scoring and provide a more nuanced approach to implementation. Route segments were scored individually. For example, RR2F, a shared use path segment from Glenford to the Licking County Line, received a different score than RR2E, the trail segment from Somerset to Glenford.

Stakeholder Input Results

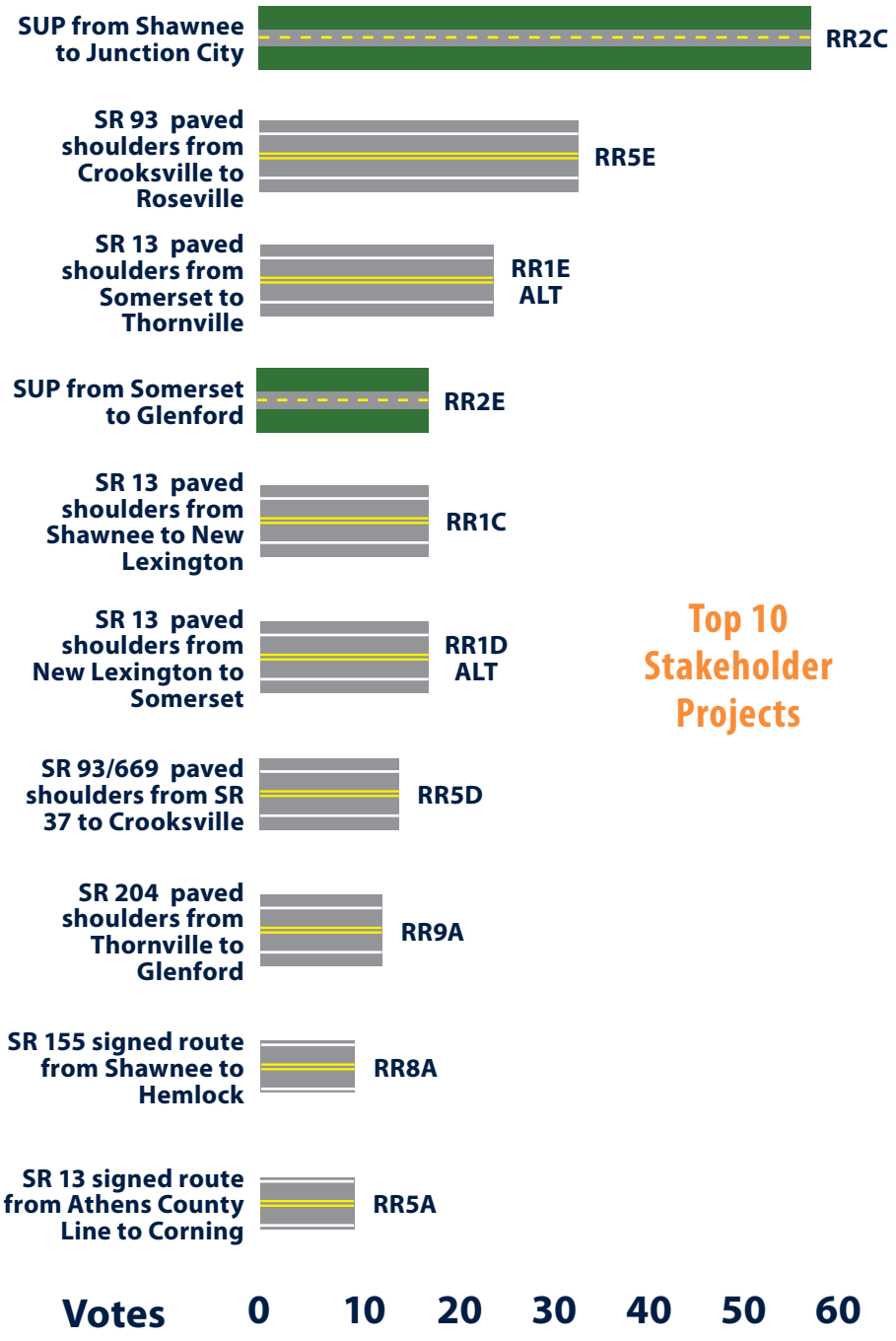
Public participation in the prioritization process is critical to ensure that final recommendations align with local needs. Community members had the opportunity to share their preferences for prioritization during a series of community engagement events in Fall 2019 (see Chapter 2).

Individuals were given five votes to distribute among their top priority projects. Community members and the Advisory Team cast over 250 votes on the 37 route segments that comprise the countywide bicycle network. The top ten projects are show in the graphic to the right.

While public opinion is an important determinant in identifying priority projects, it is not the only factor. The project prioritization process used six other criteria to evaluate and rank each countywide bicycle recommendation, which resulted in a balanced and data-driven analysis of potential projects.

Criteria

Criteria refer to general concepts that are important to consider during prioritization, such as safety and connectivity. Seven criteria were used to prioritize projects. They include both quantitative and qualitative measures. Data for all criteria were derived from national or statewide sources. Datasets included both internal ODOT sources and external datasets from other organizations. Average Annual Daily Traffic and crash data are examples of ODOT data. External sources include demographic data from the US Census.



Criteria are shown in Table 12 and described in detail below. Each criteria has one or more variables. A variable is an individual measurement of some condition near a project.

Demand - Walk Bike Ohio, ODOT's statewide bicycle and pedestrian plan, includes a demand analysis for walking and biking. This is a composite score based on employment, walking and biking mode share, poverty, population density, retail, parks, and the presence of colleges or universities.

Demand Variable - Area-weighted average demand score within a quarter-mile of each project. Uses census tract-level demand scores developed in the Walk Bike Ohio Analysis. The area-weighted average is intended to estimate demand scores when one project intersects more than one census tract. The percentage overlap is multiplied by the intersecting tract score and the final score is taken as the sum of demand scores by project.

Table 12. Project Prioritization Criteria

Factor	Data	Weight
Demand	Walk Bike Ohio Analysis	20
Equity	Walk Bike Ohio Analysis	20
Safety	5-Year Crash History	6
	Posted Speed	7
	Traffic Volumes	7
Connectivity	Plan Recommendations	7.5
	Connections to other counties	7.5
Synergy	ODOT District Work Plans	5
Stakeholder Input	Advisory Team Priority Mapping	5
	Public Engagement Priority Mapping	5
Cost	Relative Facility Type Cost Estimates	10
Total		100

Equity - Walk Bike Ohio also includes an equity analysis for the entire state. It created a composite equity score for every census tract in the state, with scores assigned based upon the presence of minority groups, youth, older adults, poverty, educational attainment, limited English proficiency, and motor vehicle access.

