CITY OF SPRINGBORO

BICYCLE AND PEDESTRIAN PLAN

May 16, 2013

prepared for:

SPRINGBORO

prepared by:

The Greenway Collaborative, Inc.

CITY OF SPRINGBORO BICYCLE & PEDESTRIAN PLAN

ADOPTED MAY 16, 2013

ACKNOWLEDGEMENTS

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CITY OF SPRINGBORO BICYCLE & PEDESTRIAN PLAN

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APPENDIX (SEPARATE DOCUMENT)

*The Proposed Bicycle & Pedestrian Network Map (this is a large map) may be downloaded from the Project Webpage at http://greenwaycollab.com/Projects/Springboro/Springboro.html

ADDITIONAL SUPPLEMENTAL DOCUMENTS:

The following documents are not specific to Springboro but are provided as a reference guide for continued development of bicycle and pedestrian improvements:

- Public Policy Best Practices
- Physical Environment Best Practices
- Community Program Best Practices
- Quality of Life Best Practices
- TGC Design Guidelines

INTRODUCTION

The City of Springboro's Bicycle and Pedestrian Plan presents a long-range plan to accommodate bicycle and pedestrian transportation systems within the community as well as connections to adjoining communities. The plan looks at how the community may transform its streets into outstanding attractive public spaces that are friendly to bicyclists and pedestrians while continuing to serve the needs of motorized traffic. Once implemented, the proposed improvements will help the City of Springboro to continue to be an attractive place to live, work, and play.

BACKGROUND

The City of Springboro has a population of 17,409 residents (according to the 2010 US Census) and over the past two decades has been among the fastest growing communities in Ohio. The community has consistently been recognized for its excellent school system, parks and historic district. In 2009 and 2011, CNN Money Magazine recognized Springboro as one of its 100 "Best Places to Live."

In February 2009, Springboro City Council adopted a *Bicycle Friendly Community Action Plan*, a policy document produced for the City by the Miami Valley Regional Planning Commission (MVRPC). The Action Plan's adoption was followed up by the establishment later in 2009 of the Bicycle & Pedestrian Advisory Committee (BPAC), an ad-hoc committee established to "…implement the recommendations of the City of Springboro Bicycle Friendly Community Action Plan; advise City Council, the Planning Commission, other boards and commissions and City staff on the implementation of the action plan."

Since its establishment, the BPAC conducted a Bicycle Fest in 2010 to raise bicycle awareness and adopted a standard design for bicycle racks for use at public buildings and places. It also has developed an outline for the development of a Bicycle & Pedestrian Plan and worked on completing a number of elements of the plan that will ultimately become part of any final report.

INTRODUCTION

1.1 BENEFITS OF A BICYCLE AND PEDESTRIAN PLAN

A non-motorized system based on best practices is of paramount importance to the health, safety and general welfare of the citizens of the Springboro. The benefits of a non-motorized system extend beyond the direct benefits to the users of the system to the public as a whole. A well-implemented non-motorized system will reap rewards by:

- Providing viable transportation alternatives for individuals who are capable of independent travel yet do not hold a driver's license or have access to a motor vehicle at all times.
- Improving safety, especially for the young and old who are at most risk due to their dependence on non-motorized facilities and their physical abilities.
- Improving access for the 11% of all Springboro residents[1] who have some type of disability and the 13% of all Americans who have a severe disability.[2]
- Improving the economic viability of the community by making it an attractive place to locate a business while simultaneously reducing public and private health care costs associated with inactivity.
- Encouraging healthy lifestyles by promoting active living.
- Reducing the water, air, and noise pollution associated with automobile use by shifting local trips from automobiles to walking or bicycling.
- Improving the aesthetics of the roadway and community by adding landscaping and medians that improve the pedestrian environment and safety.
- Providing more transportation choices that respect an individual's religious beliefs, environmental ethic, and/or uneasiness in operating a vehicle.
- Reducing the need for parking spaces.
- Creating a stronger social fabric by fostering the personal interaction that takes place while on foot or on bicycle.
- Reducing dependence on and use of fossil fuel with the resulting positive impact on climate change.
- Reducing barriers that discourage residents from choosing walking or cycling rather than automobiles for local transportation.

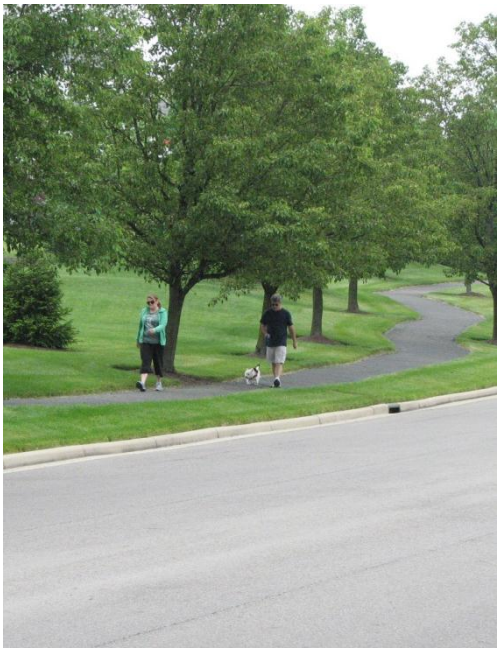
Improvements to non-motorized facilities touch all individuals directly, as almost all trips begin and end as a pedestrian.

[1] Profile of Selected Social Characteristics, 2000, US Census Bureau
[2] Americans With Disabilities: 2010 Household Economic Studies, US Census Bureau

1.2 PLANNING PROCESS

The planning process was a multi-step effort led by the BPAC and shaped by public input. The planning process for the Bicycle & Pedestrian Plan included the following major tasks:

- Inventory and Analysis of the existing bicycle and pedestrian environment
- Review of other projects and studies that were relevant to the planning process
- Public Engagement in the form of two public workshops, a project website and a web based survey; outreach was specifically directed at the disabled prior to surveys and public meetings
- Monthly meetings with the Bicycle and Pedestrian Advisory Committee (BPAC)
- Development of a project vision, goals and objectives
- Identification of opportunities and determination of potential facilities
- Recommendations to provide a spectrum of bicycle and pedestrian facilities that provide a non-motorized network across the City for a variety of users
- Recommendations for the priority public policies, community programs and quality of life targets.
- Identification and recommendations for potential connections to regional destinations
- Development of an Implementation Action Plan that identified priority routes and phasing
- Providing planning level cost estimates for the priority routes
- Crafting a Bicycle & Pedestrian Plan Report and Non-motorized Network Map
- Approval by the City Council for the adoption of the Bicycle & Pedestrian Plan as an amendment to the City of Springboro Master Mobility Plan



The planning process took twelve months to complete, beginning in May 2012 with adoption on May 16, 2013 by unanimous votes by city council.

1.3 PUBLIC ENGAGEMENT

OVERVIEW

Helping to shape this plan, has been a dedicated group of elected officials, appointed officials, public employees and the general public. The results of a web survey and the input gathered at two public workshops guided the proposed non-motorized network as well as setting implementation priorities. Providing a public engagement process ensured that the City of Springboro Bicycle & Pedestrian Plan will reflect a shared vision supported by the community at large as well as the key stakeholders. The following pages give an overview of the public engagement process for this project.

PROJECT WEBSITE

A project website was created to help keep the public informed during the project. The website included an overview of the project, project schedule, links to surveys, survey results, presentations, meeting summaries and draft project documents. The project website can be found at: http://greenwaycollab.com/Projects/Springboro/Springboro.html

STAKEHOLDER KICK-OFF MEETING

The kick-off meeting for the project consisted of a selected group of stakeholders including the BPAC, members of City staff including the Police Department as well as elected and appointed officials. The meeting included a presentation of best practices, a downtown walking audit and around town bicycling audit. The purpose of the meeting was to immerse the stakeholder group in the issues that they would be addressing over the course of the project and to create excitement about the effort that would spread beyond the initial stakeholder group.

WEB SURVEY

The first major public engagement effort was a web survey. The web survey was helpful as it permitted input from a large number of people who were not able or inclined to come to one of the public workshops. The web survey was available for two weeks in July 2012. 213 people began the survey and 180 completed the entire survey. The survey included both multiple choice selections as well as open-ended questions and collected information from the participants on a wide range of topics including, general information about the survey respondent, existing and future non-motorized travel, comfort bicycling on a variety of facility types, and project hopes and concerns. The information from the survey was used to guide the analysis as well as draft goals and objectives. Survey results can found in the Appendix.

PUBLIC VISIONING WORKSHOP

A Public Visioning Workshop was held on August, 7 2012 from 6:00pm to 9:00pm at the Springboro Municipal Building. Thirty-five people were counted in attendance and thirty-one signed in. During the workshop, participants were given the opportunity to give input through a variety of individual and group exercises. The workshop began with an overview of best practices and web survey results and then a role playing exercise was conducted to get people to look at non-motorized transportation from the perspective of someone else. Following the role playing exercise there were a number of different exercises that focused on project goals and objectives, corridor improvements, neighborhood connector routes and regional trail connections. Results from the Public Visioning Workshop can found in the Appendix of this report.

PRELIMINARY PLAN OPEN HOUSE

A Preliminary Plan Open House was held on September 18, 2012 with two identical sessions held from 3:00pm to 5:00pm and from 6:00pm to 8:00pm at the Springboro Municipal Building. The total attendance for both sessions was twenty-five people. Each session began with a short presentation of the preliminary plan recommendations. Following the presentation, stations were set-up around the room where participants could provide feedback and agree or disagree with other participant's comments to help build a consensus. Prioritization worksheets were provided to each participant as well to rank the recommendations in order of priority. Results from the Preliminary Plan Open House can be found in the Appendix of this report.

1.4 GOALS AND OBJECTIVES

OVERVIEW

The following vision, goals and objectives were created to guide the development of the plan. They evolved through an extensive public involvement process that began with a web survey that was completed by 180 people. Participants were asked to individually list their top three desired project outcomes. From this visioning process the project team found that he desired "outcomes" of the plan fell into the following three general categories:

- Infrastructure Improvements
- Behavior Change
- Culture Change

Using the survey input as a guide, the project team developed goals and objectives for the plan that would deliver these outcomes. The vision, goals and objectives were then presented at the public visioning workshop where the participants were asked to indicate their agreement or disagreement and offer modifications to improve them. Public input was incorporated as appropriate and the following vision, goals and objectives resulted.

92% OF THE PARTICIPANTS AT THE PUBLIC VISIONING WORKSHOP STRONGLY AGREED WITH THE COMMUNITY VISION

COMMUNITY VISION:

A FAMILY FRIENDLY BICYCLE AND PEDESTRIAN COMMUNITY THAT PROVIDES SAFE, CONVENIENT AND COMFORTABLE ACCESS TO PARKS, SCHOOLS AND BUSINESS AREAS AROUND TOWN AS WELL AS CONNECTIONS TO REGIONAL TRAILS.

GOAL ONE: INFRASTRUCTURE IMPROVEMENTS

Establish a multi-faceted bicycle and pedestrian infrastructure to serve the needs of a variety of bicyclists and pedestrians

OBJECTIVES:

a. Opportunities to walk to most destinations throughout the City on a complete network of sidewalks
b. A network of bicycle routes on local roads and off-road pathways that provide an alternative to bicycle facilities on primary roads.
c. Safe, comfortable and convenient connections to surrounding communities and regional trails
d. Improved wayfinding for bicyclists and pedestrians

GOAL TWO: BEHAVIOR CHANGE

Inspire residents of Springboro and surrounding areas to walk and bicycle more for recreation, transportation and exercise

OBJECTIVES:

a. Improve the bicycle and pedestrian safety through education and an overall increase in the number of bicyclists and pedestrians
b. Increase in the number of children safely walking and bicycling to school
c. A marked improvement in community health achieved through increased physical activity
d. Encourage increased walking and bicycling through well maintained facilities and community outreach

GOAL THREE: CULTURE CHANGE

Institute a culture that embraces all modes of transportation and promotes understanding between individuals regardless of their means of transportation or abilities

OBJECTIVES:

a. Ability of persons with physical or cognitive impairments to travel throughout the community independently and with dignity
b. Improved understanding between all modes of travel
c. Reduction in the number of harassment and verbal altercations between the different modes

1.5 INVENTORY AND ANALYSIS

OVERVIEW

The inventory and analysis process provided a detailed assessment of the existing bicycle and pedestrian environment including current policies, programs and statistics. A thorough understanding of the existing conditions helps to identify what bicycle and pedestrian improvements are possible and appropriate.

The following inventory and analysis assessments were conducted:

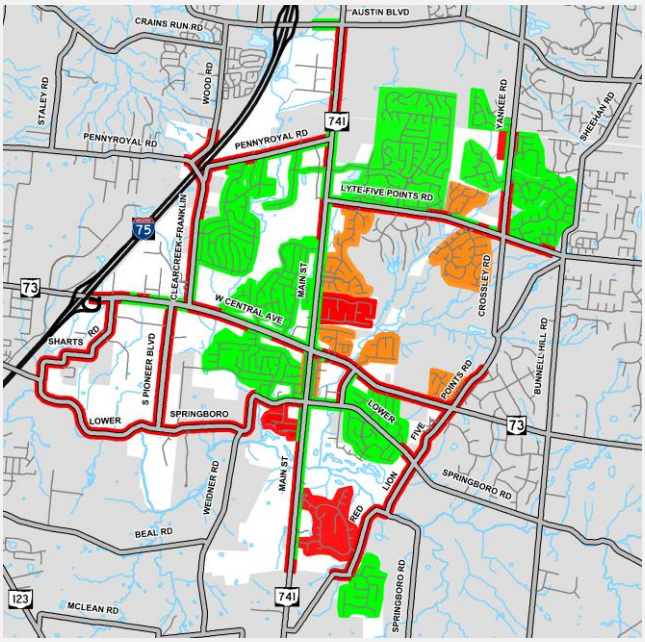
- Evaluation of the existing roadway system including, road width, number of lanes, speed limit and the resulting bicycle level of service and pedestrian road crossing difficulty
- Evaluation of the existing sidewalk completeness, placement and buffer conditions and the resulting sidewalk level of service
- Documentation of the location and type of existing pedestrian crosswalks and the resulting crosswalk spacing analysis
- Documentation of off-road trail system
- Evaluation of the primary road system to determine the degree to which the roads are capable of incorporating bicycle lanes via, lane narrowing, 4 to 3 lane conversions, paved shoulders and other roadway reconfigurations and an assessment of the resulting implications of the roadway modifications options to motor vehicle level of service (LOS)
- Evaluation of the urban form including a block size analysis
- Evaluation of bicycle and pedestrian crashes
- Evaluation of existing access issues related to ADA
- Evaluation of the current public policy issues
- Existing community program assessment
- Review of existing plans from the City of Springboro, Warren County and Montgomery County, MVRPC and adjacent communities and townships.

A detailed report of the inventory and analysis for the physical environment is provided in the Appendix.

KEY FINDINGS

The following are some of the key findings that influenced the development of the Bicycle & Pedestrian Plan:

- The City is characterized by a diversity of land uses including a historic downtown with residential neighborhoods, a mix of commercial uses along SR 741 and SR 73, business parks located on the north and southwest side of town, and subdivisions mixed with some agricultural land in the periphery of the City.
- A large majority of the City's population is located north of Lytle-Five Points Road between SR 741 and Bunnell Hill Road. Currently there are no bicycle facilities and limited sidewalk connections to this area of town.
- Overall, bicycle and pedestrian travel outside of the neighborhood streets generally follows the primary road system in which there are limited paved shoulders and gaps in the sidewalk system.
- Some of the two lane roads, such as Lower Springboro, Sharts Road and Red Lyon Five Points Road have steep slopes, sharp turns and little to no shoulder making them challenging to add bicycle facilities to in the near future.
- Many of the schools and some of the City's premier parks are located near the edge of town and are difficult to access as a bicyclist or pedestrian.
- Miami Township has plans to build an off-road trail connection between the Great Miami River Trail and Miamisburg Springboro Road along undeveloped property to the north of Crain's Run Road.
- Based on public input, there is a high desire to provide a bicycle connection to the Great Miami River Trail.



This map gives an overview of the pedestrian mobility around town. In some cases, there may be sidewalks within a subdivision but there are no ways to get to destinations outside of the subdivision as a pedestrian.

Sidewalk Connectivity Along Major Roadway

- Existing Sidewalk
- Sidewalk Gap

Neighborhood Sidewalk Connectivity

- Complete
- Partially Complete
- Incomplete

1.6 PROJECT APPROACH

The purpose of the Bicycle and Pedestrian plan is to identify the means to establish a physical and cultural environment that supports and encourages safe, comfortable and convenient ways for a wide spectrum of pedestrians and bicyclists to travel throughout the City and into the surrounding communities all while respecting the need to maintain an appropriate level of service for motorized transportation. It is anticipated that the physical cultural changes will result in a greater number of individuals choosing walking and bicycling as their preferred mode of transportation for many local trips. These choices will in turn lead to healthier lifestyles, improved air and water quality, and a more energy efficient and sustainable transportation system.

The project approach is based on three essential elements that create quality of life as they influence the number of people who walk and bicycle: Public Policies, the Physical Environment and Community Programs. The graphic on the previous page shows the issues within these three elements that the plan will address, culminating in quality of life metrics that will be the ultimate measure of the project's success.

PROPOSED RECOMMENDATIONS

The following chapters of this plan will look at the priority improvements that were identified for public policies, physical environment, community programs and quality of life metrics.

In order to continue with the long-term vision, the public policies, physical environment, community programs and quality of life metrics should be evaluated every few years to determine the success of the existing programs and to identify new improvements.

It should be noted that the purpose of this plan is to provide a general background on the issues of non-motorized transportation as well as to present a proposal on how to address the issues through specific policies, programs, and design guidelines for facility improvements. This is not intended to be a replacement for the *AASHTO Guide for the Development of Bicycle Facilities*, *AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO Guide for Achieving Flexibility in Highway Design,* USDOT's *Designing Sidewalks and Trails for Access – Part II, Best Practices Design Guide*, *Accessible Public Right-of-Way, Planning and Designing for Alternations*, the *Revised Draft Guidelines for Accessible Public Rights-of-Way*, *Manual of Uniform Traffic Control Devices*, *Ohio Manual of Uniform Traffic Control Devices* or any other applicable federal, state, or local guidelines. Rather, it is intended as a synthesis of key aspects of those documents and to provide an interpretation on how they may be applied in typical situations in the City of Springboro. Given the evolving nature of non-motorized transportation planning, these guidelines should be periodically reevaluated to determine their appropriateness.

The specific facility recommendations within this plan represent a Master Plan level evaluation of the suitability of the proposed facilities for the existing conditions. Prior to proceeding with any of the recommendations in this report though, a more detailed corridor level assessment or traffic study should be done in order to fully investigate the appropriateness of the proposed roadway modifications and/or proposed bicycle or pedestrian facilities.

PUBLIC POLICIES

Bicycle and pedestrian travel does not fall under the domain of one person, one department or even one agency. The public policies directly influence the physical environment and the programs. The following describes the key public policy issues that were evaluated as part of the planning process.

PLANNING AND ZONING –components within the City's master plan and zoning that influence the pedestrian and bicycling environment. These will include issues such as promoting mixed use developments, building setbacks, design guidelines, bike parking requirements, street connectivity and site plan approval checklists.

DESIGN STANDARDS – the guidelines and standards referenced when scoping and designing a transportation project have an enormous influence on the final outcome. Issues such as road width requirements, speed limits, multi-modal evaluation tools as well as the use of AASHTO Bicycle and Pedestrian Guides and establishing a reference library will be addressed.

PERFORMANCE MEASURES – individuals and departments typically have metrics by which they measure their success but too often, those do not include issues related to bikes and pedestrians. Issues such as multi-modal level of service evaluation tools, crash tracking and the locations and methods for pedestrian and bicycle counts will be considered.

DECISION MAKING PROCESS – even if there is a complete streets policy, there will likely be exceptions to the rule. How these situations are handled, who or whom makes the decision and how it is documented are critical processes that need to be defined.

UNIVERSAL DESIGN – making sure that people of all abilities can independently travel throughout a community with dignity is a key part of a non-motorized plan. How the City identifies current issues and maps out a logical transition to total mobility will be addressed.

SCHOOL TRANSPORTATION – while not under the jurisdiction of the City, the decisions on how schools handle student transportation has a significant impact on non-motorized transportation in the City. How does the City collaborate with public and private schools to establish and fund Safe Routes to School?

MAINTENANCE – continual investments in infrastructure are needed to preserve their usefulness. Seasonal maintenance issues such as vegetation management and snow removal will be addressed as will long-term asset management issues such as pavement conditions. Equally important is how to equitably distribute maintenance costs.

ENFORCEMENT – officer's need an array of tools at their disposal to address the range of infractions. These need to be age appropriate and include positive behavior reinforcement options. The focus of enforcement efforts and how officers can be proactive in safety education will be addressed.

PRIORITY PUBLIC POLICIES

Based on input from the BPAC, City Staff and the public the following public policies improvement were found to be of high priority for the City of Springboro:

- Education & Enforcement
- Problem Identification & Prioritization
- Design Guidelines
- Site Plan Approval Checklist
- Complete Streets Policy
- ADA Transition plan
- Bicycle Parking

It is recommended that the City focus on implementing these policies in the near-term. Every few years these public policy improvements should be re-evaluated to determine their progress and if there is a new policy the City should focus on. Please refer to the supplemental document, *Public Policy Evaluations,* for assistance.

The following pages give a detailed overview of the priority public policies and the steps that need to be taken to bring them to fruition.

TOPICS:

PUBLIC POLICY RECOMMENDATIONS

2.1 EDUCATION & ENFORCEMENT

DESCRIPTION

When it comes to bicycle and pedestrians, more often than not there is no uniform understanding of the existing laws. Education and enforcement are key to a safe and successful non-motorized system.

RECOMMENDATIONS

- ☐ Create a traffic violation warning sheet. This provides a graphic and written explanation of the most common bicyclist and motorist violations related to bicycle safety. These may be distributed by the police in lieu of an actual citation or as a supplement to a violation. The Michigan League of Bicyclist has a downloadable sheet and accompanying poster that may be used as template.
- ☐ Provide an optional bicycle safety and law class in lieu of a fine for first time bicycle law offenders. Upon receiving a ticket the offender has three options: pay the ticket, contest the ticket, or attend a class on bicycle safety that is given periodically. This option is typically only available for the first offense.
- ☐ Establish a helmet reward campaign to encourage children to use a helmet. When police see a child wearing a helmet, they issue them a “ticket”, which is actually a coupon for free ice cream or other suitable treat. This program provides positive interaction between the police and children and as it becomes well known has children encouraging their parents to wear bicycle helmets too.
- ☐ Provide education on new bicycle facilities and transitional signage/marketing where and when facilities are changed.
- ☐ Set-up police stings at new mid-block crosswalks or at locations where motorists currently do not yield to pedestrians or cyclists in the crosswalk, to provide a warning period before hard enforcement. The goal is to improve the safety and comfort level of street crossings by changing the behavior of motorists to comply with state law requiring motorized traffic to fully stop before right on red and to yield to the pedestrian or cyclist in the crosswalk.

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within Three Years:

- ☐ Create traffic violation warning sheet.
- ☐ Provide education on new bicycle facilities and transitional signage/marketing where facilities are changed

Within Four Years:

- ☐ "Ticket" children who are wearing bicycling helmets
- ☐ Set-up police stings at new mid-block crosswalks to provide a warning period before hard enforcement

Within Five Years:

- ☐ Establish a program to provide an optional bicycle safety and law class in lieu of a fine for first time bicycle law offenders

RESPONSIBLE FOR MAKING IMPROVEMENTS: *POLICE DEPARTMENT*

ESTIMATED BUDGET: *$0*

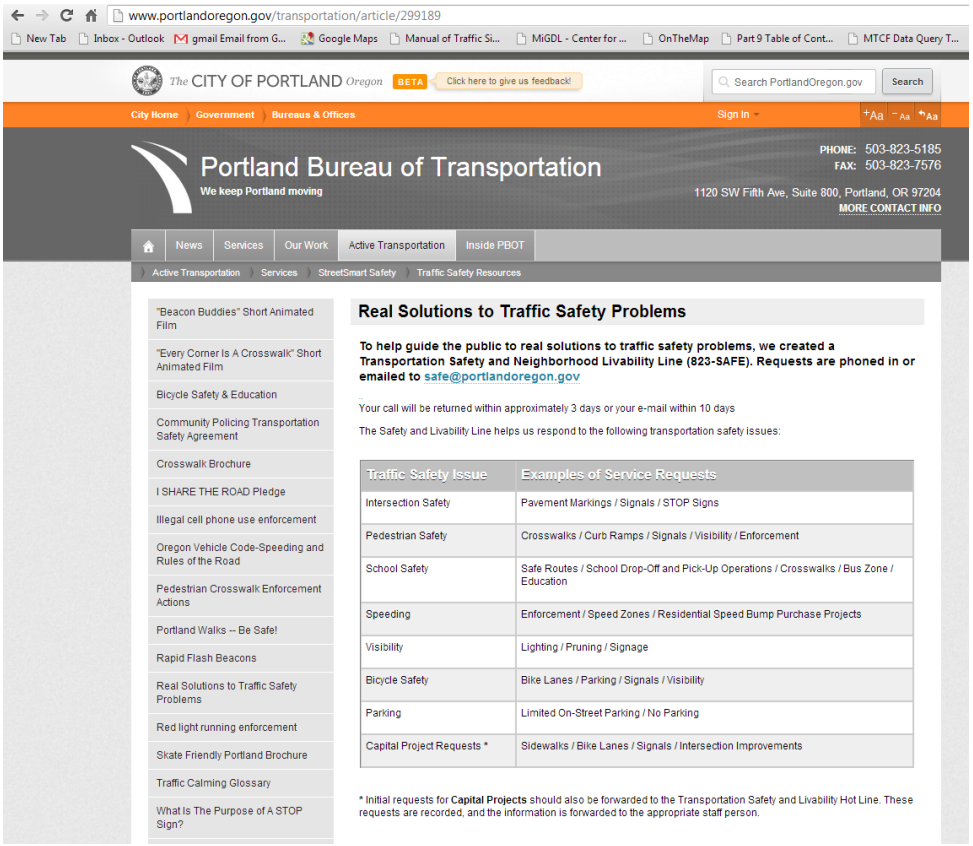
PUBLIC POLICY RECOMMENDATIONS

2.2 PROBLEM IDENTIFICATION AND PRIORITIZATION

DESCRIPTION

Encouraging the community to identify non-motorized facility problems and maintenance issues can save City staff both time and resources. Public participation also allows citizens to feel that the City is responding to their needs and concerns. Problems may include malfunctioning pedestrian signals, gaps in the sidewalk system, maintenance of crosswalk or bicycle lane markings, or debris in bicycle lanes.

One area that demands particular attention is pedestrian-activated crosswalk signals that are not functioning properly. By the time pedestrians have completed their trip, they may not remember or do not know how to report the problem. Posting a phone number on the post, along with the fixture number, could allow those with cell phones to call in a report.
There are some proprietary systems that have been created to assist government agencies in undertaking these tasks. Good systems assign responsibility and provide feedback on the progress in addressing the issue to the person who reported the issue.



The City of Portland, Oregon uses a phone hotline, web pages and postcard/comment cards to aid citizens in reporting maintenance issues.

RECOMMENDATIONS

The following is a checklist of key policy elements that should be addressed:

- ☐ Provide comment cards at Active Transportation Hub locations around town for citizens to report safety and maintenance issues

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within Two Years:

- ☐ Develop a program for non-motorized service requests

Within Three Years:

- ☐ Place a sticker with information regarding non-motorized service requests at locations around town including all pedestrian activated signals

Within Five Years:

- ☐ Provide comment cards at locations around town such as the bicycle shop, library and municipal building

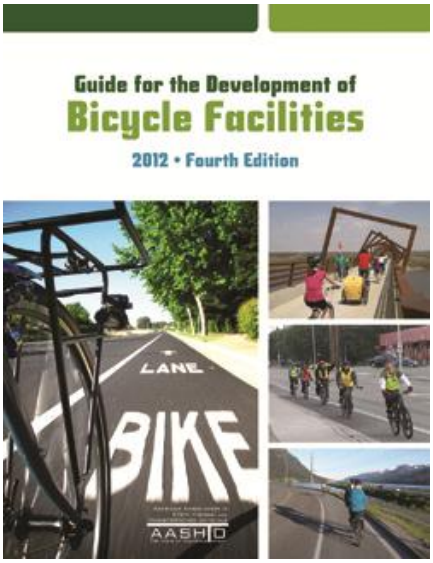
RESPONSIBLE FOR MAKING IMPROVEMENTS: *PUBLIC WORKS DEPARTMENT*

ESTIMATED BUDGET: *$200*

PUBLIC POLICY RECOMMENDATIONS

2.3 DESIGN GUIDELINES

DESCRIPTION



Design guidelines provide a background on non-motorized transportation issues and define current best practices for bicycle and pedestrian facilities design. When implementing bicycle and pedestrian facilities the following Design Guidelines should be considered:

- ☐ Pedestrian Spatial Requirements and Sidewalk Widths
- ☐ Bicycle Spatial Requirements and Bike Lane Widths
- ☐ Multi-modal Corridor and Roadway Widths
- ☐ Buffer Spatial Requirements and Plantings/Street Trees
- ☐ On-Street Parking and Bicycle Parking
- ☐ Travel Across the Road Corridor (e.g. crosswalks, crossing islands, raised crosswalks and intersections, mid-block crossings, curb extensions, signals, intersections, interchanges)
- ☐ Intersection Improvements and Roundabouts (e.g. detectable warnings, ramps)
- ☐ Neighborhood Roadway Design (e.g. traffic calming, neighborhood connector routes)
- ☐ Wayfinding and signage (e.g. kiosks, traffic signs)
- ☐ Off-Road Trails

RECOMMENDATIONS

Design guidelines should be consulted when planning new facilities, reconstructing or modifying existing facilities, and updating city and design standards. There are a number of resources and standards that are exceptionally helpful in providing design guidelines for bicycle and pedestrian facilities.

- ☐ *Policy on Geometric Design of Highways and Streets (aka "The Green Book"), American Association of State Highway and Transportation Officials (AASHTO)*
  Primary reference for street design used by federal, state, county and local transportation agencies
- ☐ *Guide for the Development of Bicycle Facilities, AASHTO*
  Guidance on how to accommodate bicycles, incorporated by reference into The Greenbook

- ☐ *Guide for the Planning, Design, Operation of Pedestrian Facilities, AASHTO*
  Guidance on how to accommodate pedestrians, incorporated by reference into The Greenbook
- ☐ *Manual of Uniform Traffic Control Devices, Federal Highway Administration (FHWA) and United States Department of Transportation (USDOT)*
  Provides standards for signs, signals and pavement markings that is used by state and local agencies to ensure that the traffic control devices they use conform to the national standard
- ☐ *Urban Bikeway Design Guidelines, National Association of City Transportation Engineers (NACTO)*
  Brings together many of the best practices developed in cities around the U.S. and many of the guidelines are in compliance with AASHTO guidelines and MUTCD standards but may not be obvious applications

Standard practices and design guidelines are always changing. It is recommended local officials and city engineers participate in webinars and join listserves to become part of the conversation and keep up to date with standards and guidelines.

- ☐ *Association of Pedestrian and Bicycle Professionals (APBP)*
  Offers webinars, listserve, and professional development seminars
- ☐ *Pedestrian and Bicycle Information Center (PBIC)*
  Offers webinars and trainings

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within One Year:

- ☐ Join APBP Listserve
- ☐ Build a reference library of recommended guidelines
- ☐ Identify local municipality standard plans and details that need to be revised
- ☐ Attend webinars

Within Three Years:

- ☐ Revise standard plans and details
- ☐ Continue to attend webinars, follow listserve and update standards and library as needed

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING & ENGINEERING DEPARTMENTS*

ESTIMATED BUDGET: *$400*

2.4 SITE PLAN APPROVAL CHECKLISTS

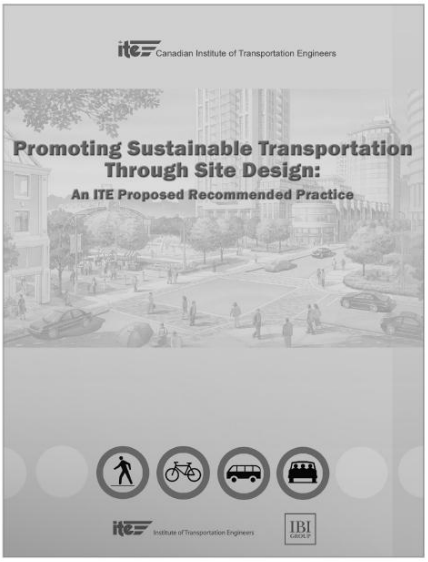
DESCRIPTION

A site design checklist or similar tool should be provided to developers and used by the City in their review of site plans to make sure that bicycle and pedestrian issues are being adequately addressed. The Canadian Institute of Traffic Engineers publishes a The Canadian Guide to Promoting Sustainable Transportation through Site Design that serves as a good model and can be downloaded from http://www.tc.gc.ca/eng/programs/environment-utsp-transportationguidelines-1082.htm.

RECOMMENDATIONS

The following are examples of site design issues that should be included to help address bicycle and pedestrian issues:

- ☐ Land Use & Urban Form
- ☐ Safety & Security
- ☐ Building Entrances
- ☐ Internal Transportation Network
- ☐ Desired Pedestrian & Cyclists Routes
- ☐ Transit Stops
- ☐ Site Grading
- ☐ Motor Vehicle Parking Configuration & Treatment
- ☐ Motor Vehicle Parking Supply and Management
- ☐ Bicycle Parking
- ☐ Passenger Pick-up & Drop-off Areas
- ☐ Loading Areas
- ☐ Internal Road Design
- ☐ Pedestrian Facilities
- ☐ Transit Facilities
- ☐ Wayfinding
- ☐ Street Furniture and Amenities
- ☐ Landscaping



EXPECTED TIME FRAME FOR IMPLEMENTATION

Within One Year:

- ☐ Develop a site design checklist that addresses bicycle and pedestrian issues
- ☐ Provide the site design checklist to developers
- ☐ City uses the site design checklist to review site plans and to make sure bicycle and pedestrian issues are being addressed in conjunction with the Planning & Zoning Code rewrite projected for completion in early 2014

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING & ENGINEERING DEPARTMENTS*

ESTIMATED BUDGET: *$0*

2.5 BICYCLE PARKING

DESCRIPTION

The lack of a secure parking space discourages many people from using their bikes for basic transportation. When sufficient bike parking is not provided, theft becomes a concern and it leads to bikes being locked up to sign posts, benches and other street furniture. When bicycles are parked in these spaces they often disrupt pedestrian flow because the bikes impede the walkway. Bicycles also get impounded by local enforcement when parked in these areas causing an even greater deterrent to bicycle use. Bicycle parking needs to be visible, accessible, plentiful and convenient. If any of these criteria are not met, there is a good chance a cyclist will not use the facilities and will park their bike wherever they feel it will be safest.

Definition of a Bicycle Parking Space- A bicycle parking space is an area two feet by six feet or the area occupied by a bicycle when using a bicycle parking device as designed.

Short-Term Bicycle Parking - Short-term bicycle parking is defined as a rack to which the frame and at least one wheel can be secured with a user-provided U-lock or padlock and cable. This type of parking is appropriate for short term parking at locations such as shopping areas, libraries, restaurants and other places where typical parking duration is less than two hours.

Long-Term Bicycle Parking- A long-term bicycle parking space is defined as protecting the entire bicycle and its components from inclement weather and theft or vandalism. It is to be located where it will serve the needs of cyclists who need to leave their bicycles unattended for extended periods of time, such as employees, tenants or residents.

RECOMMENDATIONS

The City should update the code to include bicycle parking requirements and design standards. The following is a checklist of key policies that should be included:

- ☐ Require a minimum number of bicycle parking spaces at each commercial development or multi-family dwelling
- ☐ For multi-family dwelling require a number of the bicycle parking spaces to be covered

- ☐ Incentives should be provided to commercial and multi-family dwellings for providing covered and secured bicycle parking (e.g. reduction of vehicular parking and/or density bonus could be offered)
- ☐ Incentives should be provided to commercial and multi-family dwellings for providing covered bicycle parking over uncovered bicycle parking when not required to by code (e.g. reduction of vehicular parking and/or density bonus could be offered)
- ☐ Require bicycle parking facilities to be credited toward provision of motor vehicle parking. For example, each ten required bicycle parking spaces, or fraction thereof, may be substituted for one code required motor vehicle parking space
- ☐ Require hoops on every block with retail in a downtown/commercial zone
- ☐ Provide a reference or graphical design guidelines with information on the specifics of bicycle rack design and placement. The Association of Pedestrian and Bicycle Professionals publishes a Bicycle Parking Guideline that serves as a good model and may be found at: http://www.apbp.org/resource/resmgr/publications/bicycle_parking_guidelines.pdf

For examples of bicycle parking ordinances check out the City of Ann Arbor at, http://www.a2gov.org/government/city_administration/city_clerk/ordinances/Pages/Online%20City%20Code.aspx and the City of Lansing at http://www.lansingmi.gov/clerk/city_charter_&_ordinances.jsp

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within One Year:

- ☐ Update the local government code to include bicycle parking requirements and design standards

Within Three Years:

- ☐ Implement the bicycle parking requirements and design standards

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING & ENGINEERING DEPARTMENTS*

ESTIMATED BUDGET: *$0*

PUBLIC POLICY RECOMMENDATIONS

2.6 ADA TRANSITION PLAN UPDATE

DESCRIPTION

Title II of the Americans with Disabilities Act of 1990 (ADA) requires local governments to make their activities, programs and services accessible to persons with disabilities. In the area of non-motorized transportation, public entities with 50 or more employees are required to use accessible design standards for newly constructed and reconstructed sidewalks and shared use paths to the maximum extent feasible and make altered facilities through the City as part of a transition plan. Title II also requires that the public entity must regularly update the ADA plan and make the plan available to the public.

Currently, the City Engineer acts as the ADA Coordinator and coordinates the City's compliance efforts. ADA complaints directed to the City are routed to the City Engineer. Typically, the City removes any physical barriers identified by citizens as critical to their basic mobility each year as part of the Capital Improvement Program. As a matter of course, curb ramps are installed as part of road construction projects.

RECOMMENDATIONS

The following is a checklist of key policy elements that should be addressed by the City:

- ☐ Update the City's transition plan
- ☐ Prepare an inventory of physical barriers citywide
- ☐ Prepare a plan for removing barriers in the most highly traveled corridors that will not be addressed as part of the capital improvement program in the foreseeable future

RESPONSIBLE FOR MAKING IMPROVEMENTS: *ENGINEERING DEPARTMENT*

ESTIMATED BUDGET: *$0*

PHYSICAL ENVIRONMENT

The physical environment of a community says a lot about where bicycles and pedestrians stand in a community's priority list. A strong presence of non-motorized transportation facilities helps bicycles and pedestrians get around conveniently, safely and comfortably. Just as importantly it signals to motorists to expect these users on the roadway and underscores that they are officially endorsed modes of travel. The following describes the key Physical Environment issues that were evaluated as part of the planning process.

URBAN FORM – The grain of a community's street network is probably the most significant indicator of the potential for non-motorized travel. Population density and diversity of land uses can also be used to predict demand. The urban form is studied to identify where improvements are most needed and where they will do the most good.

PUBLIC RIGHT-OF-WAY**.** – All streets from the leafy low speed residential streets to the busiest commercial arterials need to be complete streets. But how that is accomplished and how the different modes are accommodated will change with the streets primary purpose and context.

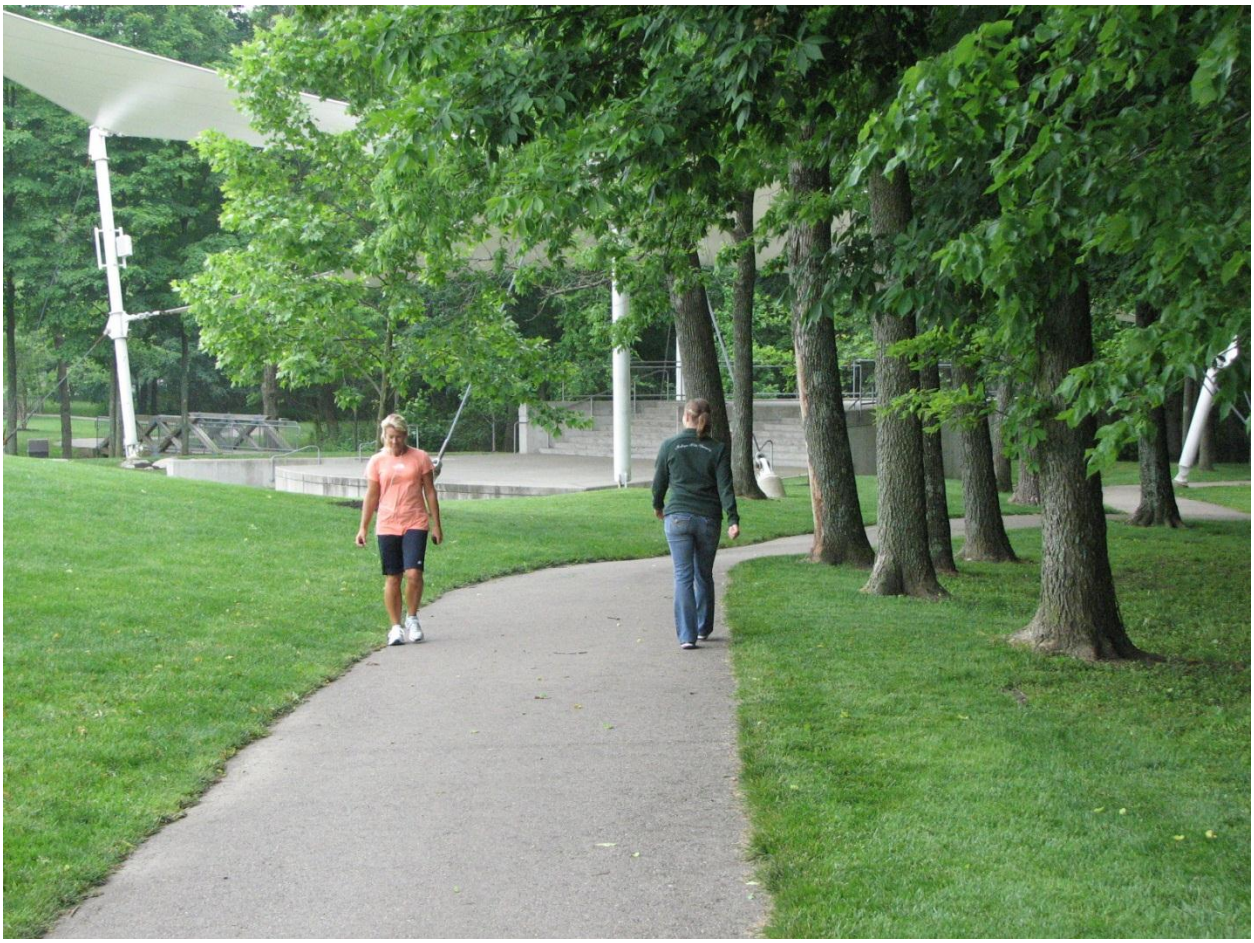
PUBLIC SPACES – Parks, plazas, and transit stations are all important destinations for bicyclists and pedestrians.

OFF-ROAD TRAILS – The showpieces of a community's non-motorized transportation network is often off-road trails; but they do not exist in a vacuum. Issues such as trail design, amenities and how the trails are linked to the greater non-motorized network will be considered.

WAYFINDING – Oftentimes there are great "secret" back ways to key places around town by bike or foot that avoid busier roads. Marking not only the routes, but where they lead to and how far away they are is an outstanding way for on the ground marketing.

BICYCLE AND PEDESTRIAN SUPPORT FACILITIES – A route does not complete the transportation system. Like with automobiles, parking of a variety of types, maintenance, breakdown assistance, rest areas and refueling stations are necessary to create a functional system.

ENVIRONMENTAL AND ART ENHANCEMENTS – A community's streets are its most significant public space. They are the public form, they define a community, they are the place we spend the most time recreating and too often they are treated as a purely utilitarian enterprises. They also have a significant impact on the environment. Integrating "Green Street" technologies such as rain gardens, tree cover and LED lighting help reduce the environmental impact. Art and community gardens make streets a resource and enhance property values.



PRIORITY IMPROVEMENTS TO THE PHYSICAL ENVIRONMENT

Based on input from the BPAC, City Staff and the public the following improvements to the physical environment were found to be of high priority for the City of Springboro.

- Adding bicycle and pedestrian facilities to auto focused corridors
- Providing bicycle support infrastructure
- Enhanced amenities for off-road trails

The following pages provide recommendations that focus on these issues and how they can realistically be addressed in the near-term with the existing opportunities and limitations.

Every few years project improvements should be re-evaluated to assess their progress and if there are new projects that the City should focus on. Please refer to the supplemental document, *Physical Environment Evaluations,* for assistance.

The following pages give a detailed overview of the proposed improvements to the physical environment.

TOPICS:

PHYSICAL ENVIRONMENT RECOMMENDATIONS

3.1 NON-MOTORIZED NETWORK

DESCRIPTION

There is no such thing as a typical pedestrian or bicyclist. A single person's preferences for a walking or bicycle route may vary based on the type of trip. Individuals also vary greatly in their tolerance of traffic, hills, weather and numerous other factors. The solution for a community then is not one dimensional, but rather responding to the needs of the various users and trip types. By doing so the plan addresses the needs of the majority of the community's population, not simply a small interest group.

RECOMMENDATIONS

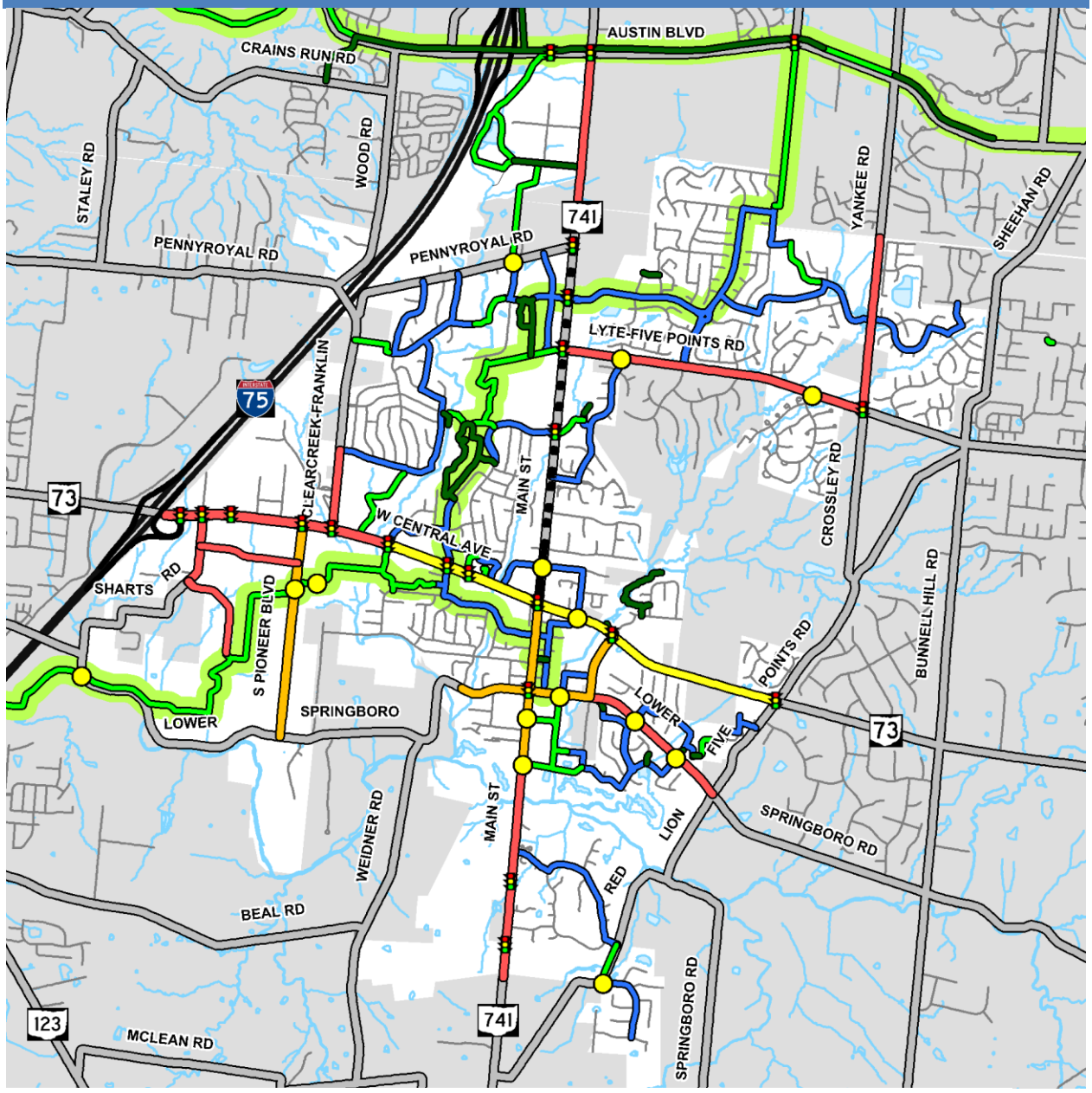
The proposed Non-Motorized Network recognizes that pedestrians and bicyclists are a diverse population and that no one solution will apply to all bicyclists or all pedestrians. Thus bike lanes and sidewalks have been proposed along the primary roads in the City. Some of these roads are more oriented to bicyclists and pedestrians than others as they carry fewer motor vehicles and will be designed to keep motor vehicle speeds in the 30 to 35 mph range. Complementing the primary road system will be a network of neighborhood connectors and off-road trails that provide access to key destinations in the City while minimizing exposure to a large volume of high speed motor vehicles. Once implemented, they will provide a city-wide, non-motorized network that users of all ages and abilities will be able to enjoy.

The following pages provide a more detailed breakdown of the non-motorized network:

- *Bike Lanes*
- *Shared Lane Markings*
- *Proposed Sidewalks*
- *Proposed Neighborhood Connector Route*
- *Proposed Road Crossings*
- *Proposed Intersection Improvements*
- *Proposed Neighborhood Greenway*
- *Proposed Active Transportation Hubs*
- *Proposed Regional Connections*
- *Proposed Recreational Loop*

Please refer to Fig. 3.1 for an overview map of the proposed non-motorized network. In addition, a large map of the proposed bicycle and pedestrian network can be downloaded from the project webpage at http://greenwaycollab.com/Projects/Springboro/Springboro.html

FIGURE 3.1 OVERVIEW OF PROPOSED NON-MOTORIZED NETWORK



Non-motorized Network

- Existing Off-road Trail
- Proposed Off-road Trail
- Proposed Routes on Local Roadways
- Proposed Neighborhood Greenway
- Proposed Crossing Improvements
- Existing Signalized Intersection
- Existing Bike Lane
- Existing Shared Lane Marking
- Proposed Bike Lanes within Existing Roadway
- Proposed Bike Lanes when Road Reconstructed
- Proposed Shared Lane Markings

* Due to the scale of this map some facilities, such as sidewalks, were not included. Please refer to the following maps for more details.

3.2 BIKE LANES

DESCRIPTION

Bike lanes are a designated space in the roadway for bicyclists to travel with the flow of traffic. Pavement striping, markings and signage are used to delineate the lane. A striped bicycle lane or designated paved shoulder within the roadway is usually the safest place for a cyclist to ride.