Equity Variable - Area-weighted average equity score within a quarter-mile of each project. Uses census tract-level total equity scores developed in the Walk Bike Ohio Analysis. The area-weighted average is intended to estimate equity scores when one project intersects more than one census tract. The percentage overlap is multiplied by the intersecting tract score and the final score is taken as the sum of equity scores by project.

Safety - Safety includes three different data sources: five-year crash history, posted speed, and traffic volumes. Research shows that motorized traffic speed and volume strongly influence bicycling behavior.[26, 27, 28] These factors are critical considerations for bicyclist and pedestrian safety and comfort. Proximity to motor vehicle traffic is a significant source of stress, safety risks, and discomfort for bicyclists, and corresponds with sharp rises in crash severity and fatality risks for vulnerable users when motor vehicle speeds exceed 25 miles per hour.[29]

Safety Variables:

- Average Annual Daily Traffic – Scored as the maximum AADT value among the street segments which make up a project.
- Speed – Scored as the maximum speed limit among the streets segments which make up a project.
- Crashes – Bicycle and pedestrian crashes within 200 feet of each project weighted by severity rating. Source data includes all bike/pedestrian crashes in Perry County from 2014 - 2018 with severity ratings 1 – 4 based on degree of injuries reported. Weighting is applied by calculating the sum of the crash severity score within 200 feet.

Connectivity - Recommendations include a variety of route options and facility types for users of varying ability and experience level, with redundant and alternative routes built into the proposed network.

Connectivity Variable - Each route segment was scored on the number of other proposed routes that it connects to. This variable counts the number of connections to other proposed projects. Any other project within 200 feet of a project counts as a connection. Each segment is considered a project in and of itself, so it counts when 1A connects with 2A as well as when 1A connects with 1B.

Projects were also scored for connecting to other counties, to reward regional connectivity. Any project within 300 feet of the county border received extra points.

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

Synergy Variable - Projects receive a point for overlap with ODOT District Work Plan projects.

Stakeholder Input - See Stakeholder Input Results section on page 74.

Cost - Facility types were assigned relative cost estimates: Signed Route = low cost, Paved Shoulder = medium cost, and Shared Use Path = high cost

Cost Variable - Measures relative cost of facility recommendation based on construction cost and prioritizes less-expensive projects. Ranking is as follows:

- Signed Route = 1 point
- Paved Shoulder = 0.66 points
- Shared Use Path = 0.33 points

Methodology

After calculating the individual variables, scores were scaled to values between zero and one. This is done by setting the lowest score equal to zero, the highest score equal to one, with the remaining scores falling somewhere in between them.

$$\frac{\text{(project score - minimum score)}}{\text{maximum score - minimum score}}$$

Factors

A factor is the combination of similar variables into a sub score by category. The Safety Score and Stakeholder Input Score are both of this type. For final calculation, all other variables are weighted separately and therefore roughly equivalent to a factor.

$$\text{Safety Score} = \frac{\left(\begin{array}{c}\text{scaled AADT} + \\ \text{scaled speed limit} + \\ \text{scaled crash score} +\end{array}\right.}{3}$$

$$\text{Stakeholder Input Score} = \frac{\left(\begin{array}{c}\text{client priority input} + \\ \text{public engagment input}\end{array}\right.}{2}$$

These factor scores were then scaled to values between zero and one using the methodology above.

Final Prioritization Score

The final score was calculated as the sum of the scaled factors with relative weights applied. The weighting scheme was presented to and developed in close coordination with Perry County and ODOT staff.

$$\text{Priority Score} = \left(\begin{array}{c}\text{(scaled demand score x 20) +} \\ \text{(scaled equity score x 20) +} \\ \text{(scaled safety score x 20) +} \\ \text{(scaled connectivity score x 15) +} \\ \text{(scaled synergy score x5)} \\ \text{(scaled stakeholder input score x 10) +} \\ \text{(scaled project cost score x 10)}\end{array}\right.$$

Prioritization rankings for each segment are listed in Chapter 5, Table 2, and Tables 13-15 on the following page. They are discussed in more detail in the Implementation Section. The top three priority projects are discussed in detail at the end of this chapter.

Implementation Approach

Implementing this plan will take time and significant effort. The following implementation strategy identifies short-, medium-, and long-term plan priorities and highlights those people or organizations responsible for moving priority projects forward. While the Advisory Team has been involved in this planning process, implementation will require working with a larger number of partners, as well as building public support for priority projects. In their professional capacities, members of the Advisory Team may be responsible for implementing specific plan recommendations. In their capacity as Advisory Team members, they will need to continue to support the Plan and garner community buy-in.

Short-, mid-, and long-term project phasing

Project phasing is based on the prioritization results. The top eight recommendations are classified as short-term project, the next eight recommendations are classified as medium-term projects, and the remaining recommendations are classified as long-term projects. Projects are shown in the tables below and in Maps 18-20 at the end of this section.

Short-Term (0-5 Years)

Short-term projects are the most important phase of implementation. Projects that are successfully completed early on in the process in a highly visible area with the potential to serve many users would generate excitement around the Plan and show Perry County's commitment to expanding active transportation as a valid means of travel. As such, funding, community support, and political will to pursue the recommendations in this Plan will be most important during the first phase of implementation.

Short-term projects are clustered around the county's urban areas, including New Lexington, Crooksville, and Roseville. Connections between

Table 13. Short-Term Projects

Project	Facility	Rank
NL9	Sidewalk	1
4C	Paved Shoulders	2
1A	Signed Route	3
1E ALT	Paved Shoulders	4
5E	Paved Shoulders	5
1C	Paved Shoulders	6
4A	Paved Shoulders	7
4B	Paved Shoulders	8

Table 14. Medium-Term Projects

Project	Facility	Rank
3A	Paved Shoulders	9
5A	Signed Route	10
1E	Signed Route	11
4D	Signed Route	12
1B	Signed Route	13
3B	Paved Shoulders	14
1F	Signed Route	15
4B	Paved Shoulders	16

Table 15. Long-Term Projects

Project	Facility	Rank
RR5 ALT	Shared Use Path	17
9B	Signed Route	18
9A	Paved Shoulders	19
8B	Signed Route	20
2C	Shared Use Path	21
10B	Signed Route	22
RR7	Signed Route	23
1D	Signed Route	24
10C	Signed Route	25
1D ALT	Paved Shoulders	26
5D	Paved Shoulders	27
5C	Signed Route	28
5B	Paved Shoulders	29
2A	Shared Use Path	30
2B	Shared Use Path	31
2F	Shared Use Path	32
5D ALT	Shared Use Path	33
10A	Signed Route	34
RR6	Signed Route	35
2E	Shared Use Path	36
2D	Shared Use Path	37

urban areas would also be built during this phase, including widened shoulders between Somerset and Thornville, New Lexington and Shawnee, and Junction City and New Lexington.