For the most up-to-date guidelines please refer to Chapter 9 of the *MUTCD*, Chapter 4 of AASHTO's *Guide for the Development of Bicycle Facilities*, and the Bike Lane section of NACTO's *Urban Bikeway Design Guide*.

RECOMMENDATIONS

There is potential to add bike lanes on a number of the primary roads in the near future as part of Capital Improvement Program (CIP) projects by simply re-striping the roadway.

On roads such as Lower Springboro Road and Red Lion-Five Points Road, the existing road width, limited paved shoulder, steep elevation changes, turns and existing vegetation makes some of the two-lane roads in the City difficult to add bike lanes to in the near-future.

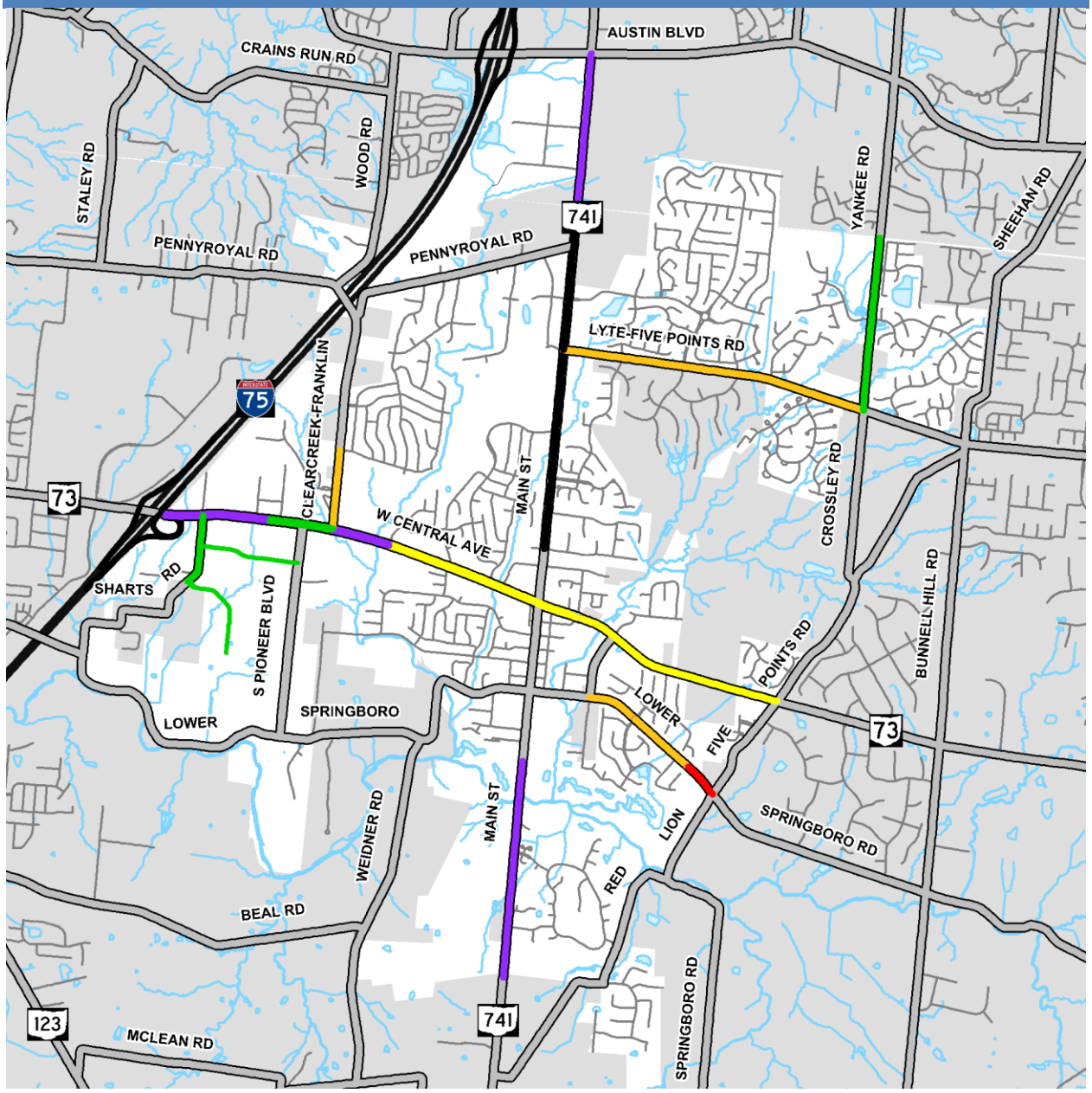
For some roadways, the cost to add bike lane independent of a road reconstruction project would be significant. Thus to maximize the impact of finite resources, the long-term improvements are expected to be implemented when a road is completely reconstructed (not just resurfaced). Eventually, bike lanes should be added to all arterial and collector roadways and significant local roadways. Generally roads with average daily traffic counts (ADT) below 3,500 vehicles per day do not require bike lanes.

Please refer to Fig. 3.2 for a map of the proposed bike lanes.

Web Survey Results:

- Around 50% of survey respondents would be comfortable riding a bike in a bike lane on a Minor Road
- Around 30% would be comfortable riding a bike in a Bike Lane on a Major Road

FIGURE 3.2 PROPOSED NEAR-TERM BIKE LANES



Proposed Bike Lanes

- Existing Bike Lane
- Designate Existing Paved Shoulder as Bike Lane
- Bike Lane through Lane Narrowing
- Bike Lane through 3 to 2 Lane Conversion
- Bike Lane through Paved Shoulders
- Bike Lane with Road Reconstruction

APPROXIMATELY 11 MILES OF NEW BIKE LANES ARE PROPOSED

3.3 SHARED LANE MARKINGS

DESCRIPTION

Shared Lane Markings are used to indicate to bicyclists a recommended lane position and to indicate to motorists to expect bicycles. They are used on roads with speeds of 35 mph or less. Shared lane markings may be used to help position bicyclists a safe distance from parked cars (so that they do not run into opening car doors). They are also used in conjunction with bike lanes where the bike lane is discontinued for a stretch of roadway due to limited road width.

For the most up-to-date guidelines please refer to Chapter 9 of the *MUTCD*, Chapter 4 of AASHTO's *Guide for the Development of Bicycle Facilities*, and the Bikeway Signing & Marking section of NACTO's *Urban Bikeway Design Guide*.

RECOMMENDATIONS

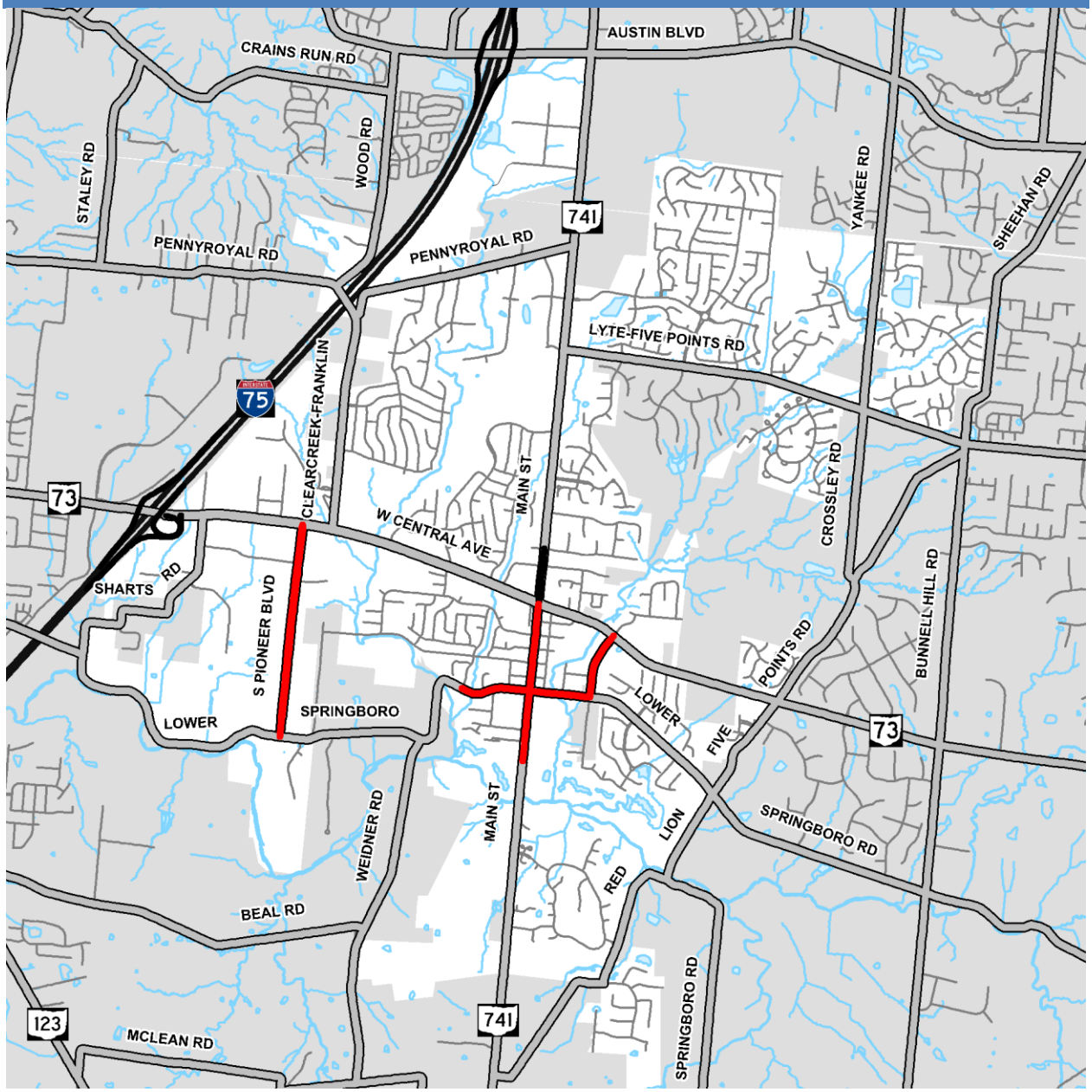
Shared Lane Markings should be used in the downtown on primary roads with speeds 35 mph or less where bike lanes cannot be added in the near-term. These roads include SR 741, Lower Springboro Road and S. Richards Run.

Long term, if SR 741 between SR 73 and Eleanor drive is reconstructed, bike lanes should be continued from Eleanor Drive to SR 73 in place of the Shared Lane Markings.

Due to the trees in the median and the amount of truck traffic Shared Lane Markings are recommended on South Pioneer Boulevard. Long term, if the road is reconstructed, bike lanes should be added to this corridor.

Please refer to Fig. 3.3 for a map of the proposed shared lane markings.

FIGURE 3.3 PROPOSED SHARED LANE MARKINGS



Shared Lane Markings

- Existing
- Proposed

APPROXIMATELY 2.8 MILES OF NEW SHARED LANES MARKINGS ARE PROPOSED

3.4 SIDEWALKS

DESCRIPTION

Sidewalks are the unsung heroes of a non-motorized system. They are usually the first facilities to be constructed and provide a backbone to a complete non-motorized network. They are one of the key components to a walkable community and should be completed on both sides of all major roads in an urban area.

For the most up-to-date guidelines please refer to AASHTO's *Guide for the Planning, Design, and Operation of Pedestrian Facilities.*

All newly constructed and reconstructed sidewalks and shared use pathways should be in compliance with Title II of the Americans with Disabilities Act of 1990 (ADA). Please refer to the *Accessible Public Rights-of-Way: Planning and Designing for Alternatives* guide for more information.

RECOMMENDATIONS

In general, sidewalks should be installed by developers when constructing new buildings or homes and by local city, county or state agencies during a roadway improvement project. Sidewalks should be a minimum of 5' wide. 6' is preferred along Collector roadways and 8' is preferred along Arterial roadways.

In the near-term the City should focus on completing sidewalk gaps along SR 73 and SR 741 to connect to commercial centers and provide sidewalk connections to neighborhoods that are isolated from the city center. Please refer to Chapter 6, Implementation Plan, for more details.

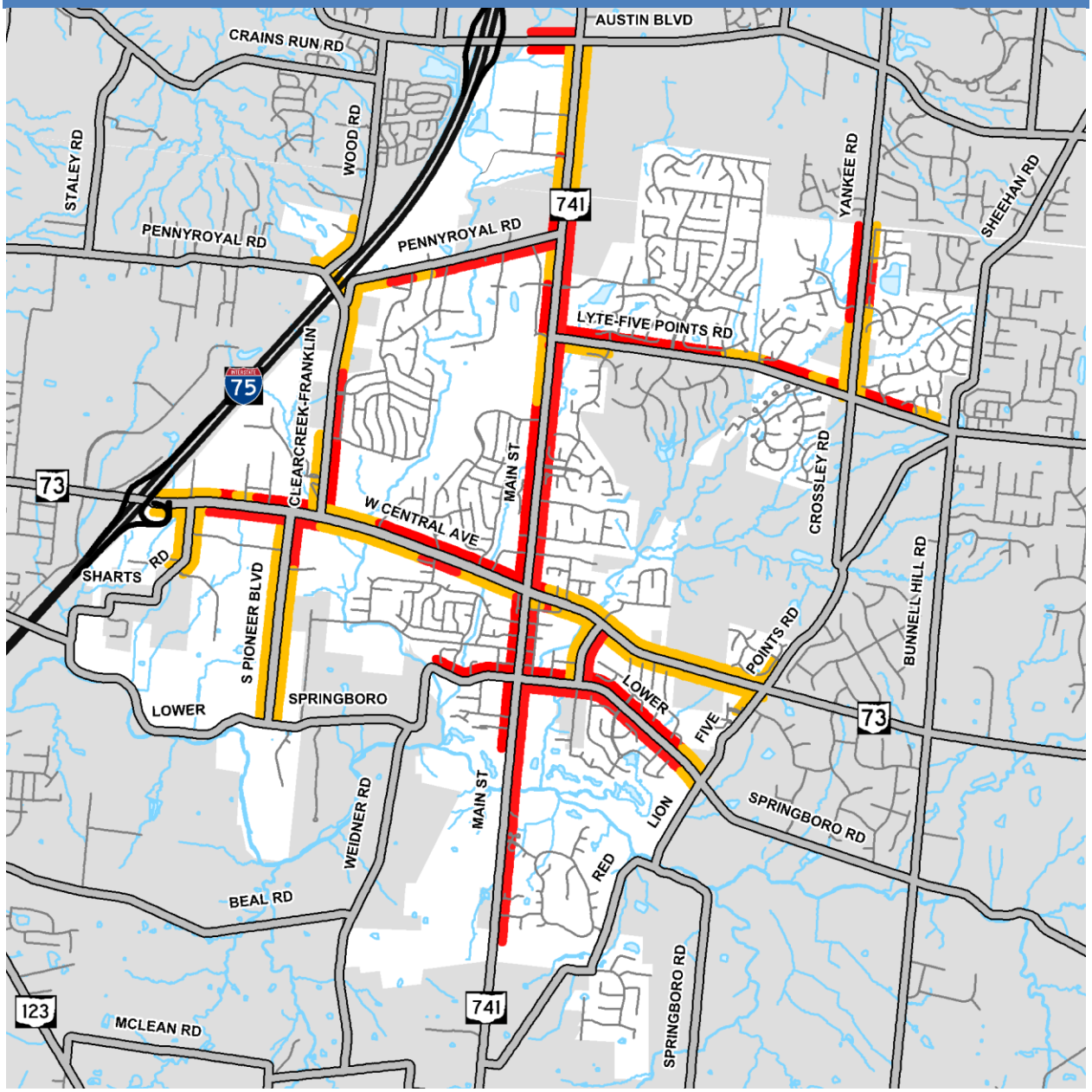
The long term goal should be to provide sidewalks on both sides of the roadway along arterial and collector roads in urban areas. In the suburban fringe areas, at least one side of the road should have a sidewalk when trying to connect to a destination.

Please refer to Fig. 3.4 for a map of the proposed sidewalks.

Web Survey Results:

- Around 94% of respondents who have children that would be likely to walk and bike to school in the future if the appropriate facilities were provided said that the lack of sidewalks or pathways along the main roads is a major concern

FIGURE 3.4 PROPOSED SIDEWALKS



Sidewalks Along Primary Roadways

- Existing Sidewalk
- Proposed Sidewalk

APPROXIMATELY 14 MILES OF SIDEWALK ALONG PRIMARY ROADS ARE PROPOSED

3.5 NEIGHBORHOOD CONNECTOR ROUTES

DESCRIPTION

Neighborhood Connector Routes, also known as Bicycle Boulevards, are primarily located on low speed, low volume local roads and connecting pathways. They link neighborhoods to parks, schools and commercial areas. Signs provide wayfinding by noting direction and distance to key destinations. Elements such as traffic calming, public art, rain gardens and historic features can be added to enhance the routes. These routes appeal to families, children and people who are less comfortable walking and bicycling along a major roadway.

For the most up-to-date guidelines please refer to Chapter 9 of the *MUTCD*, Chapter 4 & 5 of AASHTO's *Guide for the Development of Bicycle Facilities*, and the Bike Route Wayfinding section of NACTO's *Urban Bikeway Design Guide*.

RECOMMENDATIONS

Neighborhood Connector Routes should be developed over time. Initial improvements include wayfinding signage and crossing improvements where the route intersects a major roadway. Traffic calming is added only if it is necessary. Environmental and aesthetic improvements are implemented based on community input and available budgets. Please refer Chapter 6, Implementation Plan for more details.

Please refer to Fig. 3.5 for a map of the proposed neighborhood connector routes.

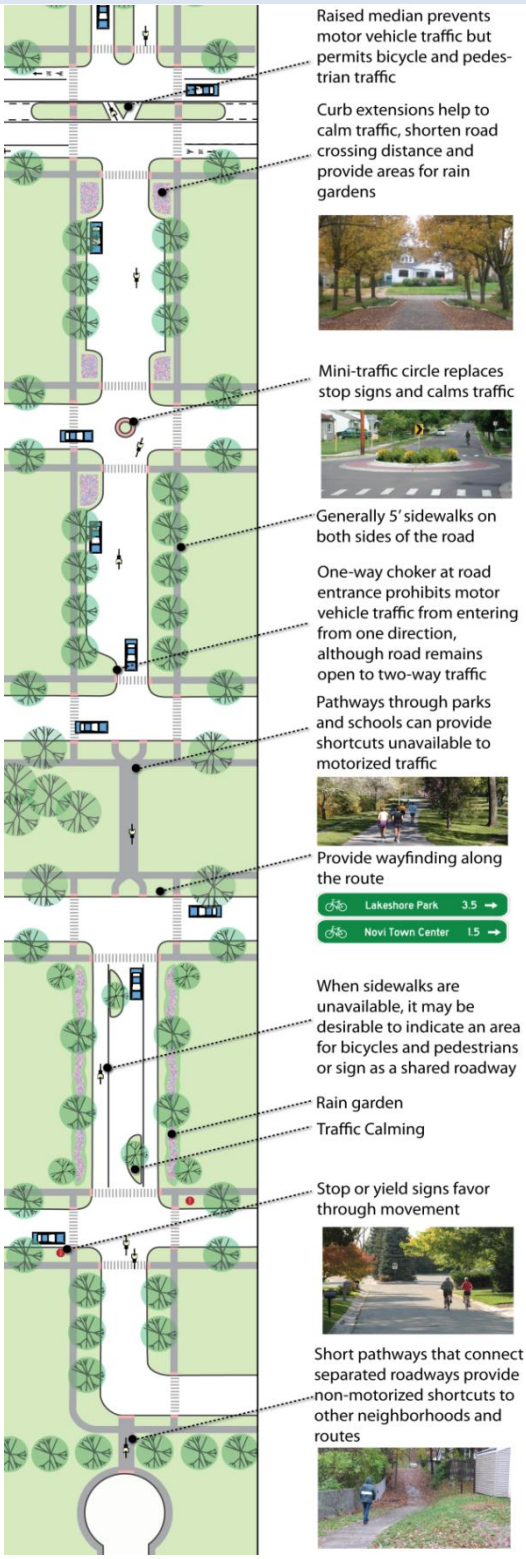
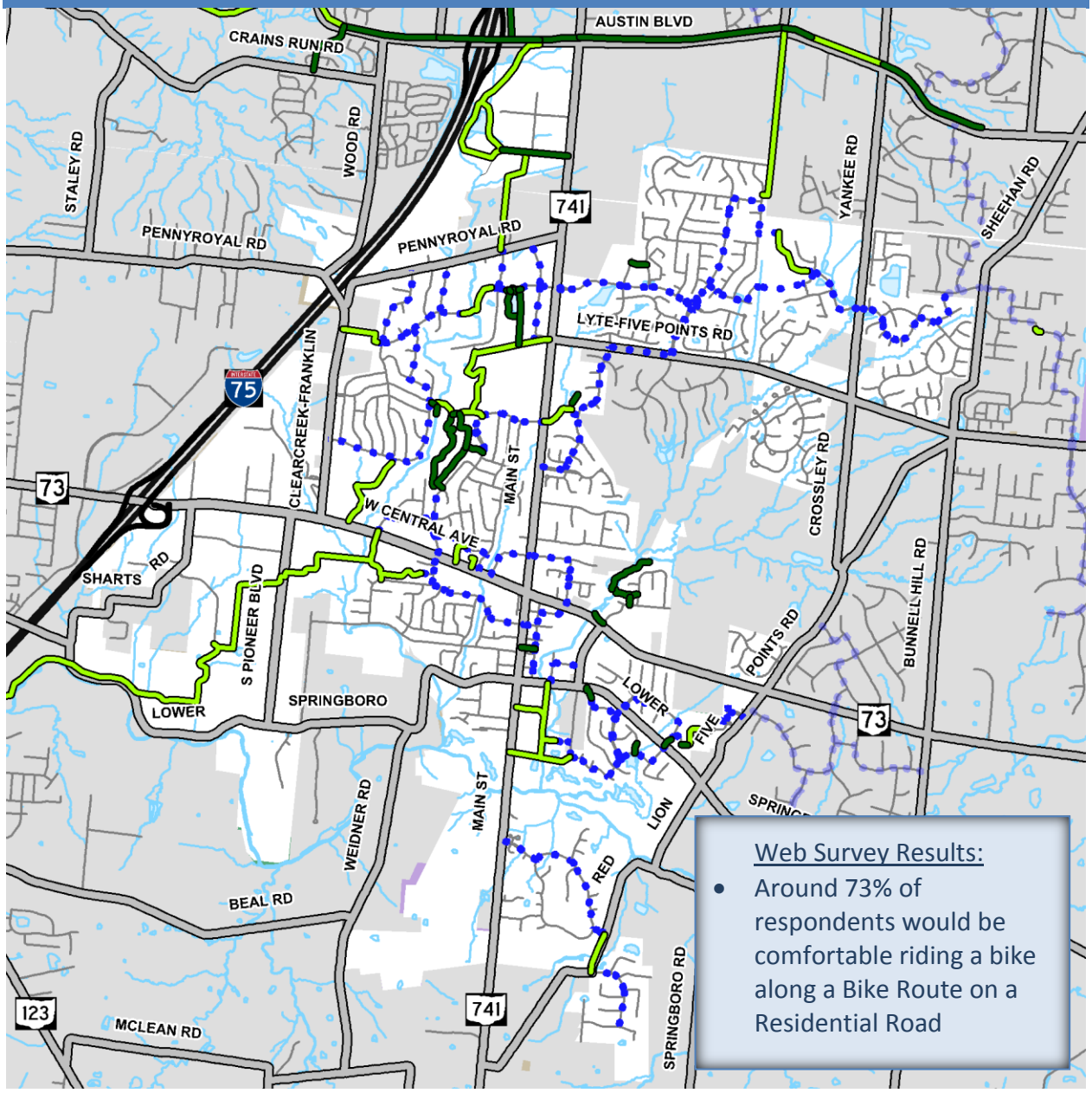


FIGURE 3.5 PROPOSED NEIGHBORHOOD CONNECTOR ROUTES



Web Survey Results:

- Around 73% of respondents would be comfortable riding a bike along a Bike Route on a Residential Road

Proposed Neighborhood Connector Routes

- Existing Off-road Trail
- Proposed Off-road Trails
- Proposed Routes on Local Roadways

APPROXIMATELY 28 MILES OF NEIGHBORHOOD CONNECTOR ROUTES ARE PROPOSED IN THE CITY LIMITS. AROUND 18 MILES ARE ON LOCAL ROADWAYS AND ABOUT 10 MILES ARE ON PATHWAYS SEPARATED FROM THE ROADWAY.

PHYSICAL ENVIRONMENT RECOMMENDATIONS

3.6 ROAD CROSSING IMPROVEMENTS

DESCRIPTION

Road Crossing Improvements are needed in areas where there is demand to cross by pedestrians and/or bicyclists. These areas occur where a bike route crosses a collector or arterial road, there is a long distance between crosswalks, or there is a high demand based on land use and population density.

There are many different types of countermeasures that can be used to improve the safety and visibility of pedestrians at crosswalks. Traffic speeds, traffic volume, number of lanes and location of the crossing in context to the surround land use will dictate what type of crossing improvement is appropriate for a specific location. In some instance the improvements are as simple as adding high visibility crosswalk markings and others signalization may be needed. The images to the right show examples of some of the proven safety countermeasures for road crossing improvements.

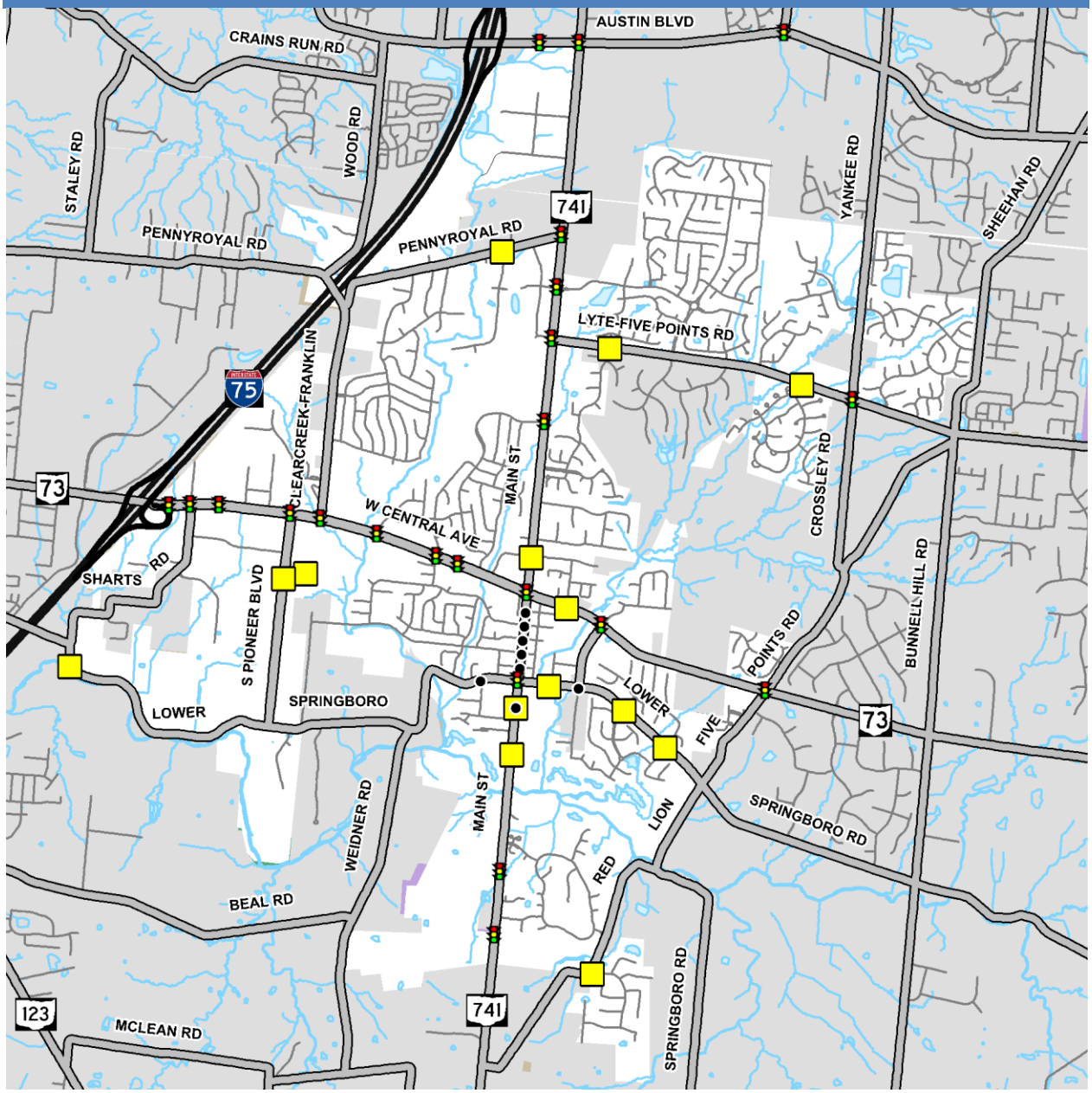
For the most up-to-date guidelines please refer to all Chapters of the *MUTCD* and Chapter 3 & 4 of AASHTO's *Guide for the Planning, Design and Operation of Pedestrian Facilities*.

RECOMMENDATIONS

The exact solution for every crossing has not been determined; rather, the location of where a crossing improvement is need has been identified. Please note that these are initial recommendations and that each crossing needs to be studied further prior to implementation. Please refer to Chapter 6, Implementation Plan for specific recommendations on near-term crossing improvements.

Please refer to Fig. 3.6 for a map of the proposed crossing improvements

FIGURE 3.6 PROPOSED CROSSING IMPROVEMENTS



Road Crossing Improvements

- Proposed Road Crossing Improvements
- Unsignalized Pedestrian Crossing
- Existing Signalized Intersection

14 ROAD CROSSING IMPROVEMENTS ARE PROPOSED

Web Survey Results:

- Around 61% of respondents feel that mid-block crosswalks are very important or somewhat important to making future walking and bicycling trips actually happen

3.7 INTERSECTION IMPROVEMENTS

DESCRIPTION

Intersections are the hubs of activity on the roadway and a place with conflicting demands from many different users. Intersections need to provide safe and easy access for people with hearing, vision and mobility impairments. All newly constructed and reconstructed intersections should be in compliance with Title II of the Americans with Disabilities Act of 1990 (ADA). Please refer to the *Accessible Public Rights-of-Way: Planning and Designing for Alternatives* guide for more information.

Many bicycles may find intersections intimidating. It is important to provide bike lanes through the intersection and detectors that allow bicycles to activate the traffic signal.

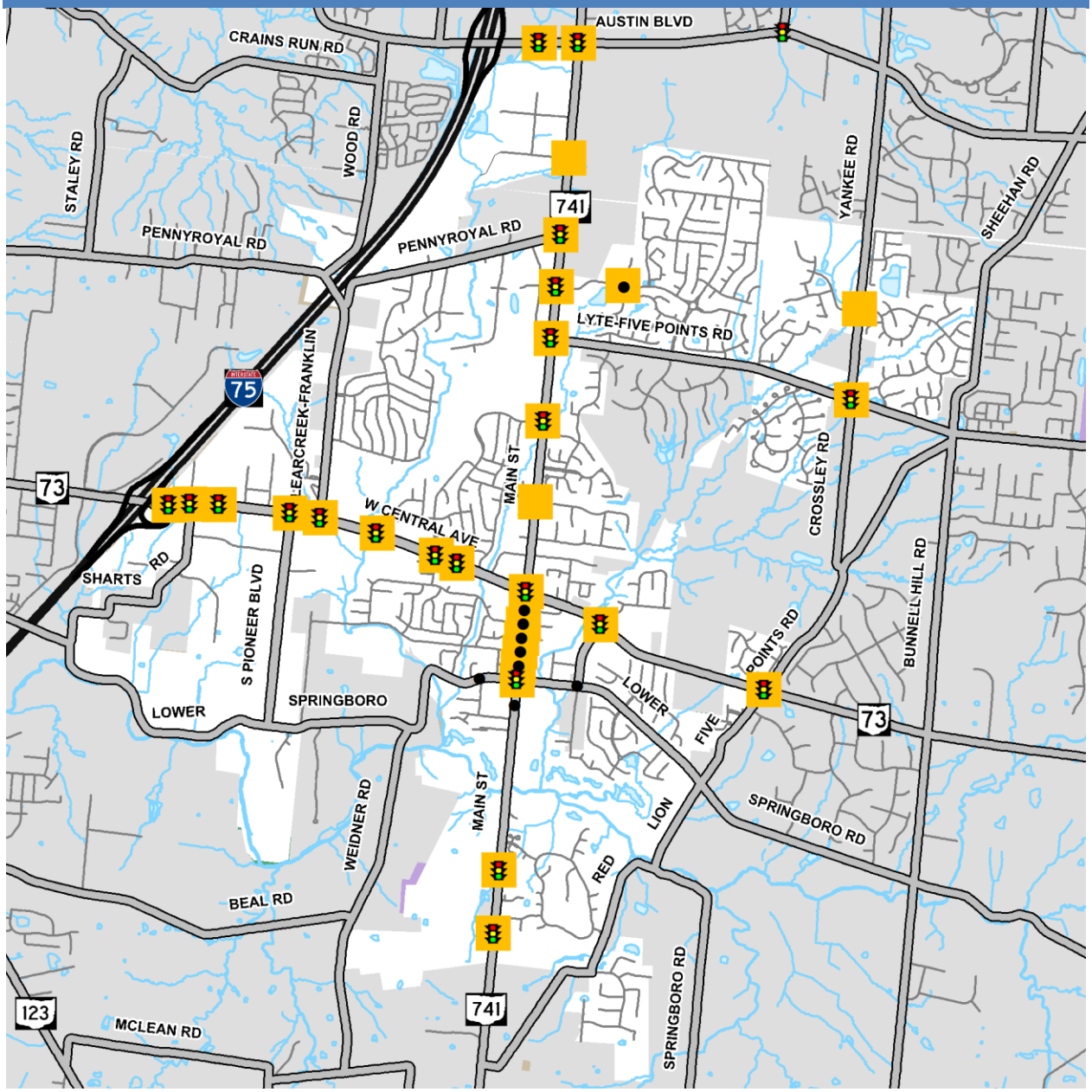
For the most up-to-date guidelines please refer to all Chapters of the *MUTCD*, Chapter 4 of AASHTO's *Guide for the Development of Bicycle Facilities,* Chapter 3 & 4 of AASHTO's *Guide for the Planning, Design and Operation of Pedestrian Facilities,* and the Intersection section of NACTO's *Urban Bikeway Design Guide*.

The images to the right show examples of some of the typical countermeasures used to improve safety and visibility of pedestrians and bicyclists at intersections.

RECOMMENDATIONS

Due to the tremendous number of advancements in ADA improvements in the last decade, it is easy to assume that most of the intersections in the City are not completely up to standards. When a signal is upgraded improvements such as ramps, detectable warnings, pedestrian signals, push buttons, high visibility crosswalk markings and ADA accessibility should be taken into consideration. Refer to Fig. 3.7.

FIGURE 3.7 PROPOSED INTERSECTION IMPROVEMENTS



Intersection Improvements

- Proposed Improvement at Signalized Intersection
- Proposed Improvement at Unsignalized Intersection
- New Signalized Intersection or Roundabout

THERE ARE 21 SIGNALIZED INTERSECTIONS AND 8 UNSIGNALIZED INTERSECTIONS THAT SHOULD BE EVALUATED FOR IMPROVEMENTS WHEN UPGRADED.

3.8 NEIGHBORHOOD GREENWAY

DESCRIPTION

A Neighborhood Greenway is a non-motorized route that connects major destinations, links up regional connections and provides the organizing framework for a non-motorized system.

Neighborhood Greenways function as premium bicycle and pedestrian routes. Like Neighborhood Connector Routes, Neighborhood Greenways are primarily located on low speed, low volume roads and connecting pathways. Signs provide wayfinding by noting direction and distance to key destinations. If the route is significant enough it may even be designated with special branding and signage. These routes generally appeal to families, children and people who are less comfortable walking or bicycling along major roads.

Neighborhood Greenways typically incorporate sustainable design elements such as rain gardens, bio-swales and native plantings. They may also incorporate pedestrian amenities such as art installations, benches, interpretive signs, community vegetable gardens and ornamental gardens. For many communities where an off-road trail is not available or feasible, a Neighborhood Greenway provides similar amenities but within the existing right-of-way

For the most up-to-date guidelines please refer to Chapter 9 of the *MUTCD*, Chapter 4 & 5 of AASHTO's *Guide for the Development of Bicycle Facilities,* and the Bikeway Signing & Marking section of NACTO's *Urban Bikeway Design Guide*.


Neighborhood Greenway


Permeable Pavement

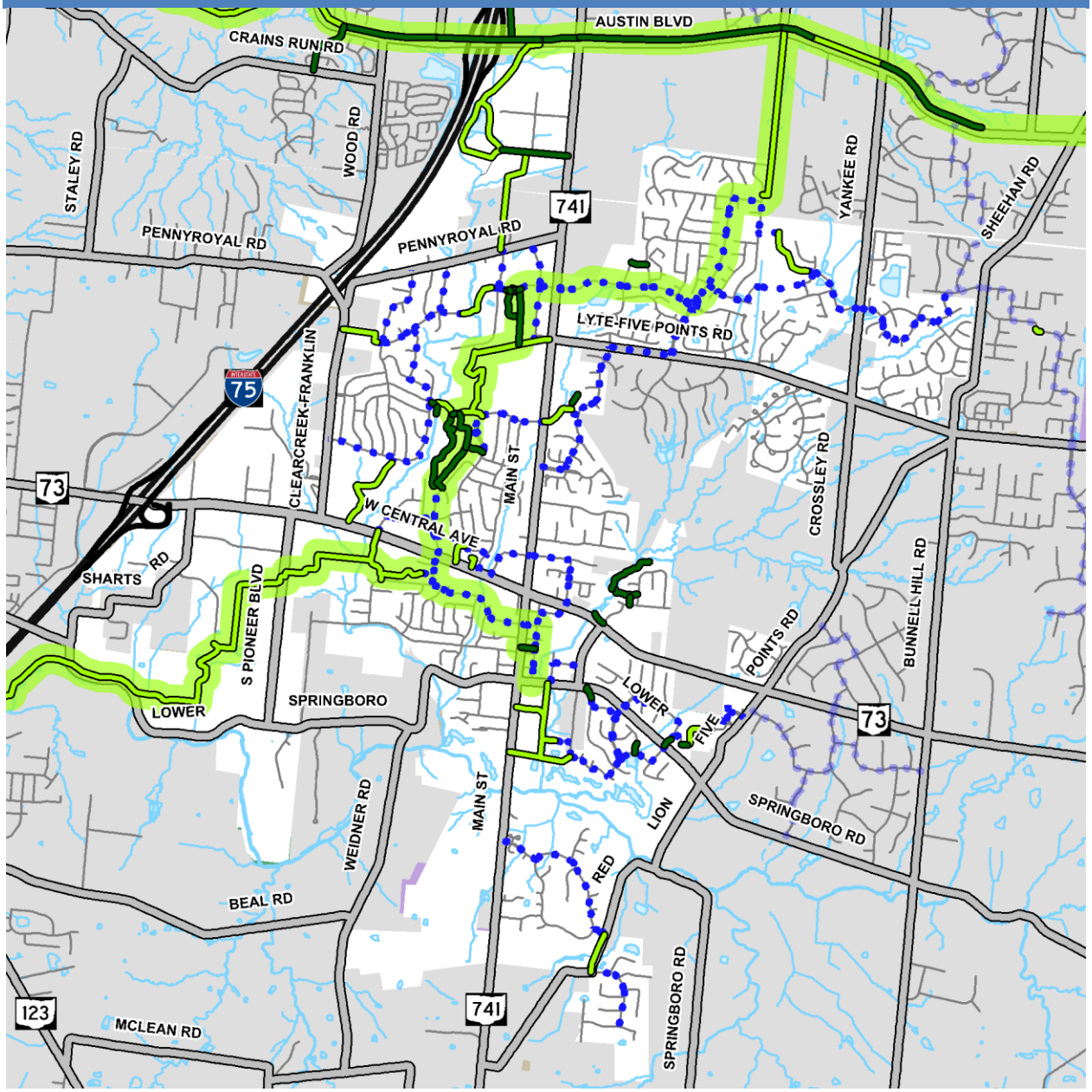

Rain Garden

RECOMMENDATIONS

The City should focus on completing the Neighborhood Greenway in the first phases of implementation as they provide the framework for the development of the non-motorized system. Please refer to Chapter 6, Implementation Plan for more details.

Please refer to Fig. 3.8 for a map of the proposed neighborhood greenway.

FIGURE 3.8 PROPOSED NEIGHBORHOOD GREENWAY



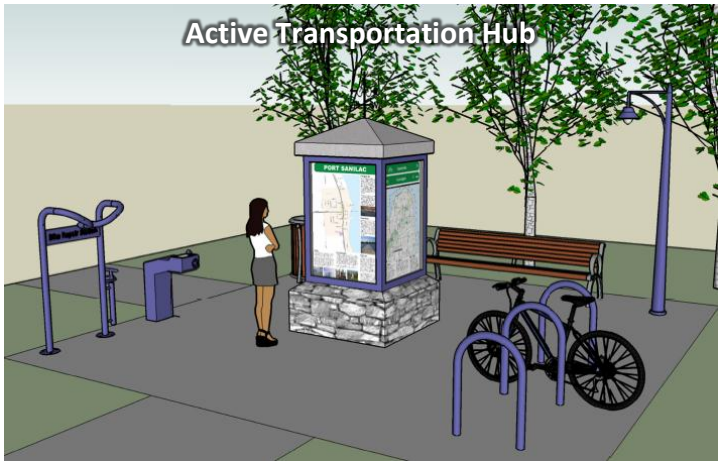
Proposed Neighborhood Greenways

- Existing Off-road Trail
- Proposed Off-road Trail
- Proposed Routes on Local Roadways
- Proposed Neighborhood Greenway

APPROXIMATELY 8 MILES OF NEIGHBORHOOD GREENWAYS ARE PROPOSED WITHIN THE CITY LIMIT

3.9 ACTIVE TRANSPORTATION HUB

DESCRIPTION



Active Transportation Hubs serve as orientation and resource centers for non-motorized trips. They help those who are already walking and bicycling find community resources. They also introduce people to new walking and bicycling opportunities.

Active Transportation Hubs are typically located in village centers or significant parks with key non-motorized routes. They are most effective when placed in high profile locations. When used consistently through a region they become focal points for navigation and their locations are shown on regional maps.

Active Transportation Hubs may include the following Amenities:

- Four Sided Information Kiosk (Regional Trail Map/Downtown Attractions, Tourist Information)
- Drinking Fountain
- Bicycle Maintenance Station with Air Pump
- Bike Parking, Bench and Trash/Recycling Receptacles
- Lighting
- Vending machines that dispense basic bicycle repair supplies if there is not a bike shop nearby
- Covered Shelter

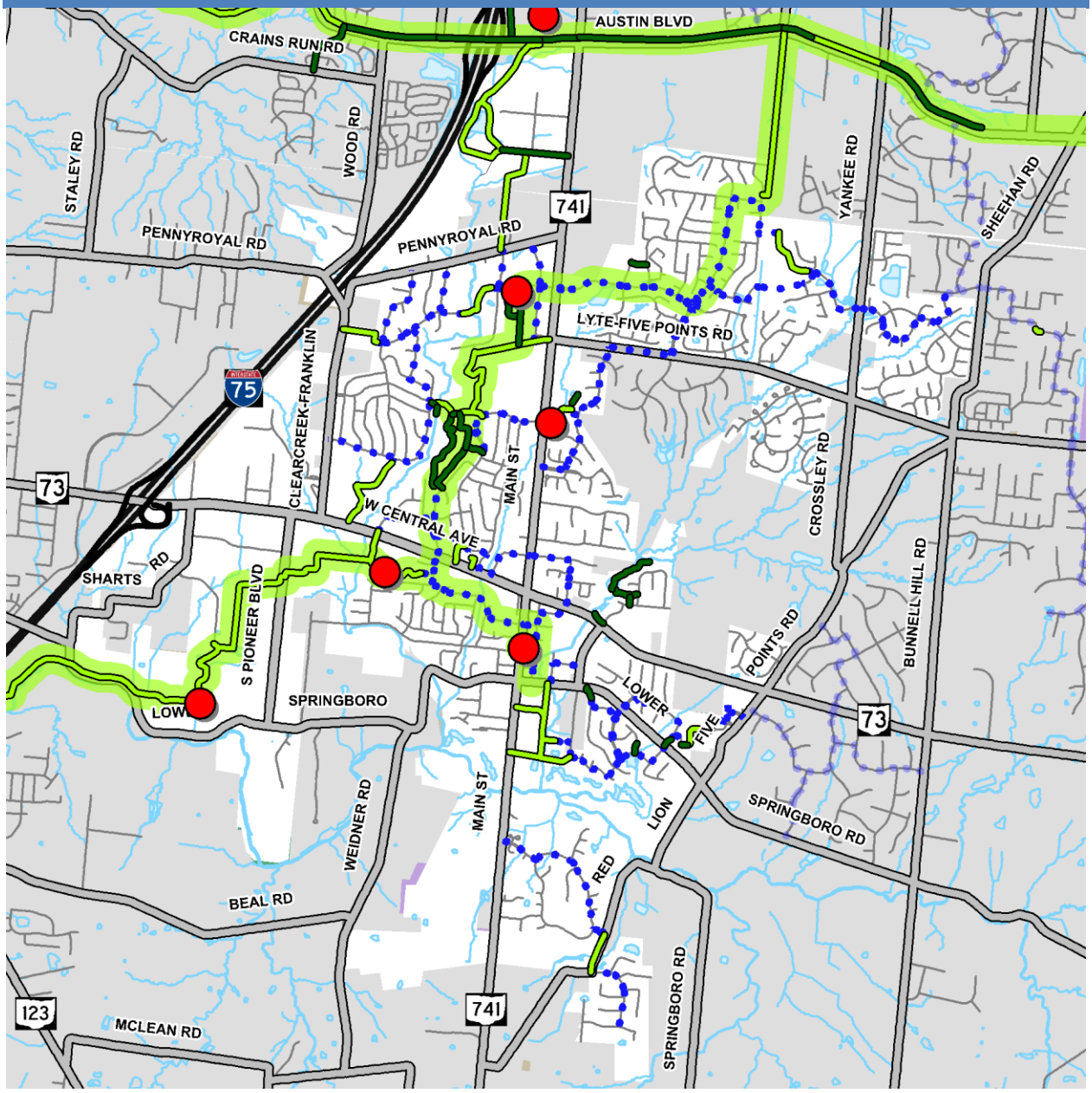
RECOMMENDATIONS

Active Transportation Hubs are proposed throughout the City along the Neighborhood Greenway and in public areas such as parks. Many of the proposed Active Transportation Hubs have been placed in locations where there is existing access to water and restroom facilities.

The conceptual arrangement of the active transportation hub described above should be adopted on a case-by-case basis. Depending on the location and access to near-by services, some locations may include all of the amenities listed above and some may be as simple as a map with routing information.

Please refer to Fig. 3.9 for a map of the proposed active transportation hubs.

FIGURE 3.9 PROPOSED ACTIVE TRANSPORTATION HUBS



Active Transportation Hubs

- Existing Off-road Trail
- Proposed Off-road Trail
- Proposed Routes on Local Roadways
- Proposed Neighborhood Greenway
- Proposed Active Transportation Hub

5 LOCATIONS FOR ACTIVE TRANSPORTATION HUBS ARE PROPOSED WITHIN THE CITY LIMIT

3.10 REGIONAL CONNECTIONS

DESCRIPTION

For many cyclists it doesn't matter what city or township they are riding in, they just want facilities that get them to their destination. Springboro is well positioned in that there are major regional trails to both the east and west of the City. Currently, to get to the trails by bike, cyclists have to traverse busy, winding roads few paved shoulders or designated bicycle facilities. Based on the public input there is a high desire to get to the nearby trails and a need for more safer and comfortable routes to get there.

RECOMMENDATIONS

ROUTE A TO THE GREAT MIAMI RIVER TRAIL:

Route A is identified as the Rivers Corridors Trail (MOT-9) in the MVRPC 2008 Miami Valley Comprehensive Local-Regional Bikeway Plan (MVRCP 2008 Bikeway Plan) and is well on its way to becoming an off-road trail connection between Austin Landing and the Great Miami River Trail. There is an existing pathway along the north side of Austin Boulevard/ Miamisburg Springboro Road and Miami Township plans on building an off-road pathway between Miamisburg Springboro Road and the Great Miami River Trail through undeveloped property to the north of Crain's Run Road. This will most likely be the first regional connection to be completed between the City of Springboro and the Great Miami River Trail.

ROUTE B TO THE GREAT MIAMI RIVER TRAIL:

Route B proposes an off-road trail along Clear Creek shown as WAR – 3 in the MVRPC 2008 Bikeway Plan. Although this segment was highly desired, it is construction intensive and will depend on available funding. In the near-term, 4th Street in Franklin would be used as a temporary mapped or signed bike route until an off-road trail can be built.

ROUTE C TO THE LITTLE MIAMI SCENIC TRAIL:

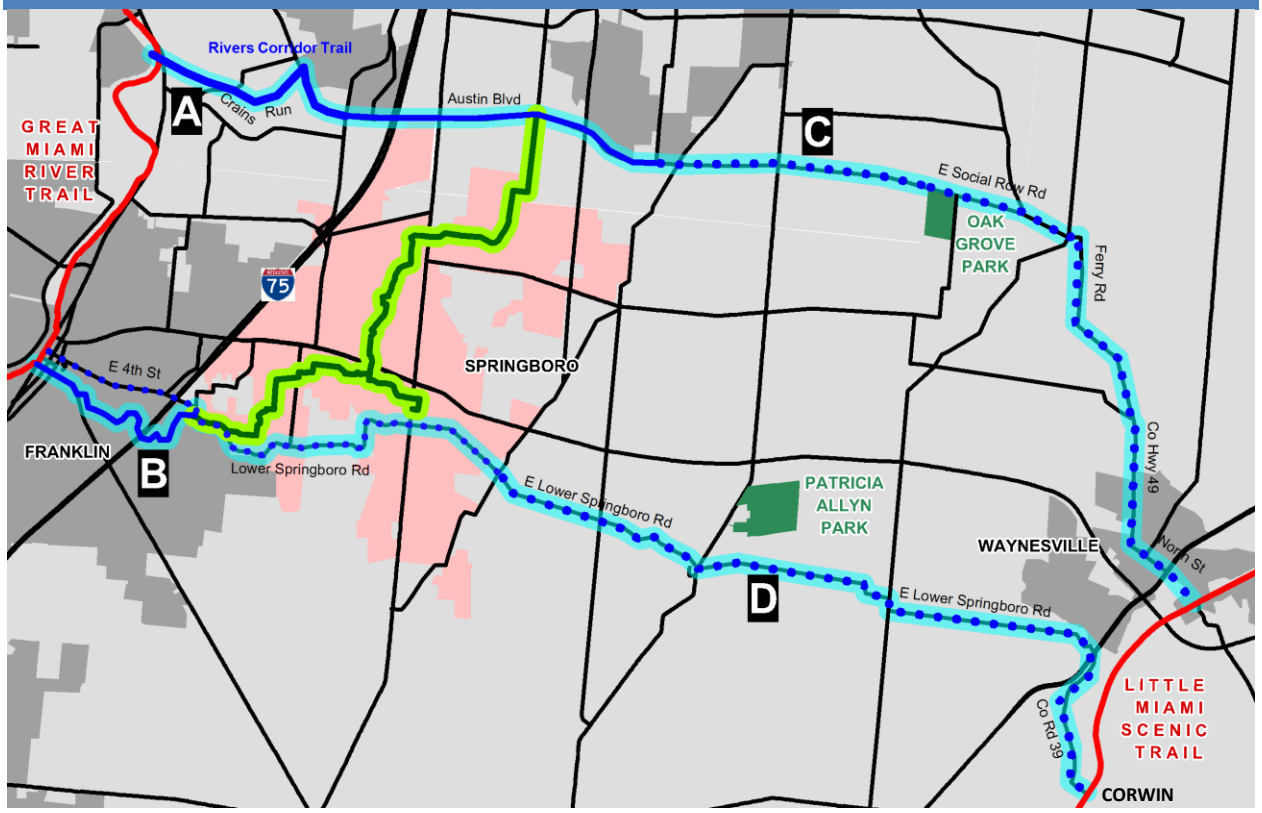
Route C proposes an off-road trail along Austin Road to Paragon Road and then becomes a signed or mapped bike route following Social Row Road, Ferry Road, Co. Hwy 49 and North Road, with the potential to add a paved shoulder to the on-road routes. This route follows the Rivers Corridor Trail (MOT-9) identified in the MVRPC 2008 Bikeway Plan.