Medium-Term (6-10 Years)

Projects completed during the medium-term phase of plan implementation would expand the countywide bicycle network to more communities and rural parts of the county, including Corning, Rendville, and New Straitsville. This phase would also establish improved accommodations on some of the county's east-west corridors (US 22 and SR 37 in the eastern part of the county).

Long-Term (> 10 Years)

During the last phase of implementation, low-priority projects would significantly expand the county's active transportation network. Full buildout would reach all communities in the county, establish more route alternatives between major destinations, and see the first sections of shared use path built.

Network Buildout

This is Perry County's first coordinated effort to institute a countywide bicycle and pedestrian network. With virtually no bicycle facilities throughout the county and a very limited sidewalk network, Perry County is building its active transportation system from the ground up. Because institutional knowledge about implementing active transportation facilities may be lacking, it is paramount that the Advisory Team and other implementation leaders consult best practices in building the network. Suggested resources are listed below, and common steps and considerations in implementing active transportation plans are listed in Table 16 by facility type.

ODOT

Bicycle and Pedestrian Resources for Engineers

Active Transportation Guide: A Reference for Communities

Active Transportation Guidance

Ohio Traffic Engineering Manual (TEM), Part 9 Bicycle Facilities

Location and Design (L&D) Manual, Sections 300, 400, 600, 700, & 800

Ohio Manual of Uniform Traffic Control Devices (OMUTCD), Part 9: Traffic Controls for Bicycle Facilities

Guidance to inform Pedestrian/Bicycle infrastructure at Railroad Crossings

Multimodal Design Guide (forthcoming)

Other

FHWA Small Town and Rural Design Guide

FHWA Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts

FHWA Bikeway Selection Guide

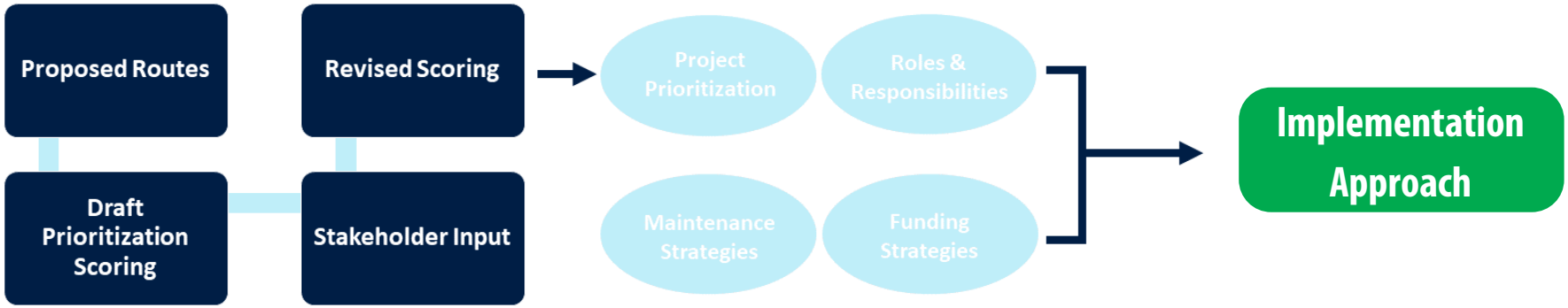


Table 16. Network Buildout Considerations

	Implementation Activity	Strategy
Shared Use Paths	Acquisition	Contact property owners to determine feasibility of acquiring abandoned rail right-of-way for shared use path development.
	Funding	Work with partner agencies (e.g. park district) to identify potential funding streams for right-of-way acquisition, design, construction, and maintenance.
	Alternatives	When shared use paths are not feasible, other bikeways which maximize user safety and comfort to the greatest extent practicable should be considered. For example, if the preferred bikeway is a shared use path and the current project is a street resurfacing, it may not be feasible for that project to install the shared use path. The only practical option may be the installation of a shoulder.
Paved Shoulders	Project Identification and Development	Review ODOT District 5 resurfacing schedule. Work with District staff to pursue widened shoulders on priority routes identified in this Plan; upcoming resurfacing projects that do not overlap with Plan recommendations could also be considered for widened shoulders on a case by case basis (if significant bicycle activity exists or has the potential to develop along the route).
	Dimensional Considerations	On routes where widened paved shoulders are recommended in this Plan, determine if preferred shoulder widths (see Chapter 5) can be constructed within existing right-of-way. If not, widen shoulders as much as possible: in highly constrained conditions where sufficient shoulder width cannot be achieved, it is preferable to provide a narrow shoulder rather than no shoulder.
	Drainage	Drainage is a challenging factor in rural areas. The presence of drainage swales can make wider paved shoulders fiscally challenging and often requires additional right-of-way (to site a facility on the private property side of the drainage, or cover the drainage with the facility, forcing it to move further away from the road).
	Alternatives	A separated shared use pathway or sidepath is a suitable alternative to providing paved shoulders.
Signed Routes	Directional Signage	Identify key decision points along priority signed routes for signage placement. For long segments where decision points (i.e. intersections) do not exist, plan for wayfinding/directional signs every 2,640 feet (0.5 mile).
		Determine responsibility for signage installation on state routes in urban areas.
		List distances to key destinations on wayfinding signage in urban areas; in rural areas, list distances to nearby villages.
	Regulatory and Warning Signage	Install Bikes May Use Full Lane (BMUFL) signs at corporation limits to all villages (R4-11 Manual on Uniform Traffic Control Devices). Consider BMUFL signs on priority bikeways in unincorporated areas and install Share the Road signs on all bikeways in unincorporated areas (MUTCD W16-1P).
	Pavement Markings	Pavement markings, such as sharrows, in between sign locations can supplement signed routes to alert motorists and inform bicyclists that they are still on the correct route.
Sidewalks	Expand Sidewalk Networks	While new development is concentrated in only a few locations throughout the county, communities expecting growth should establish ordinances or amend subdivision regulations to require sidewalk installation for all new developments at the time of street construction.
		Transition to 100% public funding for new sidewalks in high pedestrian infrastructure demand areas (e.g. Carroll Street).
	Fill in Sidewalk Gaps	Require sidewalk installation for all redevelopment projects.
	Crossings	Require high-visibility, protected crossings in high priority areas (e.g. Carroll Street).