ROUTE D TO THE LITTLE MIAMI SCENIC TRAIL:

Route D proposes a signed and mapped route along Lower Springboro Road. This Route is shown in the MVRPC 2008 Bikeway Plan and is the route a lot of cyclists currently take to access the Little Miami Scenic Trail south of Waynesville/Corwin. The route is also included on the Warren County Thoroughfare Plan and Ohio-Kentucky-Indiana (OKI) Council of Governments Ohio County Bike Route Guide.

Please refer to Fig. 3.10 for a map of the regional connections.

FIGURE 3.10 REGIONAL CONNECTIONS



Regional Connections

- Temporary On-Road Route
- Regional On-Road Route
- Regional Off-Road Route
- Springboro Neighborhood Greenway

Web Survey Results:

- Around 58% of survey respondents would be interested in riding their bike from Springboro to the Great Miami River Trail
- Around 53% of survey respondents would be interested in riding their bike from Springboro to the Little Miami Scenic Trail

Public Open House Results:

- Around 90% of participants felt that the City should Financially Support the Regional Trail Connections Outside the city limits.

3.11 RECREATIONAL LOOP

DESCRIPTION

A Recreation Loop is a designated signed or mapped bicycle route that adults and children of all ages and abilities can enjoy. These routes consist of on-road and off-road non-motorized facilities that provide minimal interaction with high speed, high volume motor vehicle traffic. These routes are significant enough that special branding and signage would be appropriate and many times these routes become the "recreational jewels" of a community.

For the most up-to-date guidelines on signing these routes please refer to Chapter 9 of the *MUTCD*, Chapter 4 of AASHTO's *Guide for the Development of Bicycle Facilities,* and the Bikeway Signing and Marking section of NACTO's *Urban Bikeway Design Guide*.

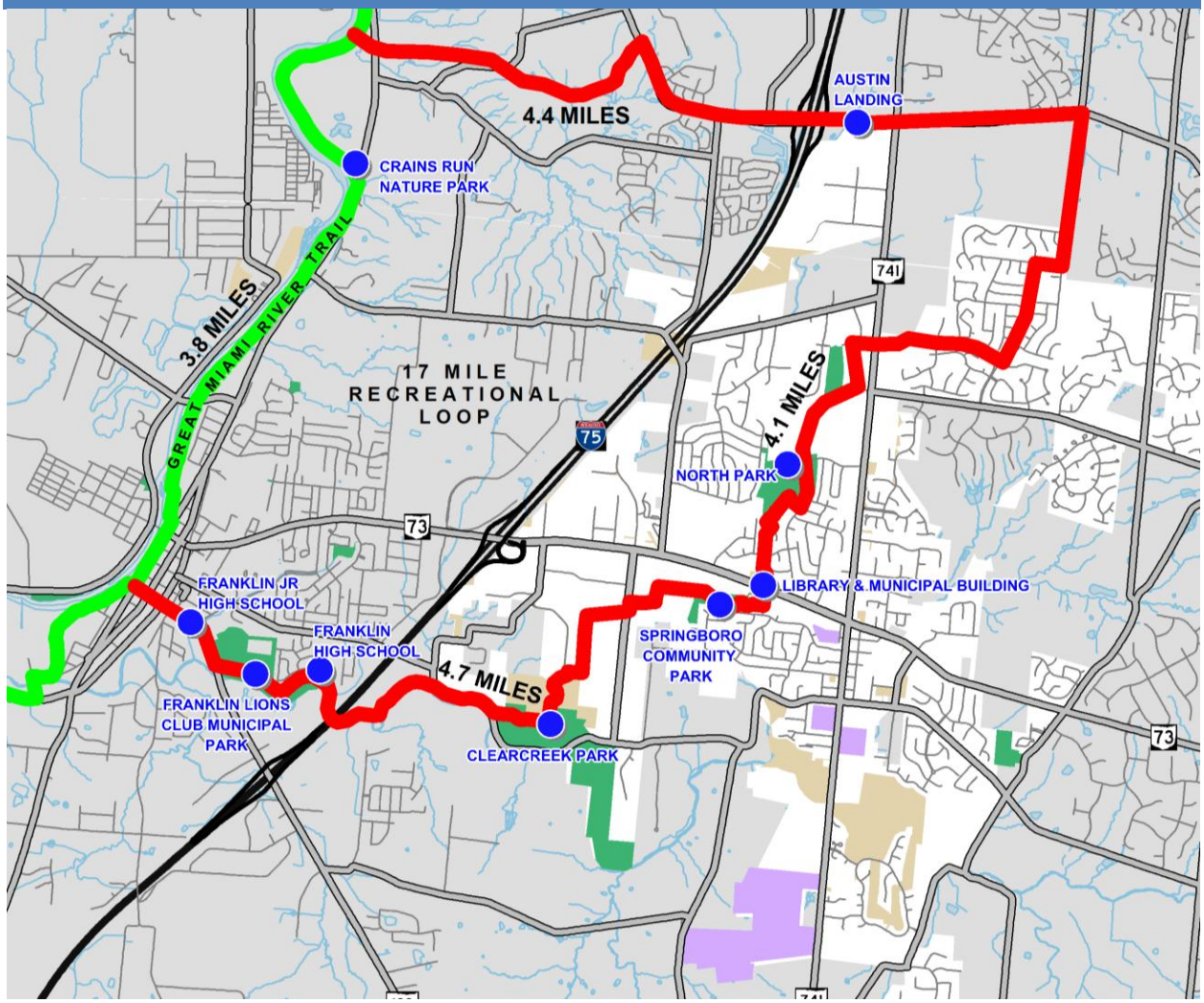
RECOMMENDATIONS

A 17 Mile Recreational Loop has been proposed that includes segments of the proposed Neighborhood Greenway, the Great Miami River Trail and the north and south regional connections between Springboro and the Great Miami River Trail. The route also connects to numerous destinations such as parks and schools.

It is recommended that the City work with the adjacent municipalities to build, sign and market this route as a recreational resource for all of the surrounding communities.

Please refer to Fig. 3.11 for a map of the proposed recreational loop.

FIGURE 3.11 PROPOSED RECREATIONAL LOOP



COMMUNITY PROGRAMS

Getting into the car to take even the shortest trip has become so ingrained in our consciousness that to even consider an alternative needs more than just a little outside help. Communities need a multi-faceted approach aimed at creating a fundamental cultural shift where choosing to walk or bike is not a brave and unusual choice, but common place. The following describes the key community programs that were evaluated as part of the planning process.

ONGOING ASSESSMENT – A key part of knowing what to do, is understanding people's hopes and concerns. This knowledge will justify taking action and helping to assure that the actions taken will provide the most good. The planning process began with a web survey that began the process of taking the pulse of the community regarding non-motorized issues.

RESOURCES – When someone is interested in switching from driving to bicycling or walking what resources are at their disposal? Are there maps, travel tips, basic rules of the road available on-line or in printed form? A plan should look at the best way to link the receptive audiences with the most appropriate informational resources and identify the most useful mediums.

CAMPAIGNS – Every now and then there is a single issue that needs focused attention for a limited time period to bring it to the forefront to precipitate change. It is important to define that issue, set objectives, assess the available resources and map out a strategy for a successful campaign.

MARKETING/ OUTREACH – A drumbeat of messages need to be established that seep into the collective consciousness. The messages need to be simple, focused and broadcast in a variety of mediums. The most effective messages are neither preachy nor lay blame but raise understanding on all sides of the issue.

SPECIAL EVENTS – How can education and marketing be worked into existing events? A big community event is an opportunity to showcase effective parts of a multimodal transportation system such as how to manage bike parking and pedestrian crossings.

TARGETED ENCOURAGEMENT – All of the approaches above will help open doors. Some people will need no further encouragement to walk (or bike) through that door; others will need individual attention. It is intensive work, but one proven time and time again to be the most cost effective strategy.

SCHOOLS – What programs are in place at the schools? Options such as walking school buses, bike trains and formal educational benchmarks for school kids provide opportunities to get more kids involved in walking and bicycling.

SAFETY EDUCATION – Perhaps the most challenging of programs, it is best integrated into all of the approaches above. Safety education needs to raise understanding of the most prominent issues that affect an individual's own well-being.

PRIORITY COMMUNITY PROGRAMS

Based on input from the BPAC, City Staff and public input the following community programs were found to be of high priority for the City of Springboro.

- Bicycle Safety
- Reaching Motorists
- Survey Assessments
- Bicycle Map
- Walking Map

It is recommended that the City focus on implementing these programs in the near-term. Every few years these community programs should be re-evaluated to determine their progress and if there are new programs the City should focus on. Please refer to the supplemental document, *Community Programs Evaluations,* for assistance.

The following pages give a detailed overview of the priority community programs and the steps that need to be taken to bring them to fruition.

TOPICS:

COMMUNITY PROGRAM RECOMMENDATIONS

4.1 BICYCLE SAFETY

DESCRIPTION

In general, bicyclists on public roadways have the same rights and responsibilities as automobile drivers and are subject to the same state laws and local ordinances.

RECOMMENDATIONS

The following bicycling and safety tips should be promoted.

- ☐ *Be Predictable* – operating a bicycle as a vehicle makes your movements more predictable to others and improves safety for everyone.
- ☐ *Use Lights at Night* – Use a front white light visible for 500 feet and a rear red reflector visible for 600 feet. A flashing red light in the rear is recommended. Bright and reflective clothing is also recommended at all times of the day and night.
- ☐ *Ride with Traffic* – Motorists are not looking for bicyclists riding on the wrong side of the road, cyclists need to ride with the flow of traffic.
- ☐ *Signal Turns* – Hand signals are required to alert motorists, pedestrians and other bikers
- ☐ *Yield to Pedestrians* – When operating on a shared use trail or sidewalk, bicyclists must yield the right of way to pedestrians and shall give an audible signal before overtaking and passing a pedestrian.
- ☐ *Keep to the Right and Ride Only Two Abreast* – Bicyclists should keep as far to the right as practicable, moving left to avoid hazards and to position themselves in the appropriate designated through or turn lanes. No more than two bicyclists should ride side by side in a public roadway.
- ☐ *Make Left Turns Safely* – There are two ways to make a left turn. First, like a car; signal, move into the left-turn lane and then turn. Second, like a pedestrian; ride straight across the intersection to the far side crosswalk and wait for the pedestrian signal to cross the street in the crosswalk. When using the second method, care should be given when merging back with traffic.
- ☐ *Ride in a Straight Line and Avoid Car Doors* – Parked cars opening doors can seriously injure cyclists. Keep at least an open car door distance away from parked cars and ride in a straight line where there are gaps between parked cars.
- ☐ *Wear a Helmet* – A properly fitted helmet is essential safety gear. Helmets should be worn such that they cover the forehead and are above the eyebrows. Helmets should fit snugly and not move around while riding.

- ☐ *Watch for Cars Pulling Out* – Always assume that motorists do not see you. Keep an eye out for cars pulling into traffic from parking spaces, driveways and intersecting streets.
- ☐ *Watch for Hazards* – watch for sewer grates, slippery manhole covers, oily pavement, snow and ice. Cross railroad tracks at rights angles. It is not necessary to use a bike lane or paved shoulders if hazards such as debris and poor pavement conditions make it unsafe.
- ☐ *Bells and Horns* – It is recommended that a bicycle be equipped with a bell or other device capable of giving a signal audible from a distance of at least 100 feet.
- ☐ *Safety Accessories* – Water bottles, tire repair kits, mirror, locks and first aid kits help make each trip safer and the cyclist more self-sufficient.

These safety tips should be distributed through multiple sources including bicycle maps, brochures in local bike shops, in kiosk and information centers, at parks, and on community websites.

In addition, a special issue of the City newsletter is planned to be mailed out to all City residents to coincide with the adoption of this plan. A portion of the newsletter will be dedicated to information about the plan recommendations, and the other half will be dedicated to bike and pedestrian safety and motorist education.

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within One Year:

- ☐ With the adoption of this plan, send out a special issue of the City newsletter that has a section dedicated to bicycle and pedestrian safety
- ☐ Prepare text and graphics

Within Two Years:

- ☐ Incorporate into bike map

Within Three Years:

- ☐ Put in form of 8 ½ x 11 PDF and place on City website
- ☐ Put in poster form and provide copies to bike shops, schools and display at kiosks

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING DEPARTMENT*

ESTIMATED BUDGET: *$3,500*

4.2 REACHING MOTORISTS

DESCRIPTION

It can be difficult to reach Motorists with a message related to bicycles and pedestrians, especially if motorists do not live in the area. Safety and educational information should be provided to motorists so they are more familiar with bicyclists riding along and in the roadway.

RECOMMENDATIONS

- ☐ Decorate the streets with banners that provide simple information about bicycle and motor vehicle etiquette. Street banners are a vibrant and colorful way for a community to celebrate the growth and enthusiasm of the local biking community. Street banners help bring awareness to motor vehicles, encourage cyclists to safely bike and enhance the beautification of the community. Street banners should be implemented concurrently with new bicycle facilities to help educate and bring awareness to the new facilities.

In addition, a special issue of the City newsletter is planned to be mailed out to all City residents to coincide with the adoption of this plan. A portion of the newsletter will be dedicated to information about the plan recommendations, and the other half will be dedicated to bike and pedestrian safety and motorist education.

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within One Year:

- ☐ With the adoption of this plan, send out a special issue of the City newsletter that has a section dedicated to bicycle and pedestrian safety

Within Two Years:

- ☐ Design street banners with educational messages for motorists and bicyclists
- ☐ Consider placing banners along main corridors in the community, especially where bike lanes currently exist

As Needed:

- ☐ Place banners concurrently with new bicycle facilities as needed

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING DEPARTMENT*

ESTIMATED BUDGET: *UNKNOWN*

COMMUNITY PROGRAM RECOMMENDATIONS

4.3 SURVEY ASSESSMENTS

DESCRIPTION

While a detailed web survey is typically included as part of the creation of a bicycle and pedestrian plan, there needs to be a way to assess community concerns and priorities on an ongoing basis. Ideally, there is a way to reach the community as a whole as well as provide the opportunity for detailed input.

RECOMMENDATIONS

☐ *Community Survey*

Most communities conduct some type of scientific survey of their residents every year or two that addresses a wide range of issues. By integrating a few questions related to the residents satisfaction with the communities bicycling and pedestrian policies, infrastructure and programs a community can track how that satisfaction changes over time as the bicycle and pedestrian plan is implemented. This also serves as a good tool when updating the bicycle and pedestrian plan in 5 or 10 years.

The City of Springboro's next citizen survey is scheduled to take place in 2014. At that time, the City should include a small number of questions related directly to bicycle and pedestrian issues.

☐ *On-line Input*

While a community survey addresses a wide spectrum of the population at a relatively superficial level, there should be a means for detailed input from pedestrians and cyclists. These may include maps where participants would locate where they would like to see additional bike racks, make requests for facilities not included in the master plan and comment on newly constructed facilities. This can be an excellent tool for mid-course adjustments when implementing the bicycle and pedestrian plan.

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within Two Years:

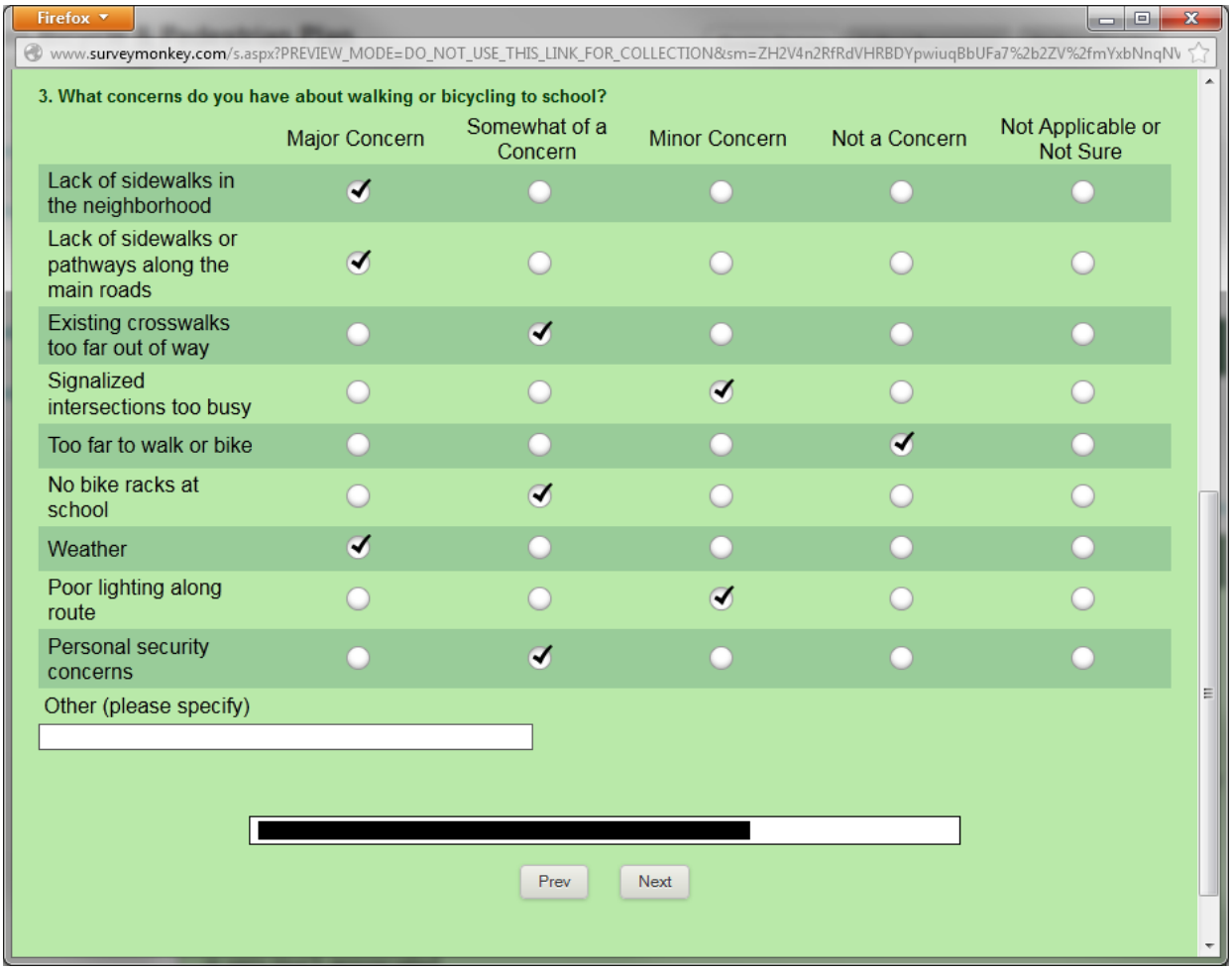
- ☐ Integrate bicycle and pedestrian questions with the City's 2014 citizen survey

Within Three Years:

- ☐ Provide means for detailed on-line input

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING DEPARTMENT*

ESTIMATED BUDGET: *UNKNOWN*



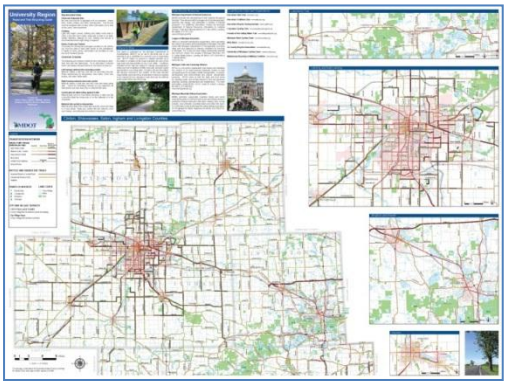
There are numerous online survey providers, such as Survey Monkey, where you can create, distribute and analyze surveys for free.

COMMUNITY PROGRAM RECOMMENDATIONS

4.4 WALKING & BIKING MAPS

DESCRIPTION

A bicycle map does more than simply provide wayfinding information. It helps build the brand of the community as an accommodating and welcoming place to bicyclists. A walking map is usually developed for downtown areas and highlights the different amenities and resources in the area. A map can also be an effective marketing tool for local merchants and businesses by offering advertising and sponsorship space, which can offset the cost of production and printing.



RECOMMENDATIONS

A walking and biking map of Springboro should be created that includes the following:

- ☐ A bike map should include the entire street network and community destinations as a base. Some maps are prescriptive in that they color code routes based on bicycle level of service or highlight recommended routes. Others are informational providing data on traffic volumes and existing facilities to let cyclists make choices based on their own skill sets. The maps should include information on bicycle laws and safety recommendations as well as trail etiquette.
- ☐ A walking map should include destinations, including both publicly owned structures such as museums and libraries as well as private enterprises that are open to the public. The map may also include suggested walking routes, local walking events and safety information.
- ☐ The map should be a stand alone document distributed to every household to generate excitement and awareness about walking and bicycling in the community. The goal should be to provide the map at no cost to the end user. Map production and print costs can be offset by selling advertising or underwriting from tourism organizations. The map can be paired with other publications already targeting residents' mailboxes for efficiency and coverage as well. The map should be located at welcome centers, gas stations, parking garages, bicycle shops, businesses and kiosks for further distribution.
- ☐ An outstanding walking and bicycle map has the potential to be the community map of choice even for households that do not bicycle or walk. This provides an opportunity to help promote understanding between bicyclists, pedestrians and motorists.

EXPECTED TIME FRAME FOR IMPLEMENTATION

Within Two - Three Years:

- ☐ Develop and distribute maps

Within Five Years:

- ☐ Update map with new facilities every few years

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING DEPARTMENT*

ESTIMATED BUDGET: *$13,000 DEVELOPMENT, $20,000 PRINTING*

QUALITY OF LIFE METRICS

The public policies, physical infrastructure and community programs (or lack thereof) come together to influence the quality of life for not just pedestrians and bicyclists but for the community as a whole. Positively influencing the quality of life for all of the City's residents is the end game. The following describes the key quality of life metrics that were evaluated as part of the planning process.

INCREASED ACTIVITY LEVELS – With more facilities, supporting policies and encouraging programs more people will shift from driving to walking and bicycling. Even modest increases can have a startling impact on all of the issues below.

CRASH REDUCTION – The plan will address specific safety issues. But perhaps more importantly, more bicyclists and pedestrians generally result in a lower crash rates. The reason is twofold. First, pedestrians and bicyclists become an expected roadway user. This greater awareness brings about increased attentiveness by motorists. Second, pedestrians and bicyclists become people in the minds of motorists. A motorist is more likely to know or be related to a pedestrian or bicyclists and less likely to view them as nameless hindrance to their mobility.

IMPROVED PERSONAL SAFETY – An automobile is perceived as providing a high degree of personal safety to individuals vulnerable to personal crimes. The cumulative effect of the policies, physical environment and programs will work to address those personal safety concerns that hinder some from choosing to walk or bicycle. By doing so, the personal safety of those who walk and bike whether by choice or by necessity will be improved.

ENHANCED HEALTH AND WELLBEING – Increased physical activity is a key part of addressing the obesity epidemic, heart disease and diabetes. Beyond physical wellbeing, increased physical activity has shown to improve mental wellbeing. As the City's population ages, an accessible transportation system is critical to providing independent mobility for seniors.

ENERGY SAVINGS – On average, American's make about four trips a day with an average trip length of about 10 miles. Most of these trips are done in a private motor vehicle. Even for a mid-size community, this adds up to a staggering amount of miles driven and fuel consumed each day. But a number of these trips to school, work, for shopping or a social visit are actually within easy walking or bicycling distance.

POLLUTION REDUCTION – One person choosing to commute two miles to work via foot or bike rather than drive reduces their carbon emissions by 2/3 of a ton every year. Even modest targets such having every replace a 1/3 mile motor vehicle trip with a walking or bicycling trip can result in a remarkable reduction in pollution.

A STRONG SENSE OF PLACE – Walking and bicycling build community. Casual conversations between neighbors happen while walking and bicycling together. People notice things walking and bicycling that are missed when driving, adding to a community's eyes and ears. A great place to walk and bicycle is also a beautiful place.

PRIORITY QUALITY OF LIFE METRICS

Based on input from the BPAC, City Staff and public input the following quality of life metrics were found to be of high priority for the City of Springboro.

- Bicycle and Pedestrian Counts
- Bicycle and Pedestrian Crashes
- Perceived Personal Safety

It is recommended that the City focus on implementing these metrics in the near-term. Every few years these quality of life metrics should be re-evaluated to determine their progress and if there is a new metric the City should focus on. Please refer to the supplemental document, *Quality of Life Evaluations,* for assistance.