AASHTO Guide for the Development of Bicycle Facilities (2020 update forthcoming)

AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities

Evaluating Performance

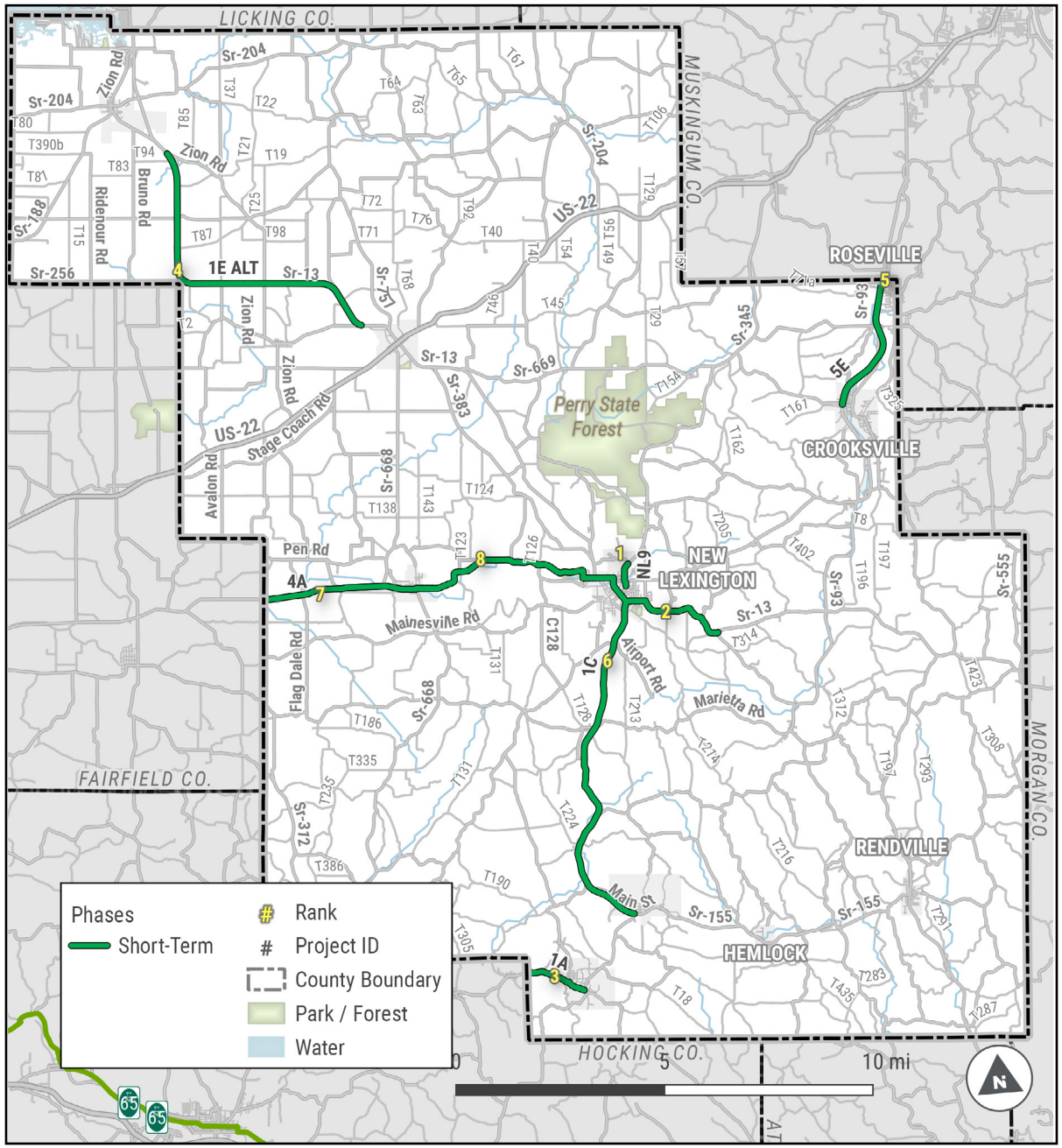
Measuring the performance of active transportation networks is essential to ongoing success. Bicycle and pedestrian counts, crash records, and other data contribute to a business case for continued improvement of and investment in multimodal infrastructure. As recommendations in the Plan are constructed and programs are started, implementation leaders must be able to measure whether these investments are paying active transportation dividends (i.e. more people walking and bicycling). An affirmative answer reinforces the Plan's legitimacy, and provides evidence that future investments will also yield positive results. The performance measures in Table 17 provide a framework for how Perry County can begin charting its progress towards making walking and biking safe, connected and comfortable. The Advisory Team should establish baseline targets and revisit these metrics as new plans and priorities occur. Data on these measures should be documented and published for public review annually. While considering these measures is a good starting point, Perry County would need to commit more time to develop a robust performance measures program. This includes establishing baseline measurements, performance targets, data collection frequency, and data collection and analysis responsibility. Active transportation performance measures guidance is listed below:

- Federal Highway Administration: Guidebook for Developing Pedestrian and Bicycle Performance Measures
- Fehr and Peers: Active Transportation Performance Measures

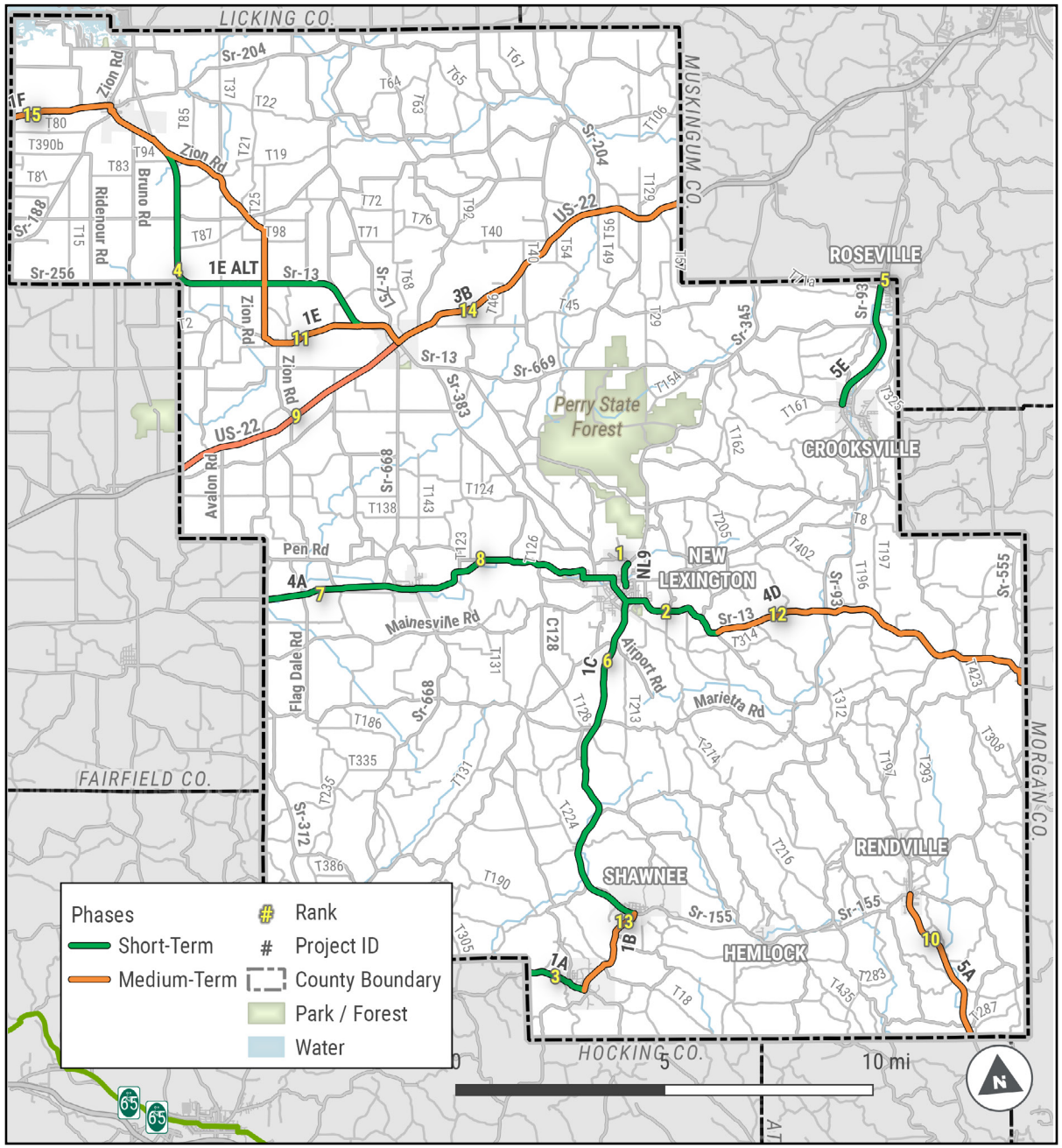
Table 17. Recommended Performance Measures