The following pages give a detailed overview of the priority quality of life metrics and the steps that need to be taken to bring them to fruition.

TOPICS:

QUALITY OF LIFE METRICS

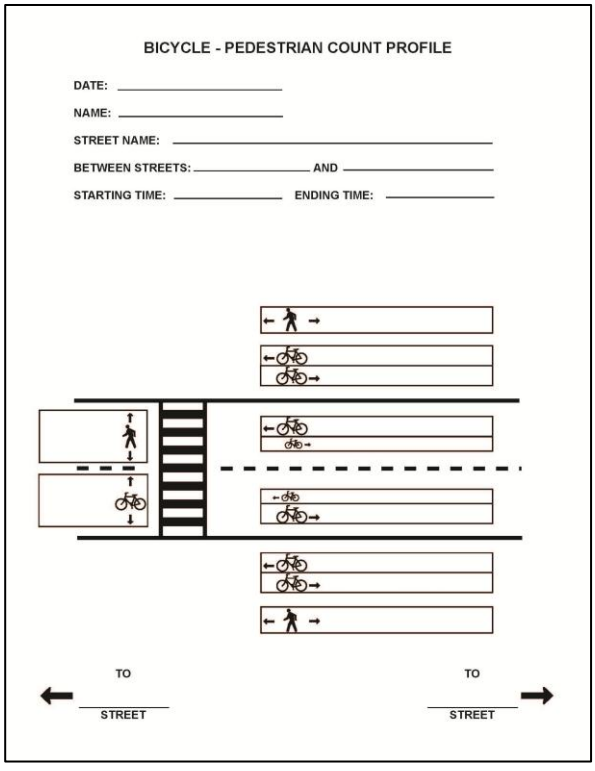
5.1 BICYCLE AND PEDESTRIAN COUNTS

DESCRIPTION

Bicycle and pedestrian counts are essential to understand if a community's efforts to increase the number of people walking and bicycling are being successful and to be able to effectively evaluate changes in the overall crash rate as well as the number of crashes at specific locations. They also help gauge a community's progress as compared to other peer communities.

RECOMMENDATIONS

- ☐ Bicycle and pedestrian counts should be conducted as part of the National Bicycle and Pedestrian Documentation Project. The National Bicycle and Pedestrian Documentation Project is a nationwide effort to provide a consistent model of data collection and ongoing data for use by planners, governments, and bicycle and pedestrian professionals. The counts should be done on a biennial basis, with consistent locations used each year. Please visit, www.bikepeddocumentation.org for more information on conducting a bicycling and pedestrian count and on ways the local communities can participate in a national count.



It should be noted that since the 2000 US Census, bicycle and pedestrian commute data has been collected by the American Community Survey. Unfortunately, especially for small and mid-sized communities, the sample size is too small to give an accurate account of bicycle and pedestrian commutes making actual counts even more important in those communities.

EXPECTED TIME FRAME FOR IMPLEMENTATION

On a biennial basis:

- ☐ Conduct bicycle and pedestrian counts every two years from the same locations

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PUBLIC WORKS*

ESTIMATED BUDGET: *$0*

QUALITY OF LIFE METRICS

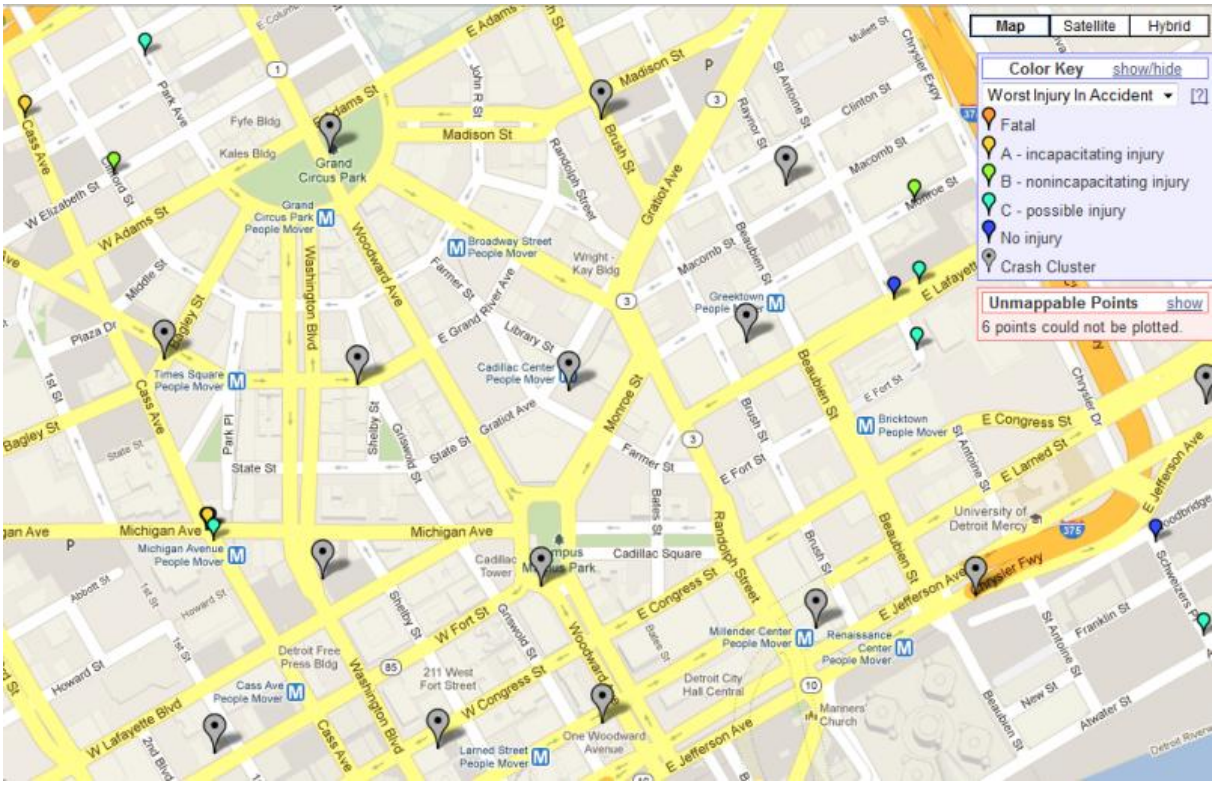
5.2 BICYCLE AND PEDESTRIAN CRASHES

DESCRIPTION

Streets without safe places to walk, cross, catch a bus or bicycle put people at risk. Nearly 5,000 pedestrians and bicyclists died on U.S. roads in 2010 and more than 120,000 were injured. Bicycle and pedestrian crashes should be monitored and analyzed on a yearly basis. Frequency, type, severity, time of day, time of year, road conditions and location should be analyzed to identify commonalities between crashes and determine how they can be mitigated. Studies have found that measures that design the street with pedestrians and bicycles in mind - sidewalks, raised medians and traffic-calming measures - improve safety for non-motorized users.

RECOMMENDATIONS

Crash rates should be analyzed on a yearly basis by comparing the number of crashes with the pedestrian and bicycle counts that were conducted in the same year (described in previous section). In general, past studies have shown that an increase in the number of bicycle and pedestrians leads to a decrease in crash rates.



EXPECTED TIME FRAME FOR IMPLEMENTATION

On a Yearly Basis:

- ☐ Identify pedestrian and bicycle crash locations on a yearly basis
- ☐ Compare crashes with bicycle and pedestrian counts to determine crash rates

RESPONSIBLE FOR MAKING IMPROVEMENTS: *PLANNING DEPARTMENT*

ESTIMATED BUDGET: *$0*

IMPLEMENTATION PLAN

MASTER PLAN ADOPTION

Adopting the Non-motorized Plan is the first step in the implementation process as this gives the recommendations official standing. Having the plan officially adopted is key when seeking outside funding for recommended improvements. It indicates to outside funding sources that a particular project is part of a larger vision and has community buy-in.

COORDINATION

The Bicycle and Pedestrian Action Committee (BPAC) should continue to meet after the plan has been adopted to provide continued coordination and to help oversee the implementation of the plan.

TOPICS:

IMPLEMENTATION PLAN

6.1 NETWORK PHASING

IMPLEMENTATION PHASES

For the next ten or so years (depending on available funding) the project should focus on completing the following two phases of the project:

PHASE 1: This phase includes improvements that may be accomplished by relatively modest changes to the existing road system. This phase creates connections all the way across the City and establishes the backbone to the bicycle and pedestrian system. The connections incorporate existing facilities, bike lanes on primary roads and bike routes on local roads that are alternatives to the busy roads. While not everyone will be comfortable using all of these facilities, they will provide a strong foundation from which to build a more comprehensive non-motorized network. Many of the improvements align with upcoming road construction projects in the City's capital improvement program making them very cost effective.

PHASE 2: This phase includes improvements that may be accomplished in the near-term as well as substantial multi-year projects that are dependent on obtaining trail easements or that are planned to be constructed concurrent with future development. A few projects will likely be dependent on obtaining outside funding sources. Given the unknowns in this phase, alternatives are provided should a desired route prove infeasible. This phase focuses on completing the Neighborhood Greenway and making connections to the regional system.

The goal is that by the completion of the first two phases there will be a substantial non-motorized network in place that provides connections to key destinations around the City on routes that a large majority of the population would be comfortable using.

PHASE 3: This phase is focused on completing the non-motorized network and includes the remaining network improvements. Many of these improvements are dependent on obtaining easements, are planned to be constructed concurrent with future development or are dependent on items in phases one and two to be completed.

Given the many unknowns in phase 3, once the first two phases are completed the remaining network improvements should be evaluated to see what opportunities are available.

LONG-TERM IMPLEMENTATION

Please note that this report does not define the ideal long-term cross section for every primary road in the area. Rather it defines what improvements should be included and provides guidelines for a wide variety of road and right-of-away scenarios. Projects that require reconstruction may be very important; however they can be very capital intensive and should be prioritized after the initial phases are implemented.

SPECIAL AREAS

Please note that some projects, such as the raised crosswalks and curb extensions in the downtown, are not included in the network phasing and can be undertaken at any time. Details on these items can be found under the Specific Area Concept Plans.

SIGNAL IMPROVEMENTS

The implementation plan focuses on new crossing opportunities, rather than improving existing signalized crossings. Existing signalized crosswalks should be routinely evaluated as part of any road resurfacing or reconstruction project. Guidelines should be consulted to make sure that the crosswalks ramp's position, slope and cross slope are appropriate as well as including detectable warnings strips, pedestrian countdown signals, appropriately placed activation accessible push buttons, high visibility crosswalk markings and an unobstructed pedestrian route.

CONCURRENT STUDIES

The City has completed some preliminary studies and is in the process of developing designs for the intersection of SR 73 at SR 741. Due to this occurrence recommendations for this intersection were not provided in this plan. Please refer to the separate study for recommendations on how to proceed with this intersection.

6.2 COST ESTIMATE OVERVIEW

COST ESTIMATE INTRODUCTION

In order to illustrate magnitude of costs and begin planning and budgeting for implementation, planning level cost estimates have been completed for the improvements proposed in the first two phases. Due to the length of time it is going to take to complete the first two phases and given the unknowns in phase three, cost estimates are not provided beyond the first two phases.

The first two phases of implementation are expected to cost between $1,237,874 and $1,440,374. The following figure provides an overview of the cost estimate for the first two phases. Please note that a minimum and maximum estimate was given to each category due to the potential of some projects being implemented concurrent with private development.

FIGURE 6.2A. COST ESTIMATE OVERVIEW

PHASE ONE COST ESTIMATE	Min	Max
Capital Improvement Program Opportunities	$ 279,950.00	$ 279,950.00
Proposed Bike Facilities on Primary Roads	$ 66,460.00	$ 66,460.00
Proposed Neighborhood Connector Routes	$ 10,100.00	$ 10,100.00
Proposed Sidewalks	$ 147,600.00	$ 147,600.00
Proposed Active Transportation Hub	$ 40,000.00	$ 40,000.00
Total:	**$ 544,110.00**	**$ 544,110.00**

PHASE TWO COST ESTIMATE	Min	Max
Settlers Walk Neighborhood Connector Route	$ 6,420.00	$ 6,420.00
Connection to Clearcreek Park	$ 508,800.00	$ 508,800.00
Connection to Austin Boulevard	$ 178,544.00	$ 381,044.00
Total:	**$ 693,764.00**	**$ 896,264.00**

COST ESTIMATE FOR PHASE ONE & TWO	Min	Max
Total:	**$ 1,237,874.00**	**$ 1,440,374.00**

ACQUIRING RIGHT-OF-WAY

Some of the proposed routes will require easements in order for implementation to take place. Please keep in mind that acquiring easements and/or right-of-way may add to the financial burden of implementation. In most cases, local business see the value to their own business and the community as a whole and are willing to provide a trail easement at no cost if the community assumes any liability. The easements should secure access in perpetuity or at a minimum the expected life-span of the improvement. Please note that if a project is funded by outside sources the requirements of the easement may be different.

CONCURRENT WITH DEVELOPMENT PROJECTS

Some proposed routes are dependent on property being developed. The City may require that pedestrian and bicycle access be provided through a development. The exact route and nature of the connection though should have some flexibility. The key is providing the intended level of service for the connection. Thus if the route is part of the neighborhood connector system, it should be comfortable to use by a wide spectrum of bicyclists and pedestrians and be in accordance with AASHTO guidelines. It may take the form of an off-road trail, or a signed bike route with sidewalks on a low volume, low speed roadway. If done correctly it should be implemented with no additional costs to the City.

The following pages provide a more detailed breakdown of the costs for each phase.

6.3 PHASE 1

PHASE 1: OVERVIEW

Phase 1's objective is to provide connections across the community and create a backbone for the City's long-range bicycle and pedestrian system. Phase 1 achieves this by building on the existing bicycle and pedestrian system.

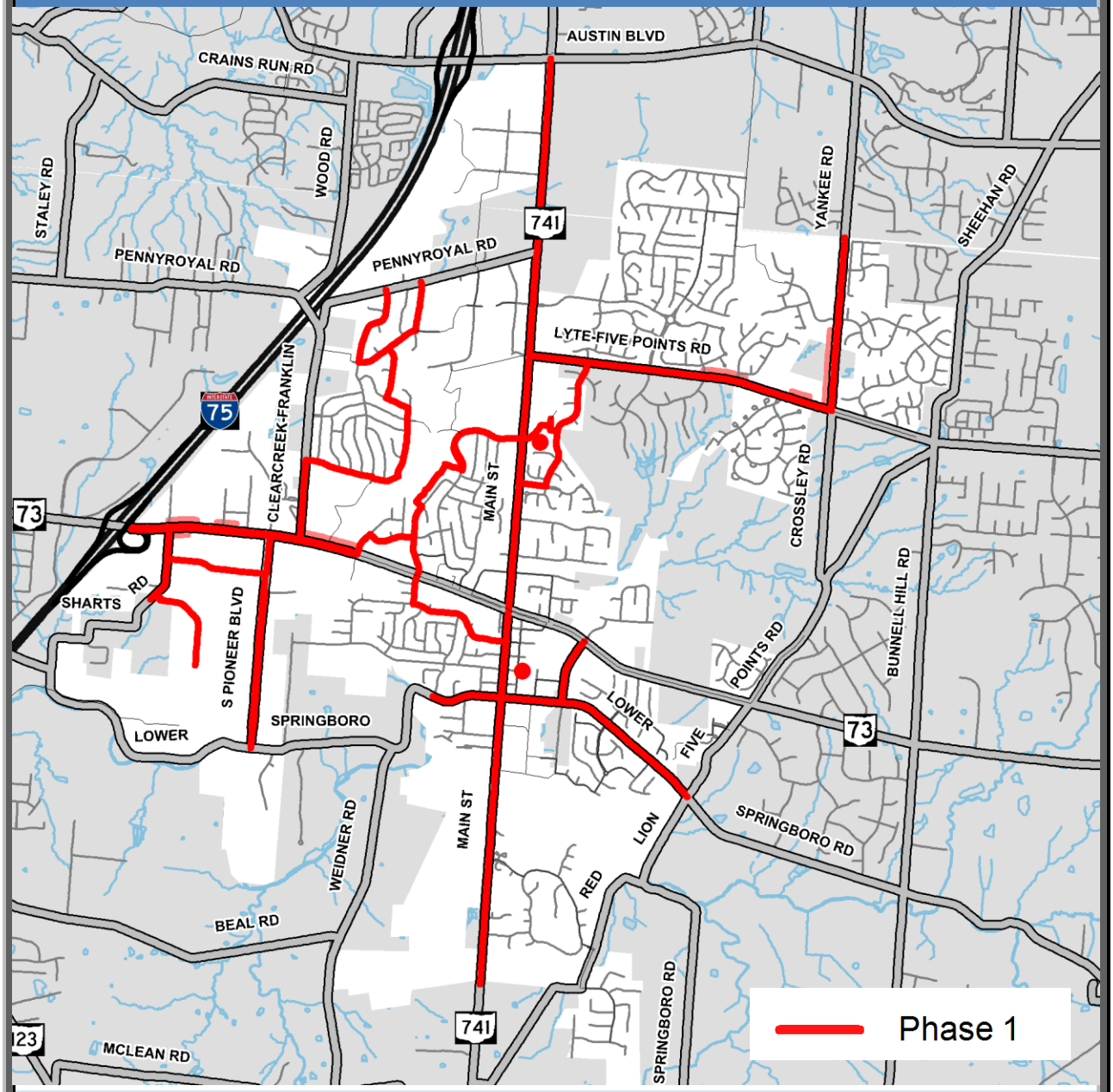
The following pages outline Phase 1 objectives and provide a more detailed breakdown of the planning level cost estimate for each item.

- CIP Opportunities
- Proposed Bike Facilities on Primary Roads
- Proposed Neighborhood Connector Routes
- Proposed Sidewalks and Pathways
- Proposed Active Transportation Hubs

A cost estimate overview for the entire phase is provided on pg. 91.

Please refer to Fig. 6.3A for an overview map of Phase 1 Implementation.

FIGURE 6.3A. PHASE 1 IMPLEMENTATION MAP

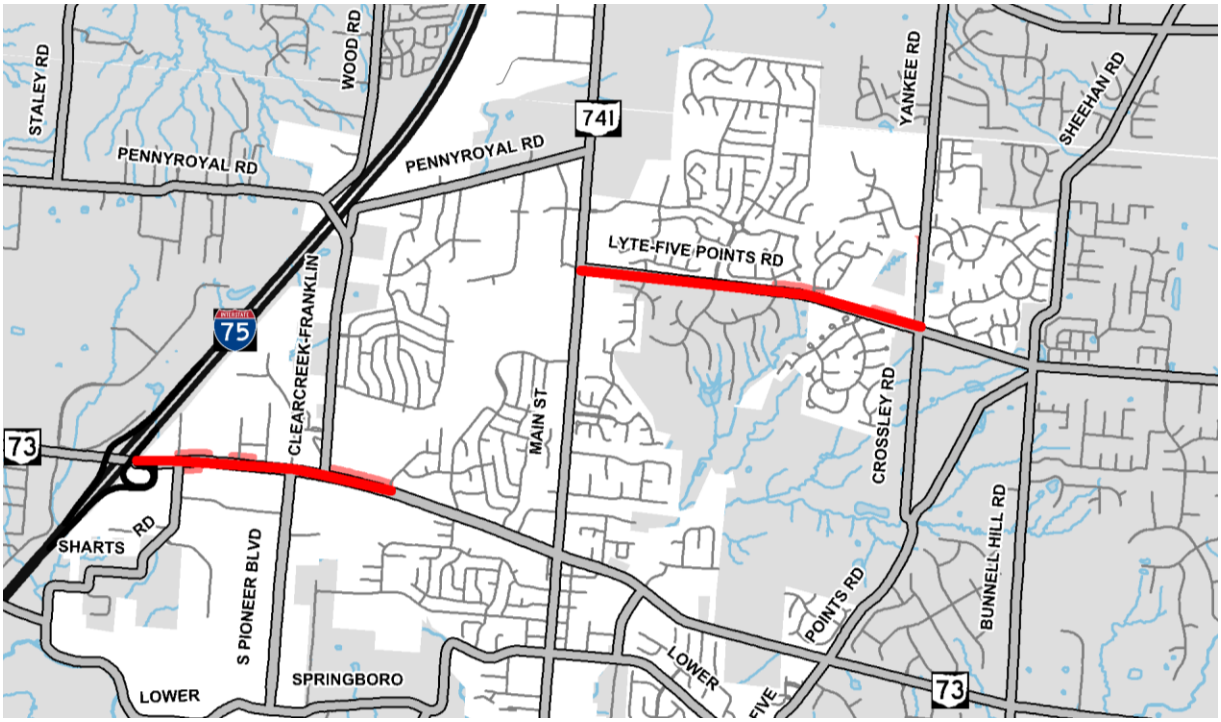


APPROXIMATELY 17.3 MILES OF NEW FACILITIES ARE PROPOSED IN PHASE ONE:

- 9 MILES OF BIKE LANES
- 2.5 MILES OF SHARED LANE MARKINGS
- 4.5 MILES OF NEIGHBORHOOD CONNECTOR ROUTES
- 1.3 MILES OF SIDEWALK
- 2 CROSSING ISLANDS
- 2 ACTIVE TRANSPORTATION HUBS

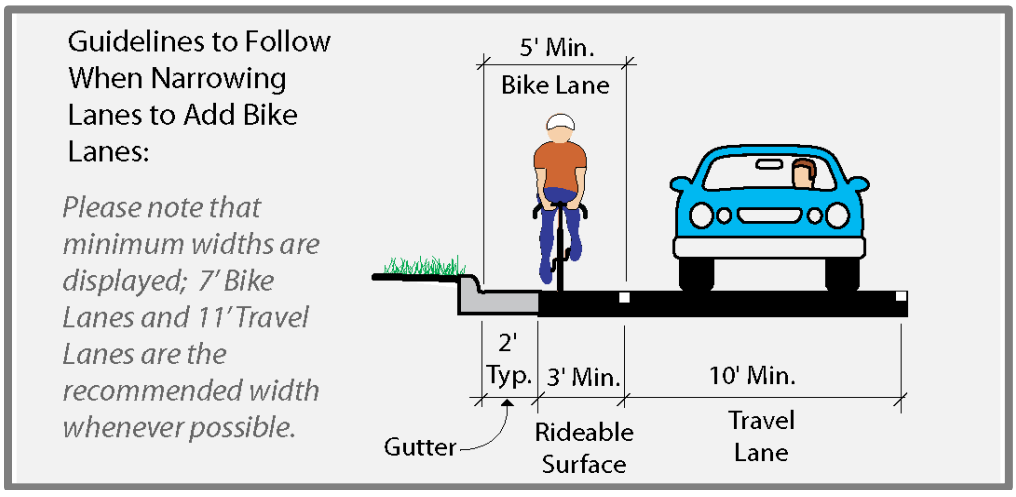
PHASE 1: CIP OPPORTUNITIES

The following is a list of projects that could be implemented as part of the City's Capital Improvement Program (CIP) in support of Phase 1 objectives. Please note that some of the projects may result in additional costs to the CIP.



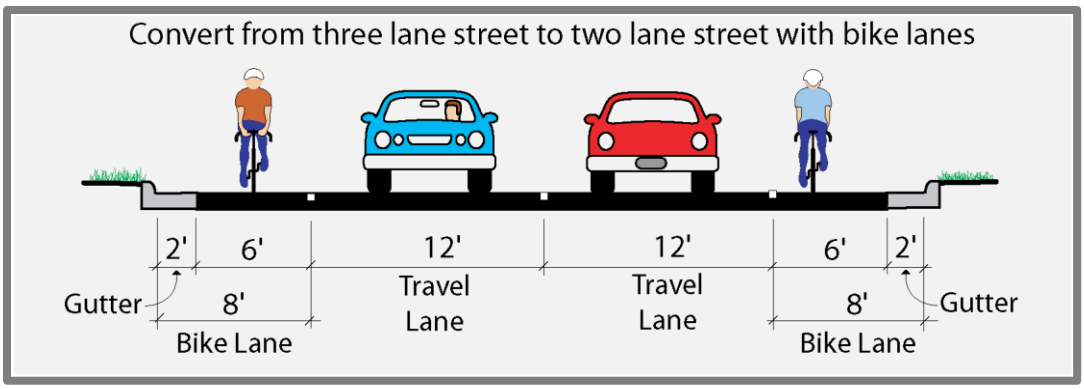
- Add bike lanes and appropriate signage to SR 73 between I-75 and Springwood Drive as part of the 2015 resurfacing project. This may be accomplished within the existing road and shoulder cross section. Please note that some shoulders may require paving to fit the bike lane.

SR 741



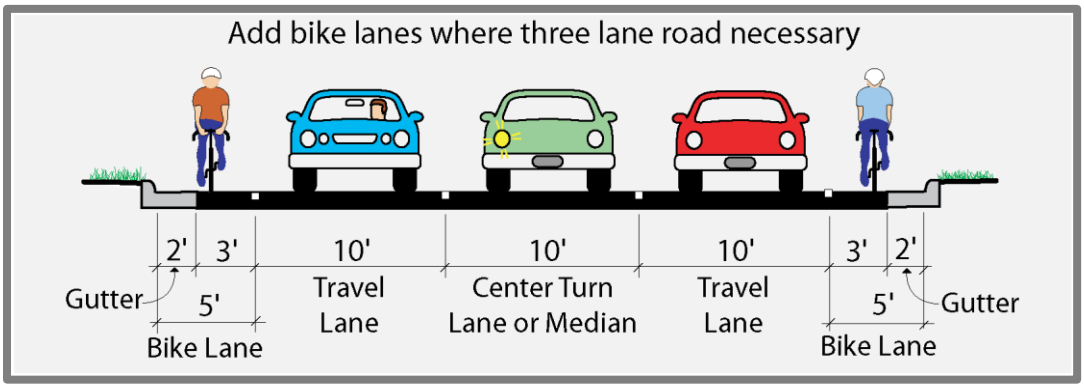
- Add bike lanes and appropriate signage to Lytle-Five Points Road through a 3 to 2 lane conversion between SR 741 and Yankee Road as part of the 2014 resurfacing project. Provide 12’ wide through lanes and 8’ wide bike lanes.