Bicycle Facilities	Increase miles of network built annually – target __% increase per year.
	Increase amount of bicycle parking facilities annually.
Semi-Annual Pedestrian and Bicycle Counts	After developing a baseline of pedestrian and bicycle activity, aim for year over year increases.
	Update student travel tallies for all schools and identify a baseline percentage of students who walk and bike. Conduct travel tallies semi-annually and measure the change in the number of students walking and bicycling.
Education Programming	Track the number of children and adults who participate in pedestrian and bicycle education programming every year.
	Track public education campaigns and programs that include targeted efforts for law enforcement, students, traditionally underserved populations and other key stakeholders with target outreach goals set for 2025 and 2030.
Safety	Track the number of crashes that occurs every year, including whether bicyclists or pedestrians were involved and the level of severity, if injuries occurred.
	Reduce rate of bicycle/pedestrian and motor vehicle crashes – target __% decrease per year.
Public Opinion	Conduct an annual active transportation survey to gauge resident comfort and opinion about active transportation in Perry County.
Mode Share	Establish countywide bicycle and pedestrian mode share goals– set milestones for 2025 and 2030. (Current mode share is 1.6% for pedestrians and 0% for bicyclists.)
	Increase bicycle and pedestrian mode share target __% per year.

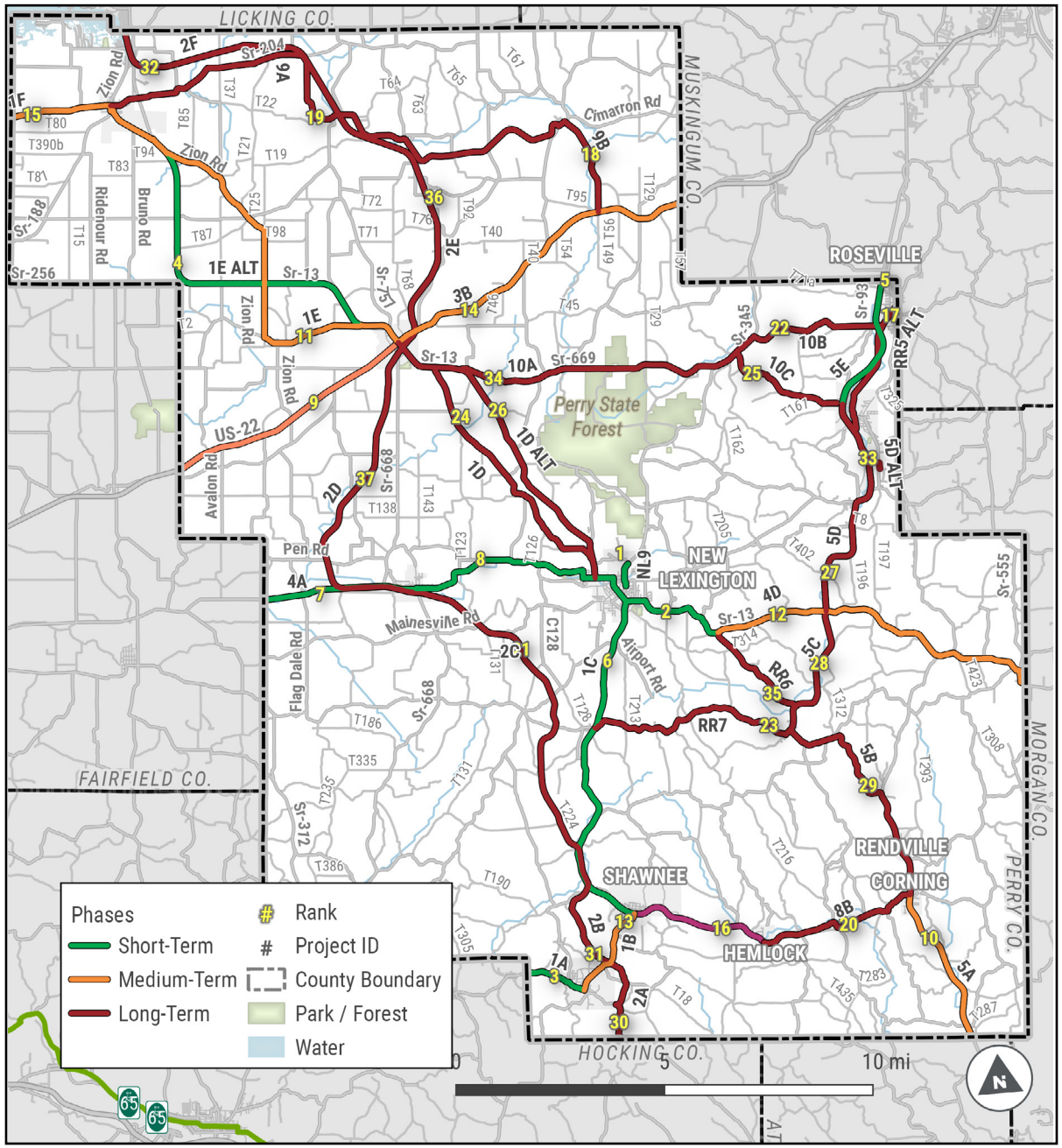
Map 18. Short-Term Projects



Map 19. Short and Medium-Term Projects



Map 20. Short, Medium, and Long-Term Projects



Priority Projects

The consultant team and Advisory Team members selected three projects for further study, with guidance from the public. The following pages describe each project in detail, including site analyses, recommendations, implementation considerations, and responsible parties. Planning-level cost estimates and conceptual renderings were developed for each project as well.