LYTLE-FIVE POINTS ROAD



- Where a left-turn lane is necessary on Lytle-Five Points Road, provide 10’ wide travel lanes and left turn lane and 5’ wide bike lanes with appropriate signage.

LYTLE-FIVE POINTS ROAD AT INTERSECTIONS



- Add Crossing Islands on Lytle-Five Points Road at Tanglewood Drive and Country Club Lane. Due to the road characteristics at this time only a crossing island is proposed, however, in the future a pedestrian beacon may be added if necessary. See the Specific Area Concept Plans on pages 110-113 for more details.

- Complete Sidewalk Gaps along the north side of Lytle-Five Points Road. Please note that the sidewalk gap at Sycamore Springs Drive presents challenges due to right-of-way and topography. This sidewalk gap should be completed with the reconstruction of the intersection where the road elevation will be changed.

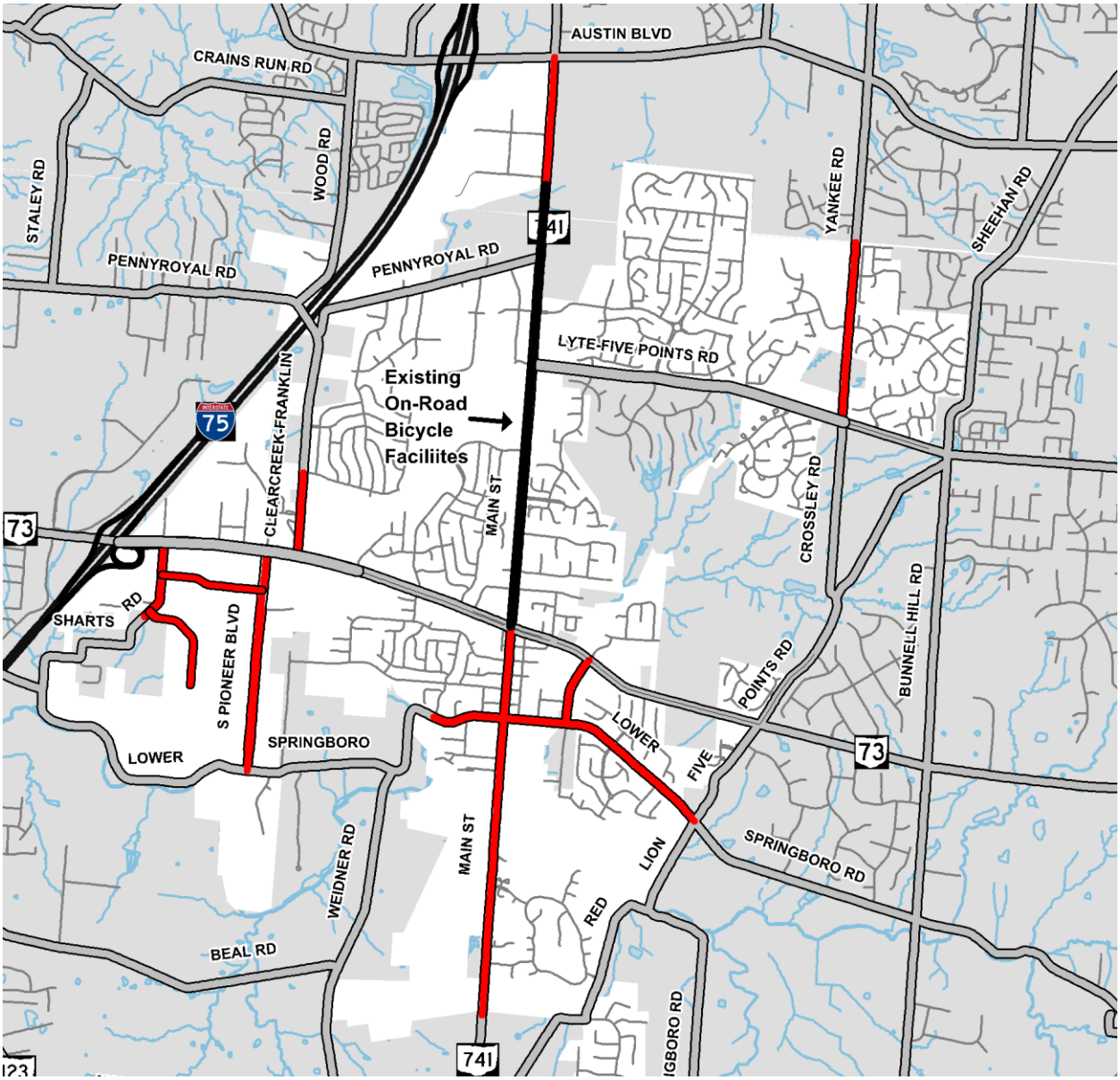
- Complete Sidewalk Gaps along the north side of SR 73 between Springwood Drive and Sharts Road and on the south side between South Pioneer Boulevard and Sharts Road. The existing sidewalks along this corridor are currently 4’ wide. Although they function at this size it is highly recommended to provide 8’ sidewalks along this corridor as this is a main arterial and there are major commercial destinations on both sides of the street. It is recommended that the new sidewalk be built at 8’ wide so that when the existing sidewalks are repaired they will be upgraded to the 8’ width as well.

CIP COST ESTIMATE:						
Road	From	To	Quantity	Unit	Unit Price	Total
Bike Lanes:						
SR 73	I-75	Springwood Dr	1.17	MI	Incidental	
Lytle-Five Points Rd	SR 741	Yankee Rd	1.53	MI	Incidental	
ADDITIONS TO CIP COST ESTIMATE:						
Road	From	To	Quantity	Unit	Unit Price	Total
Crossing Islands (Bollards, landscaping, concrete curbs, pavement removal, striping):						
Lytle-Five Points Rd	At Tanglewood Dr		1	EACH	$ 18,000	$ 18,000
Lytle-Five Points Rd	At Country Club Lane		1	EACH	$ 18,000	$ 18,000
Sidewalks (5' wide):						
Lytle-Five Points Rd (North)	Hickory Hills Dr	Sycamore Springs Dr	1,000	LF	$ 35	$ 35,000
Lytle-Five Points Rd (North)	Country Club Ln	Yankee Rd	530	LF	$ 35	$ 18,550
Sidewalks (8' wide):						
SR 73 (North)	Springwood Dr	Clearcreek-Franklin Rd	1,600	LF	$ 56	$ 89,600
SR 73 (North)	Hiawatha Tr	Just west of Talequah Tr	600	LF	$ 56	$ 33,600
SR 73 (North)	Talequah Tr	Greenwood Ln	700	LF	$ 56	$ 39,200
SR 73 (South)	Sharts Rd	S Pioneer Blvd	500	LF	$ 56	$ 28,000
Does not include engineering fees or contingency					**Total:**	**$ 279,950**

PHASE 1: PROPOSED BIKE FACILITIES ON PRIMARY ROADS

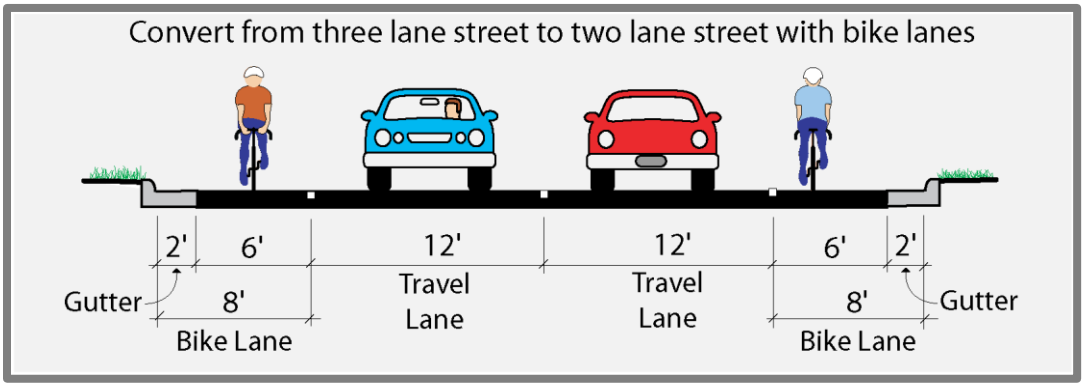
The following provides a list of bike lanes that can be implemented in the near-term with minimal changes to the roadway. Please note that at time of implementation all bike lanes should be accompanied by appropriate signage.

- Work with ODOT outside the City's jurisdiction to designate the existing paved shoulder on SR 741 between Austin Road and the county line as bike lanes by adding pavement markings and signs.
- Designate the existing paved shoulder on SR 741 between Fire Station and the City's southern boundary as bike lanes by adding pavement markings and signs. The existing edge stripe will need to be reconfigured at road intersections.



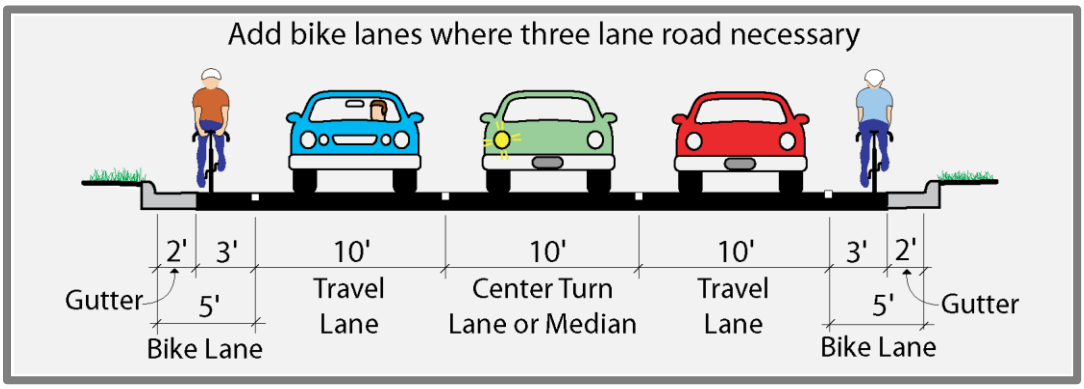
- Cooperate with the township to add bike lanes to Yankee Road between Lytle-Five Points Road and the county line through a 3 to 2 lane conversion. Provide 12’ wide through lanes and 8’ wide bike lanes.

YANKEE ROAD



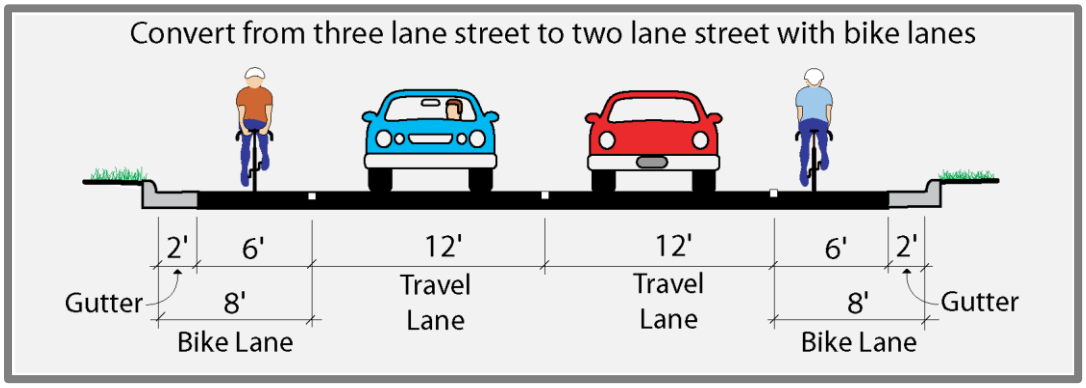
Where a left-turn lane is introduced, provide 10’ wide travel lanes and left turn lane and 5’ wide bike lanes.

YANKEE ROAD



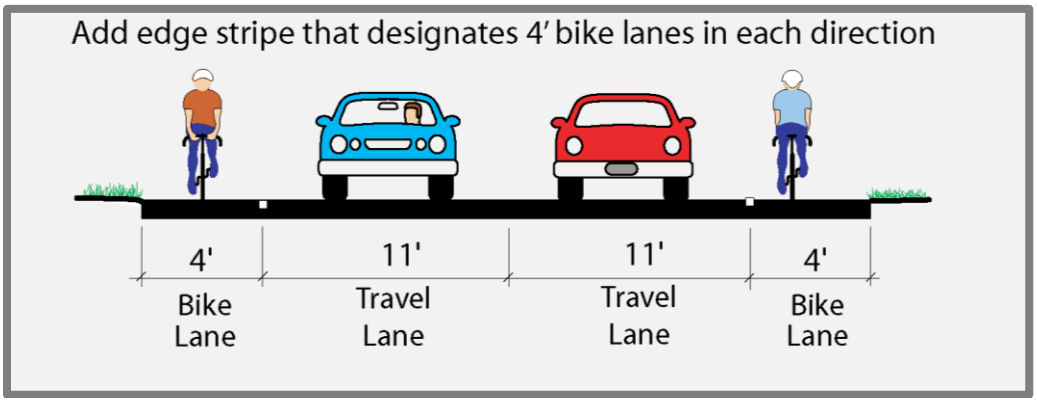
- Add bike lanes to Clearcreek-Franklin Road by converting the road from 3 lanes to 2 lanes with bike lanes. Provide 12’ travel lanes and 8’ bike lanes.

CLEARCREEK-FRANKLIN ROAD



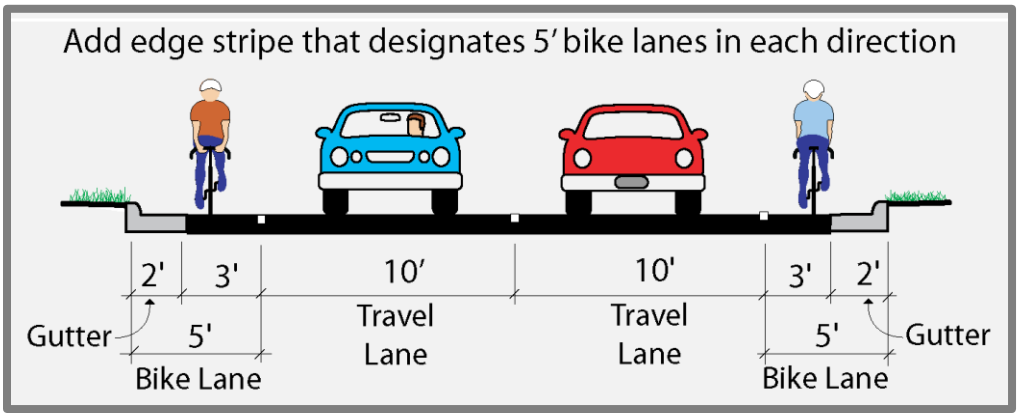
- Add bike lanes to Pleasant Valley Drive by adding an edge stripe that designates 5’ bike lanes in both direction

PLEASANT VALLEY DRIVE



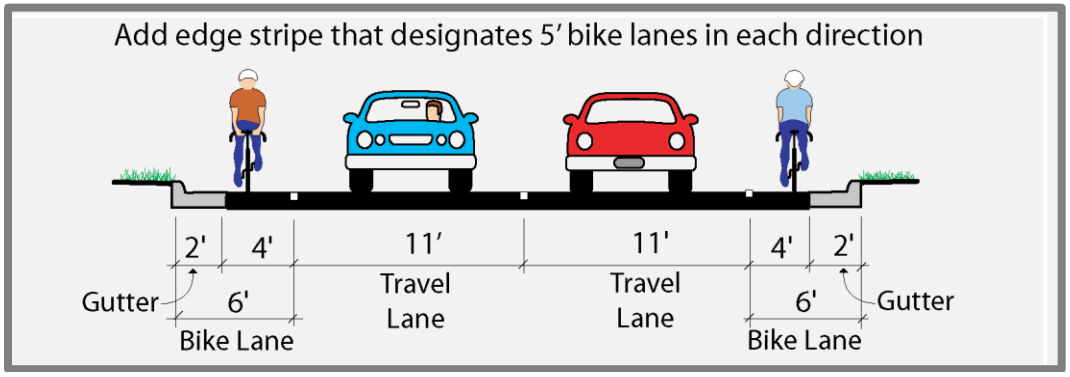
- Add bike lanes to Advanced Drive by adding an edge stripe that designates 4’ bike lanes in both directions

ADVANCED DRIVE



- Add bike lanes to Sharts Road by narrowing the travel lanes to 11’ with 6’ bike lanes

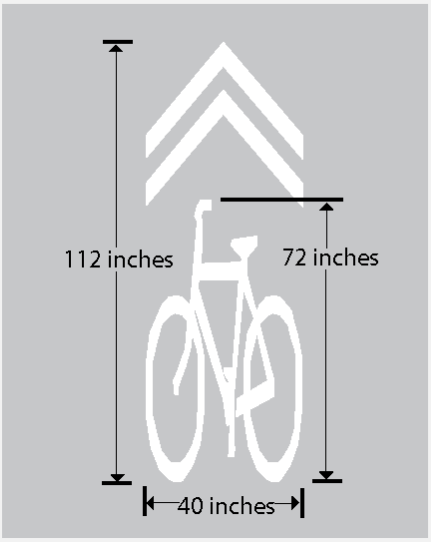
SHARTS ROAD



- Add shared lanes markings to SR 741 in the downtown between SR 73 and the Fire Station where the paved shoulders pick up.
- Add shared lane markings to East Mill Street between SR 741 and South Richards Run.
- Add shared lane markings to South Pioneer Boulevard and when the road is reconstructed it should be widened to provide bike lanes
- Add shared lane markings to West Mill Street between and SR 741 and Myers Creek Lane

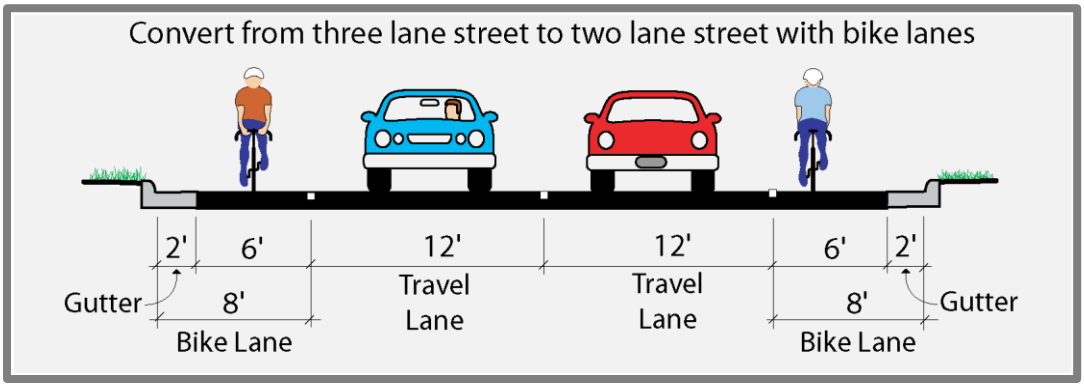
Guidelines to Follow When Adding Shared Lane Markings:

Please note that when used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the center of the shared Lane markings should be at least 4 feet from the face of the curb or from the edge of the pavement where there is no curb.



- Add bike lanes to the three lane portion of Lower Springboro Road through a 3 to 2 lane conversion. Provide 12' travel lanes and 8' bike lanes.

LOWER SPRINGBORO ROAD

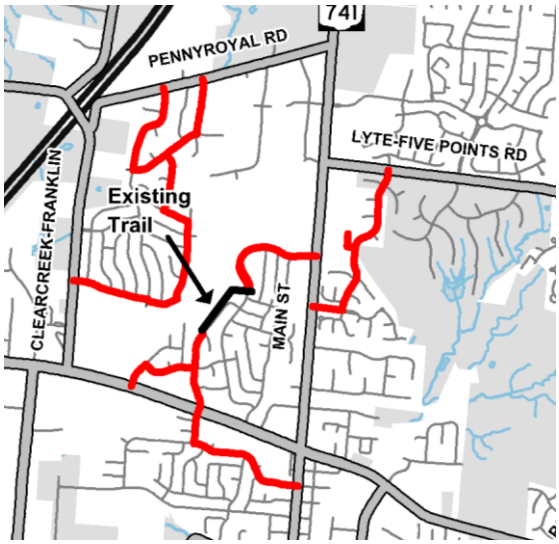


- Where the road is two lanes, pave the shoulder to continue the bike lanes along Lower Springboro Road all the way to Red Lion-Five Points Road where they currently do not exist

PROPOSED BICYCLE FACILITIES ON PRIMARY ROADS COST ESTIMATE:						
Road	From	To	Quantity	Unit	Unit Price	Total
Designate Existing Paved Shoulder as Bike Lanes (pavement markings and signs):						
SR 741	Austin Rd	County Line	0.75	MI	$ 3,000	$ 2,250
SR 741	2,000 ft South of Mill	City Southern Boundary	1.08	MI	$ 3,000	$ 3,240
Bike Lanes through Lane Narrowing (stripe removal, pavement markings and signage):						
Yankee Rd	Lytle-Five Points Rd	County Line	0.90	MI	$ 6,000	$ 5,400
Sharts Road	SR 741	Advanced Dr	0.35	MI	$ 6,000	$ 2,100
Shared Lane Markings (placed every 200' - 250'):						
SR 741	SR 73	2,000 ft South of Mill	0.81	MI	$ 5,000	$ 4,050
E Mill St	SR 741	S Richards Run	0.30	MI	$ 5,000	$ 1,500
S. Pioneer Blvd	SR 73	Lower Springboro Rd	1.00	MI	$ 5,000	$ 5,000
West Mill St	SR 741	Myers Creek Ln	0.36	MI	$ 5,000	$ 1,800
Bike Lanes by adding an edge stripe (pavement markings and signage)						
Pleasant Valley Dr	Sharts Rd	S. Pioneer Blvd	0.50	MI	$ 1,800	$ 900
Advance Drive	Sharts Rd	End of Road	0.50	MI	$ 1,800	$ 900
Bike Lanes through 3 to 2 lane conversion (stripe removal, pavement markings and signage):						
Clearcreek-Franklin Rd	SR 73	Tamarack Tr	0.62	MI	$ 6,000	$ 3,720
Lower Springboro Road	S. Richards Run Road	300' west of Cambridge Dr	0.6	MI	$ 6,000	$ 3,600
Bike Lanes through paving the shoulder (4', signs, markings):						
Lower Springboro Road	Red Lion Five Points	300' west of Cambridge Dr	0.2	MI	$ 160,000	$ 32,000
Does not include engineering fees or contingency					**Total:**	**$ 66,460**

PHASE 1: PROPOSED NEIGHBORHOOD CONNECTOR ROUTES

The following provides a list of neighborhood connector routes that should be implemented first. For the first phase, implementation along these routes is as simple as providing wayfinding signage identifying the direction of the route and key destinations. Eventually, other enhancements such as rain gardens, traffic calming measures, and street art may be incorporated. Please note that some of these routes are dependent on road crossings that are part of Phase 1 CIP.

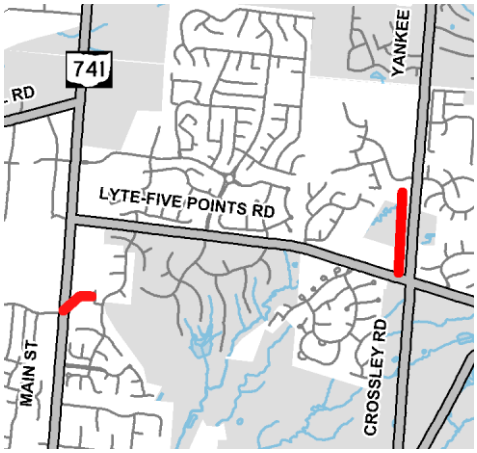


- West Market Street between SR 741 and Royal Drive
- Royal Drive between West Market Street and SR 73
- Park Lane between SR 73 and Parsley Court/Pathway into North Park
- Bayberry Drive between Park Lane and Springwood Drive
- Springwood Drive between Bayberry Drive and SR 73
- Tamarack Trail between SR 741 and Allspice Court/Pathway into North Park
- Whispering Pines between Clearcreek-Franklin Road and Foliage Lane
- Foliage Lane between Whispering Pines and Wellington Way
- Wellington Way between Foliage Lane and St. James Place
- St. James Place between Wellington Way and Westminster Way
- Westminster Way between Evergreen Drive and Queensgate Drive
- Evergreen Drive between Westminster Way and Pennyroyal Road
- Queensgate Drive between Westminster Way and Pennyroyal Road
- Tanglewood Drive between Lytle-Five Points Road and McCray Boulevard
- McCray Blvd between Tanglewood Drive and SR 741
- Camden Park Court between Tanglewood Drive and proposed pathway

PROPOSED NEIGHBORHOOD CONNECTOR ROUTES COST ESTIMATE (WAYFINDING):						
Road	From	To	Quantity	Unit	Unit Price	Total
W Market St	SR 741	Royal Dr	0.54	MI	$ 2,000	$ 1,080
Royal Rd	W Market St	SR 73	0.15	MI	$ 2,000	$ 300
Park Lane	SR 73	Parsley Ct/Pathway into North Park	0.36	MI	$ 2,000	$ 720
Bayberry Dr	Park Lane	Springwood Dr	0.23	MI	$ 2,000	$ 460
Springwood Dr	Bayberry Dr	SR 73	0.12	MI	$ 2,000	$ 240
Tamarack Trail	SR 741	Allspice Ct/Pathway into North Park	0.51	MI	$ 2,000	$ 1,020
Whispering Pines Dr	Clearcreek-Franklin Rd	Foliage Dr	0.5	MI	$ 2,000	$ 1,000
Foliage Dr	Whispering Pines Dr	Wellington Way	0.35	MI	$ 2,000	$ 700
Wellington Way	Foliage Dr	St. James Plc	0.13	MI	$ 2,000	$ 260
St. James Plc	Wellington Way	Westminister Way	0.25	MI	$ 2,000	$ 500
Westminister Way	Evergreen Dr	Queensgate Rd	0.34	MI	$ 2,000	$ 680
Evergreen Dr	Westminister Way	Pennyroyal Rd	0.42	MI	$ 2,000	$ 840
Queensgate Rd	Westminister Way	Pennyroyal Rd	0.25	MI	$ 2,000	$ 500
Tanglewood Dr	Lytle-Five Points Rd	McCray Blvd	0.7	MI	$ 2,000	$ 1,400
McCray Blvd	Tanglewood Dr	SR 741	0.13	MI	$ 2,000	$ 260
Camden Park Court	Tanglewood Dr	Proposed Pathway	0.07	MI	$ 2,000	$ 140
Does not include engineering fees or contingency					**Total:**	**$ 10,100**

PHASE 1: PROPOSED SIDEWALKS & PATHWAYS

A sidewalk is proposed along Yankee Road. Although parts of this sidewalk are located outside of the City's jurisdiction, it is recommended a sidewalk be placed along the west side of Yankee Road between Springs Boulevard and Lytle-Five Points Road in order to provide a connection the isolated neighborhoods in this area.