Project #1: NL9, Carroll Street Corridor Improvements

Carroll Street is not part of the proposed countywide bicycle network. However, this road holds countywide significance as the primary commercial corridor in Perry County. It was included in the prioritization scoring, and it was the top-ranked project among all 37 countywide recommendations.

Project #2: RR4C, Paved Shoulders on SR 13/37/93

This project ranked number two in the prioritization scoring. It would widen the paved shoulders on SR 13/37/93 east of New Lexington to accommodate bicyclists.

Project #3: RR2C Shared Use Path from Shawnee to Junction City

This recommendation was the top project among the public and Advisory Team members. While it did not score as highly in the quantitative project prioritization analysis (ranked 21st), it is important to put local priorities at the center of the implementation process. Focusing on projects that are popular will build momentum once the plan is adopted, generate good will and political support, and empower the public to realize its own vision for active transportation in Perry County.

Cost Estimates

Planning-level cost estimates are included for each project on the following pages. Opinions of probable cost were developed by identifying major pay items and establishing rough quantities to determine a rough order of magnitude cost. Additional pay items have been assigned approximate lump sum prices based on a percentage of the anticipated construction cost. Planning-level cost opinions include a 30% contingency to cover items that are undefined or are typically unknown early in the planning phase of a project. Unit costs are based on 2019 dollars and were assigned based on historical cost data from the Ohio Department of Transportation Historical Bid Data. Cost opinions do not include easement and right-of-way acquisition; permitting, inspection, or construction management; special site remediation, escalation, or the cost for ongoing maintenance. A cost range has been assigned to certain general categories such as drainage; however, these costs can vary widely depending on the exact details and nature of the work. The overall cost opinions are intended to be general and used only for planning purposes. Toole Design Group, LLC makes no guarantees or warranties regarding the cost estimate herein. Construction costs will vary based on the ultimate project scope, actual site conditions and constraints, schedule, and economic conditions at the time of construction.

Motor vehicle traffic along Carroll Street

Project #1: NL9, Carroll Street Corridor Improvements

Background

- Site Limits - Railroad Street to Panther Drive.
- Land Use - Primarily commercial, some residential and industrial.
- Length - 0.5 miles.

Site Inventory

- Pedestrian Facilities - No sidewalks; partial marked crossings at Broadway, no other signalized crossings marked.
- Bicycle Facilities - None.
- Roadway - 11 to 13-foot lanes. In areas with shoulder, the available shoulder width is 1 to 2 feet. Dedicated turn lanes onto Broadway and northbound onto Lincoln Park Drive.


Pedestrians walking along Carroll Street at Lincoln Street


Goat path along Carroll Street at Jefferson Street

- Speed limit - 25 MPH from Railroad Street to corporation boundary, 35 MPH from corporation boundary to Panther Drive.
- Traffic volumes - 3,061 AADT.

Site Analysis

The Carroll Street Corridor is home to major employers, such as Cooper-Standard and Kroger, as well as many small businesses and destinations that are within walking and bicycling distance of New Lexington's residential neighborhoods. As Perry County's primary commercial district, it attracts significant motor vehicle traffic, transit trips, and pedestrian activity. Drive-thru restaurants, pharmacies, and gas stations pose access management challenges and create a hostile environment for people walking. For example, pedestrians on the east side of Carroll Street must cross over five driveway entrances in the 450-foot section between Broadway Street and Lincoln Park Drive. There is only one signalized marked crosswalk along the entire 0.5-mile segment. A lack of sidewalks forces people to walk in the grass or directly next to motorized traffic on the side of the road. Pedestrian demand paths or "goat paths" are worn into the ground along the entire corridor.

NL9 scored highly in the demand and equity categories, reflecting its densely populated surroundings and many destinations along the corridor. Students use Carroll Street to walk to and from the New Lexington Schools campus on Panther Drive. Kroger, one of the only full-service grocery stores in the county, attracts pedestrians from surrounding neighborhoods. The area also attracts heavy truck traffic, and experiences an average of 17 crashes per year, including a pedestrian-involved crash at Lincoln Street in 2016. Given this record of safety issues and the confluence of multimodal activity along Carroll Street, it is imperative to provide accommodations for active transportation users to ensure a safe and comfortable travel environment.

Recommendations

Recommendations include sidewalks or sidepaths on one or both sides of the street, depending on available right-of-way, upgrading existing signalized crossings to high-visibility crosswalks with Accessible Pedestrian Signals and ADA-compliant curbramps, and installing marked crossings with Rectangular Rapid Flashing Beacons (RRFBs) at key locations. The conceptual design on the following page shows a sidepath on the east side of Carroll Street from the north entrance to the Kroger parking lot, extending north to Panther Drive. Not pictured is a proposed sidepath on the west side of the street from Autozone Parts to Panther Drive. If right-of-way or funding do not allow for sidepaths on both sides of the street, the east side is preferable, because there are fewer driveways. RRFBs with marked crossings at Jefferson Street, Lincoln Street, and the north entrance to the Kroger parking lot are pictured; a fourth RRFB at Panther Drive is also recommended to connect to the sidepath on the east side of Carroll Street.

Implementation Considerations

ODOT District 5's work plan for 2024 lists a microsurfacing project along SR 345, including Carroll Street from Broadway Street to Panther Drive, and continuing to the Muskingum County line. Microsurfacing is a preventive maintenance technique that extends pavement life. ODOT and other active transportation plan stakeholders should consider incorporating pedestrian improvements into routine maintenance projects such as this one whenever possible.

Responsible Parties

- New Lexington
- Perry County
- ODOT

Table 18. Carroll Street Corridor Pedestrian Improvements Cost Estimate (NL9)*

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Excavation	CY	1481	$33.65	$49,851.85	
6" Aggregate Base	CY	889	$95.01	$84,453.33	
4" Concrete Walk	SF	48000	$6.64	$318,720.00	
4" Base Pipe Underdrains	FT	4800	$11.74	$56,352.00	Addition of pipe underdrain along corridor
Combination Curb and Gutter, Type 2	FT	4800	$34.08	$163,584.00	
Railroad Crossing	EA	1	$500,000.00	$500,000.00	Upgrade arms, may require OH electric adjustment
Signals	EA	1	$225,000.00	$225,000.00	Signalize Mill St
RRFB	EA	3	$80,000.00	$240,000.00	Hardwired RRFB
ADA Ramps	EA	34	$7,000.00	$238,000.00	
Opinion of Probable Cost Subtotal				**$1,875,961.19**	
Landscaping/Turf Establishment (10%)				$187,596.12	Includes allowance for street trees
Signing/Markings (2%)				$37,519.22	
Lighting (25%)				$468,990.30	Pedestrian scale lighting
Utility Relocations (15%)				$281,394.18	
Drainage (30%)				$562,788.36	
Contingency (30%)				$1,024,274.81	
Total Opinion of Probable Cost				**$4,438,524.16**	
Rounded Opinion of Probable Cost				**$4,440,000.00**	
Rounded Opinion of Probable Cost; W/25% Engineering				**$5,550,000.00**	

**Assumes 10' wide concrete sidepaths with signage and intersection crossing/curb ramp improvements along both sides of Carroll Street from Railroad Street to Panther Drive. The rendering on the following page shows a less costly version of NL9, with sidewalks south of Auto Zone parts (west side) and south of the north entrance to the Kroger parking lot (east side).*

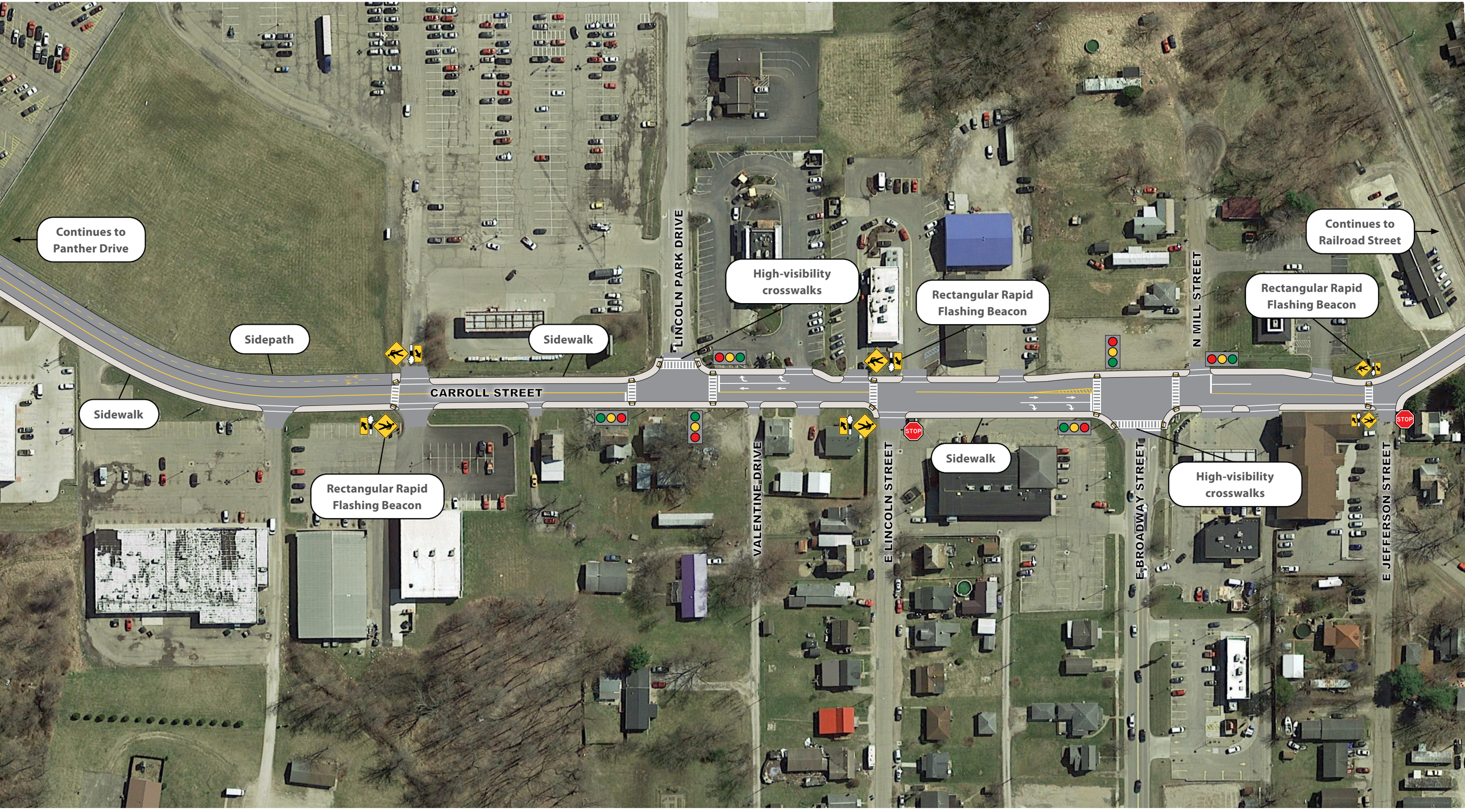
Also includes an allowance for drainage and landscaping.

Costs do not include any removals or right of way acquisition.

Unit Prices per Ohio DOT Historical Bid Data Item Search (Sidewalk, 2015-2019).

All costs in 2018 dollars.

Figure 7. Carroll Street Corridor Pedestrian Improvements Conceptual Design (NL9)



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Narrow shoulders on SR 13/37/93

Project #2: RR4C, Paved Shoulders on SR 13/37/93

Background

- Site Limits - Dallas Avenue to Jamestown Road.
- Land Use - Primarily undeveloped, some residential and commercial.
- Length - 2.2 miles.

Site Inventory

- Pedestrian Facilities - None.
- Bicycle Facilities - None.
- Roadway - Ten to 11-foot lanes. Shoulder width is less than one foot in most areas, expanding to two to three feet around curves.


SR 13/37/93 approaching Six Mile Turn Auto Sales


SR 13/37/93 entering New Lexington

- Speed limit - 45 MPH from Dallas Avenue to Commerce Drive; 55 MPH from Commerce Drive to Jamestown Road.
- Traffic volumes - 4,437 AADT.

Site Analysis

This segment of SR 13/37/93 is a narrow two-lane road with frequent curves and sparse development. Several single-family homes are located on the south side of the road, with more homes and businesses in New Lexington village limits. West of the site, the road converges with Mill Street, a residential street with sidewalks, and continues through New Lexington.

RR4C scored highly in the safety category, indicating high traffic volumes and speeds and a history of crashes, including several involving pedestrians and bicyclists.

Recommendations

With daily traffic volumes approaching 4,500, some degree of separation between bicyclists and motorists is needed to maintain a comfortable travel environment. Widened shoulders could accommodate highly confident and somewhat confident bicyclists as they approach or exit New Lexington. Further east, past Jamestown Road, traffic volumes drop to 2,000 and the paved shoulders would narrow, with a signed route continuing to the county line (RR4D).

The conceptual design on the following page shows eight-foot wide shoulders in both directions with share the road warning signage (MUTCD W16-1P).

Rumble strips could be installed on the widened shoulders if a minimum of four feet of operating space remains for bicyclists, per FHWA best practices.[30]

Implementation Considerations

ODOT District 5's work plan for 2020 lists a fast dry pavement marking project in both directions along SR 13/37/45, including the RR4C segment. While it is likely too late to incorporate shoulder widening into this project, lower-cost improvements, such as share the road signage, could be installed concurrently. ODOT and other active transportation plan stakeholders should consider incorporating bicycle improvements into routine maintenance projects such as this one whenever possible.

Responsible Parties

- New Lexington
- Perry County
- ODOT

Table 19. State Route 13/37/93 Paved Shoulders Cost Estimate (RR4C)*

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Excavation of Subgrade	CY	7982	$18.05	$144,070.20	
1 1/4" Asphalt Concrete Surface Course, Type I, (448) PG 64-22	CY	713	$368.35	$262,506.22	
1 3/4" Asphalt Concrete Intermediate Course, Type 2, (448)	CY	998	$183.25	$182,831.47	
5" Asphalt Concrete Base, PG64-22	CY	2851	$228.97	$652,705.84	
6" Aggregate Base	CY	3421	$50.25	$171,892.22	
6" Shallow Pipe Underdrains	FT	23090	$9.21	$212,658.90	Addition of pipe underdrain at shoulders
Opinion of Probable Cost Subtotal				**$1,626,664.84**	
Grading/Landscaping/Turf Establishment (20%)				$325,332.97	
Signing/Markings (5%)				$81,333.24	
Drainage (20%)				$325,332.97	
Contingency (30%)				$707,599.21	
Total Opinion of Probable Cost				**$3,066,263.23**	
Rounded Opinion of Probable Cost				**$3,070,000.00**	
Rounded Opinion of Probable Cost; W/25% Engineering				**$3,840,000.00**	

**Assumes 8' widepaved shoulder along SR 13/37/93 from Dallas Avenue to Jamestown Road.*
Also includes an allowance for grading, drainage and landscaping.
Costs do not include any removals or right of way acquisition.
Unit Prices per Ohio DOT Historical Bid Data Item Search (Major Widening, 2015-2019).

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Figure 8. State Route 13/37/93 Paved Shoulders Conceptual Design (RR4C)

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Abandoned rail right-of-way along proposed shared use path alignment for RR2C

Project #3: RR2C, Shared Use Path from Shawnee to Junction City

Background

- Site Limits - Shawnee to Junction City.
- Land Use - Undeveloped.
- Length - 9.5 miles.

Site Inventory

- Pedestrian Facilities - None.
- Bicycle Facilities - None.
- Roadway - N/A (abandoned railroad right-of-way).
- Speed limit - N/A.
- Traffic volumes - N/A.

1898 map of Perry County railroads (source: Dan West)

Site Analysis

The existing site travels along abandoned railroad right-of-way. The railroad was opened by the Newark, Somerset and Straitsville Railroad in 1867. The line was abandoned in 1927 and has been unused ever since.[31]

Recommendations

Repurposing this space for recreational use would provide a major economic boost to southern Perry County, similar to other rail trails in surrounding counties. The proposed shared use path would be part of the Emerald Necklace Greenway, a north-south trail that spans the entire county on abandoned railroad right-of-way. The RR2C segment would connect New Straitsville and Shawnee to Junction City. It was the top-ranked project among the public, indicating strong potential for attracting recreational walkers and riders to this part of the county.

The rendering on the following page shows one portion of the proposed trail crossing Dutch Ridge Road. High-visibility crosswalks and warning signage are pictured at the crossing. The 11-foot trail would accommodate three bicyclists riding side by side, as well as walkers and other trail users. As a potential future phase of the project, a spur could be constructed to connect the trail to New Lexington.

Implementation Considerations

Given the popularity of all terrain vehicles (ATVs) in southern Perry County, it is possible that ATV users may attempt to access the trail. However, motorized vehicles are usually prohibited from shared use paths to maintain a safe and quiet environment for people walking and bicycling. It is recommended to post signs at each trailhead and crossing prohibiting the use of motorized vehicles, and directing ATVs and other motorized users to unpaved trail systems elsewhere in the county constructed for that purpose. Bollards or posts at trail entrances could also discourage motor vehicle access.

Responsible Parties

- Shawnee
- Junction City
- Perry County
- Perry County Park District

Table 20. Shared Use Path from Shawnee to Junction City Cost Estimate (RR2C)*

Item	Unit	Quantity	Unit Cost	Total Cost	Assumptions
Excavation of Subgrade	CY	23887	$16.81	$401,534.35	
6" Aggregate Base	CY	10237	$79.80	$816,922.94	
1 1/4" Asphalt Concrete Surface Course, Type I, (448) PG 64-22	CY	2133	$268.30	$572,212.89	
1 3/4" Asphalt Concrete Intermediat Course, Type 2, (448)	CY	2986	$215.99	$644,909.31	
5" Asphalt Concrete Base, PG64-22	CY	8531	$278.92	$2,379,450.16	
Structures	SF	5100	$400.00	$2,040,000.00	5 water crossings, approx. 60' long, 17' wide
ADA Ramps	EA	23	$7,000.00	$161,000.00	
Opinion of Probable Cost Subtotal				**$7,016,029.66**	
Landscaping/Turf Establishment (10%)				$701,602.97	
Signing/Markings (5%)				$350,801.48	
Drainage (30%)				$2,104,808.90	
Contingency (30%)				$3,051,972.90	
Total Opinion of Probable Cost				**$13,225,215.90**	
Rounded Opinion of Probable Cost				**$13,230,000.00**	
Rounded Opinion of Probable Cost; W/25% Engineering				**$16,540,000.00**	

**Assumes 11' wide asphalt path with signage and intersection crossing/curb ramp improvements in abandoned rail right-of-way from Shawnee to Junction City.*
Also includes an allowance for drainage and landscaping.
Actual number of water crossings may be fewer than 5.
Costs do not include any removals or right of way acquisition.
Unit Prices per Ohio DOT Historical Bid Data Item Search (Bikeways, 2015-2019).

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Figure 9. Shared Use Path from Shawnee to Junction City Conceptual Design (RR2C)

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Endnotes

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