A pathway is proposed between Main Street and Camden Park Court. The alignment of this pathway is conceptual as an easement will be required from two separate property owners. Also, due to the topography and a stream, segments of boardwalk may be required to complete this connection.

PROPOSED SIDEWALKS & PATHWAYS:						
Road	From	To	Quantity	Unit	Unit Price	Total
Proposed Sidewalk (6' wide):						
Yankee Road (West)*	Springs Blvd	Lytle-Five Points Rd	2000	LF	$ 42	$ 84,000
	Part of sidewalk outside of city					
Proposed Asphalt Pathway (10' wide):						
510 N Main			350	LF	$ 45	$ 15,750
Between 510 N Main and Camden Park Court**			430	LF	$ 45	$ 19,350
Proposed Boardwalk (10' wide):						
Between 510 N Main and Camden Park Court**			100	LF	$ 285	$ 28,500
Does not include engineering fees or contingency					**Total:**	**$ 147,600**
*Outside of City Jurisdiction						
*Easement required						

PHASE 1: PROPOSED ACTIVE TRANSPORTATION HUBS

Active Transportation Hubs are proposed in two locations, Rotary Park and 510 North Main Street. For the purpose of the cost estimate the Active Transportation Hubs include:

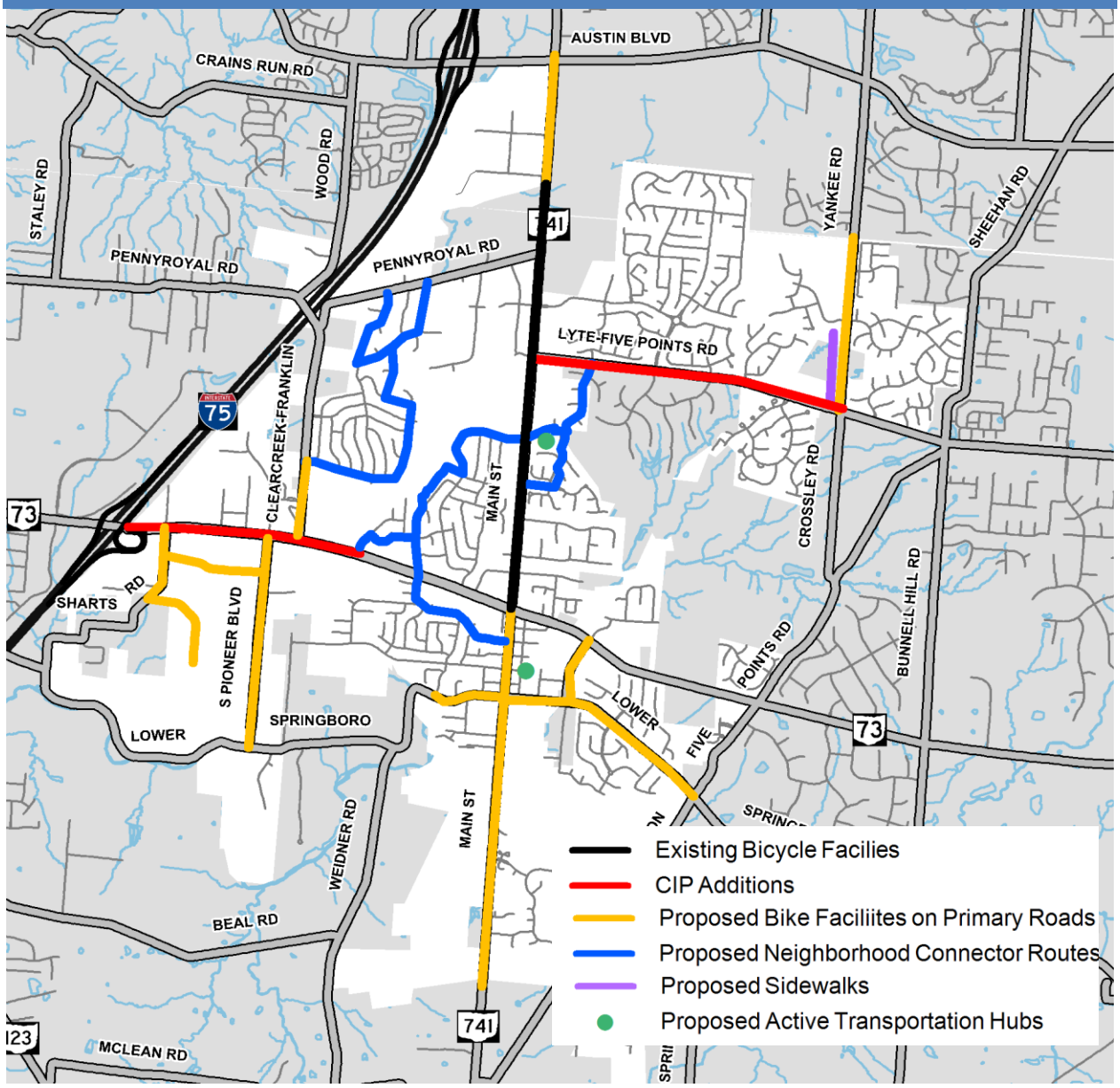
- Kiosk (4-sided)
- Concrete Pad/Plaza (12' x 15')
- Four Hoop Bike Racks
- Bicycle Maintenance Station that includes basic repair tools, air pump and work stand

PROPOSED ACTIVE TRANSPORTATION HUB COST ESTIMATE:						
Location			Quantity	Unit	Unit Price	Total
Rotary Park			1	EACH	$ 20,000	$ 20,000
510 N Main St			1	EACH	$ 20,000	$ 20,000
Does not include engineering fees or contingency					**Total:**	**$ 40,000**

PHASE 1: COST ESTIMATE OVERVIEW

PHASE ONE COST ESTIMATE		Min		Max
Capital Improvement Program Opportunities	$	279,950.00	$	279,950.00
Proposed Bike Facilities on Primary Roads	$	66,460.00	$	66,460.00
Proposed Neighborhood Connector Routes	$	10,100.00	$	10,100.00
Proposed Sidewalks	$	147,600.00	$	147,600.00
Proposed Active Transportation Hub	$	40,000.00	$	40,000.00
Total:	**$**	**544,110.00**	**$**	**544,110.00**

FIGURE 6.3B. PHASE 1 OVERVIEW MAP



6.4 PHASE 2

PHASE 1: OVERVIEW

Phase 2 focuses on completing the Neighborhood Greenway and making connections to the regional system. Phase 2 is designed to achieve near-term as well as substantial multi-year projects that are dependent on obtaining trail easements or are planned to be constructed concurrent with future development.

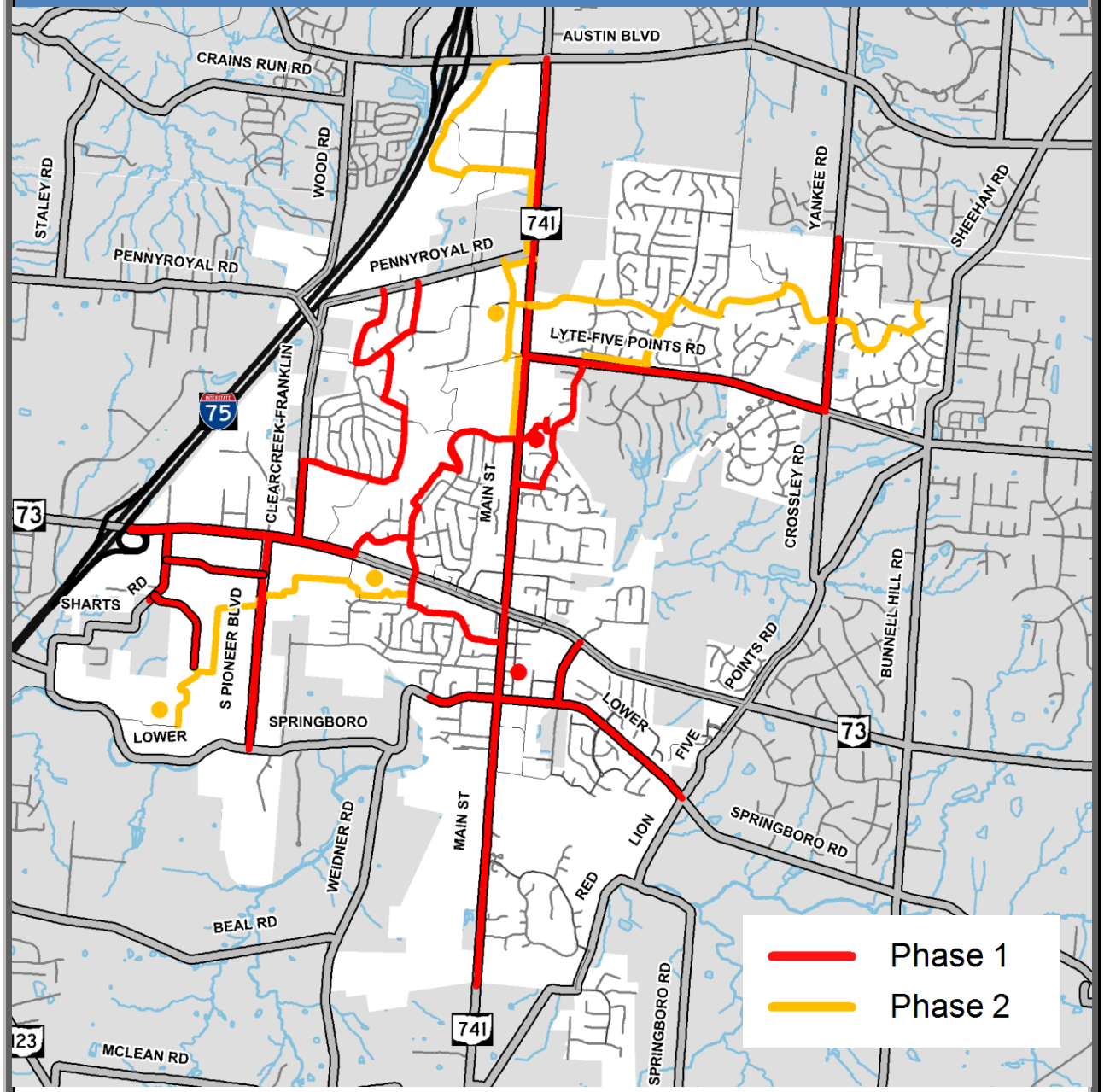
The following pages outline Phase 2 objectives and provide a more detailed breakdown of the planning level cost estimate for each item.

- Connection to Clearcreek Park
- Settlers Walk Neighborhood Connector Route
- Connection to Austin Boulevard

A cost estimate overview for the entire phase is provided on pg. 99.

Please refer to Fig. 6.4A for an overview map of Phase 2 Implementation.

FIGURE 6.4A. PHASE 2 IMPLEMENTATION MAP



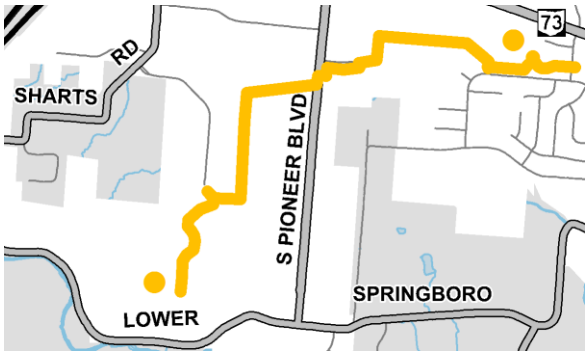
APPROXIMATELY 8.2 MILES OF NEW FACILITIES ARE PROPOSED IN PHASE TWO:

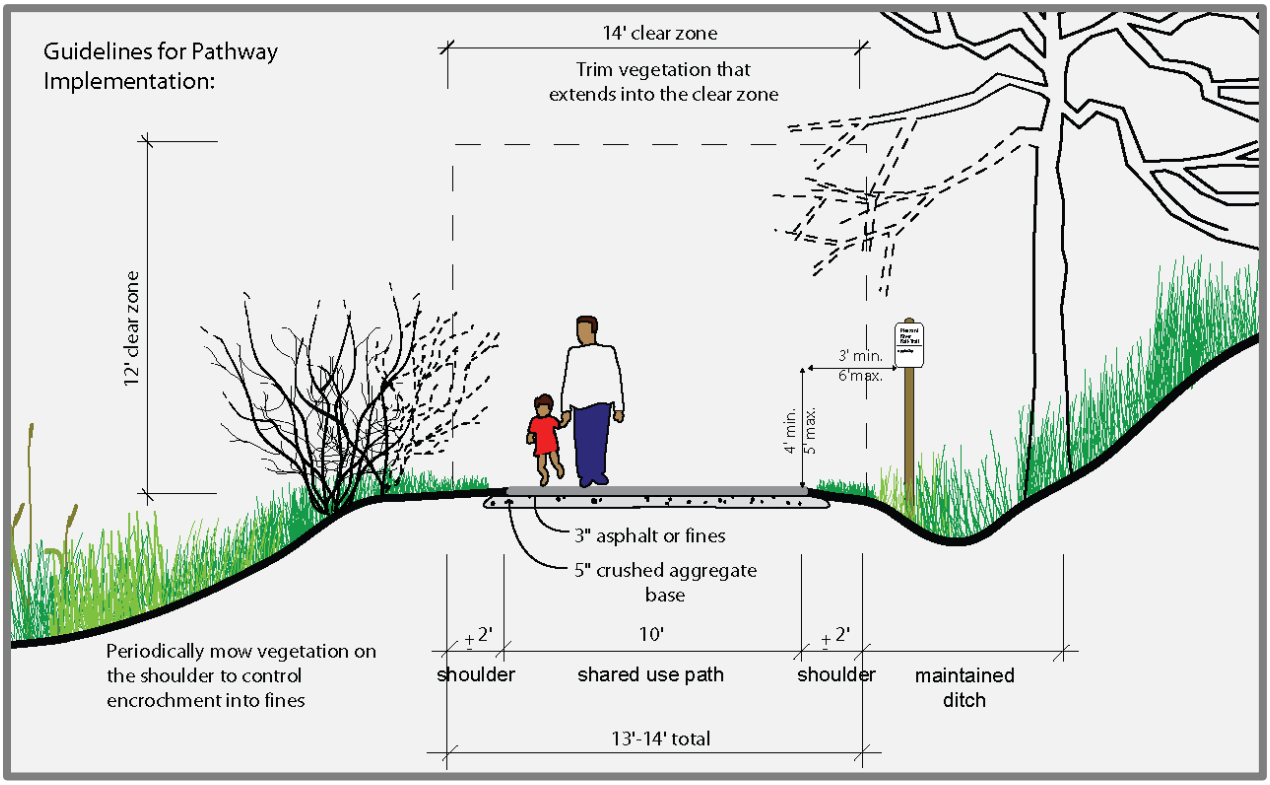
- 1.6 MILES OF BIKE LANES
- 3 MILES OF NEIGHBORHOOD CONNECTOR ROUTES
- 2.75 MILES OF ASPHALT PATHWAYS
- 0.5 MILES OF SIDEWALK
- 1 CROSSING ISLAND
- 3 ACTIVE TRANSPORTATION HUBS

PHASE 2: CONNECTION TO CLEARCREEK PARK

Based on public input, Clearcreek Park was identified as a destination that many people would like to walk or bike to. Due to the topography and limited opportunities along Lower Springboro Road it will be difficult to provide non-motorized access to the park in the existing right-of-way. This route looks at utilizing opportunities through City owned property, parks, and along commercial and industrial areas to provide an off-road trail connection to Clearcreek Park from Springboro Community Park.

Although this corridor requires easements and more costly construction, it provides a highly desired facility that links an isolated part of the City into the non-motorized system. This link also has the potential to become a regional route to connect the City of Springboro with the Great Miami River Trail should the proposed trail along Clear Creek be implemented.





Active Transportation Hubs are proposed in Clear Creek Park and Springboro Community Park.

PROPOSED ROAD CROSSING IMPROVEMENTS COST ESTIMATE						
Location		Quantity	Unit	Unit Price		Total
Crossing Islands (Bollards, landscaping, concrete curbs, pavement removal, striping):						
S Pioneer Blvd	600 feet south of Pleasant Valley Dr	1	EACH	$ 18,000	$	18,000
Crosswalk (pavement markings and signs)						
Victory Lane	560 ft east of S Pioneer Blvd	1	EACH	$ 800	$	800
PROPOSED ASPHALT PATHWAY (10' WIDE) COST ESTIMATE						
Location		Quantity	Unit	Unit Price		Total
Through City Property						
Clearcreek Park		400	LF	$ 45	$	18,000
City Property North of Clearcreek Park		800	LF	$ 45	$	36,000
Springboro Community Park		2300	LF	$ 45	$	103,500
Easement Required (does not include cost of acquiring easment)						
Springboro Advance LLC	Southeast parcel at end of Advanced Dr	1000	LF	$ 45	$	45,000
Gayston Corporation	200 S Pioneer Blvd	1200	LF	$ 45	$	54,000
Undeveloped Parcel	100 S Pioneer Blvd	1600	LF	$ 45	$	72,000
Promotional Wholesalers	400 Victory Ln	1500	LF	$ 45	$	67,500
Sidepath along Road Right-of-way						
S Pioneer Blvd (east)	180 ft south of Victory Lane	300	LF	$ 45	$	13,500
S Pioneer Blvd (west)	Between proposed road crossing and trail	100	LF	$ 45	$	4,500
Victory Lane (north)	300 ft from east end of road	300	LF	$ 45	$	13,500
Victory Lane (south)	500 ft from west end of road	500	LF	$ 45	$	22,500
PROPOSED ACTIVE TRANSPORTATION HUB COST ESTIMATE:						
Location		Quantity	Unit	Unit Price		Total
Clearcreek Park		1	EACH	$ 20,000	$	20,000
Springboro Community Park		1	EACH	$ 20,000	$	20,000
Does not include engineering fees or contingency				**Total:**	**$**	**508,800**

PHASE 2: SETTLERS WALK NEIGHBORHOOD CONNECTOR ROUTE

This route provides a low volume low speed alternative to Lytle-Five Points Road. The route utilizes local neighborhood roads. This route also has the potential to become a regional route that would connect the City of Springboro with the Little Miami Scenic Trail should the proposed trail connection to Austin Road be implemented.

There are plans to place a new traffic signal on Yankee Road at Springs Boulevard that would provide a safe crossing for bicyclists and pedestrians. The City could also evaluate if a roundabout is appropriate at this location. If the signal is not completed by the time this route is implemented, end the route at Yankee Road and wait to continue it east of Yankee Road after the road crossing is put in place.

The implementation for the Neighborhood Connector Routes is as simple as providing wayfinding signage identifying the direction of the route and key destinations. Eventually, other enhancements such as rain gardens, traffic calming measures, and street art can be incorporated.

PROPOSED NEIGHBORHOOD CONNECTOR ROUTES (WAYFINDING) COST ESTIMATE

Road	From	To	Quantity	Unit	Unit Price	Total
E Manor Dr	Settlers Walk Blvd	Clearsprings Dr (west)	0.21	MI	$ 2,000	$ 420
Clearsprings Dr (west)	E Manor Dr	Future Road Connection	0.12	MI	$ 2,000	$ 240
Future Road Connection	Clearsprings Dr(west)	Clearsprings Dr(east)	0.23	MI	$ 2,000	$ 460
Clearsprings Dr (east)	Future Road Connection	Springs Blvd	0.09	MI	$ 2,000	$ 180
Springs Blvd	Clearsprings Dr (east)	Yankee Rd	0.35	MI	$ 2,000	$ 700
Spring Mill	Yankee Rd	Reed Rd	0.45	MI	$ 2,000	$ 900
Reed Rd	Spring Mill	Wood Creek Ct	0.1	MI	$ 2,000	$ 200
Wood Creek Ct	Reed Rd	Waverly Rd	0.08	MI	$ 2,000	$ 160
Waverly Rd	Wood Creek Ct	Sandelwood St	0.12	MI	$ 2,000	$ 240
Hemlock Ct	Royal Dr	Springboro Community Park	0.06	MI	$ 2,000	$ 120
Settlers Walk Blvd	E Manor Dr	Lytle-Five Points Rd	0.4	MI	$ 2,000	$ 800
Lytle-Five Points (Pathway)	Tanglewood Dr	Settlers Walk Blvd	0.3	MI	$ 2,000	$ 600
Remick Blvd	SR 741	Settlers Walk Blvd	0.7	MI	$ 2,000	$ 1,400
Does not include engineering fees or contingency					**Total:**	**$ 6,420**

PHASE 2: CONNECTION TO AUSTIN BOULEVARD

The area surrounding Austin Boulevard and SR 741 is a developing area with numerous commercial and business destinations. Austin Landing has various shopping centers and there are plans to provide some type of bike hub here in the near future for employees. There is also potential for the Greater Dayton Regional Transit Authority (RTA) service to extend to this location.

A non-motorized connection to Austin Boulevard is strongly desired not only to provide access to commercial destinations but also as a regional trail connection to the Great Miami River Trail.

Miami Township has plans to build an off-road trail in the near-term that would provide a regional trail connection from Austin Boulevard to the Great Miami River Trail. At this time, this link provides the most realistic trail connection between the City of Springboro and the Great Miami River Trail.

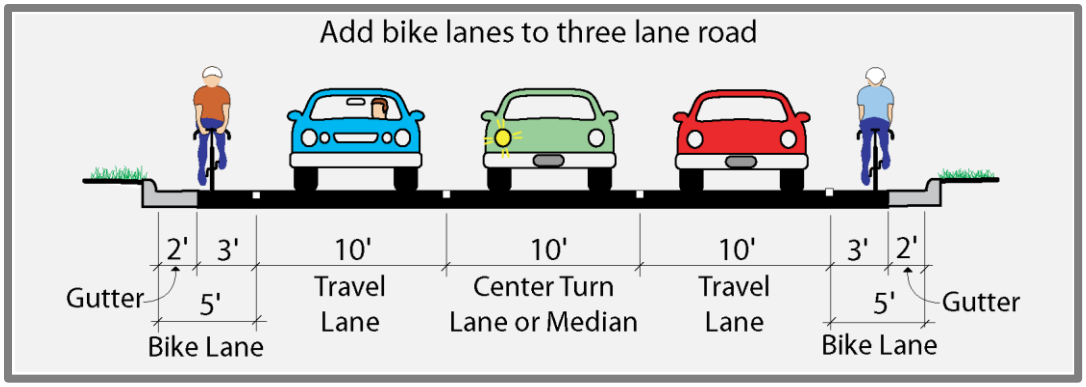
The South Tech Business Park has an existing pathway along the north side of West Tech Road and there are plans to continue the path to the west and then to follow along the east side of the I-75 Freeway up to Austin Boulevard where the trail would connect with the existing pathway on the north side of Austin Boulevard. At this point the challenge is to provide a non-motorized connection between West Tech Road and Pennyroyal Road. Although there is an existing paved shoulder and bike lane between these two corridors, the majority of the population would not be comfortable using this type of facility and since this route provides the most realistic near-term connection to the Great Miami River Trail, it is recommended that an off-road facility be continued south of West Tech Road.

The near-term solutions look at using existing right-of-way to provide connections along SR 741 and Pennyroyal Road to South Tech Business Park. As mentioned before this would be a regional trail connection so an 8’ wide sidewalk would be recommended along SR 741 and Pennyroyal Road. In order to provide an 8’ wide sidewalk, the existing 5’ sidewalks along Pennyroyal Road and SR 741 should be widened to 8’ and where there are sidewalk gaps, a new 8’ wide sidewalk should be provided. While a wide sidewalk along SR 741 and Pennyroyal is provided as the best near-term connection, it is strongly recommended that the City work with private property owners between West Tech Road and Pennyroyal to provide an off-road trail connection away from the busy roadway.

In the near-term, until the Village Park Shopping Center is fully developed, edge stripes for 5’ bike lanes with appropriate signage should be added to Gardner Road and Anna Drive, assuming the road will eventually become a three-lane road with 10’ travel lanes. Long-term, as the Village Park Shopping Center continues to develop a 10’ wide asphalt pathway should be

provided as an alternative to Gardner Road. An Active Transportation Hub is also proposed near Village Park Shopping Center at Gardner Park.

Gardner Road and Anna Drive



A number of alternatives have been explored for a connection across the Easton Farm parcel. However, due to the uncertainty of how quickly redevelopment of this parcel will occur, a sidewalk along SR 741 was chosen as the most feasible alternative at this time. While a 10' pathway would be ideal, there are currently bike lanes on SR 73 and proposed plans for a pathway through the Easton Farm Property to the west.

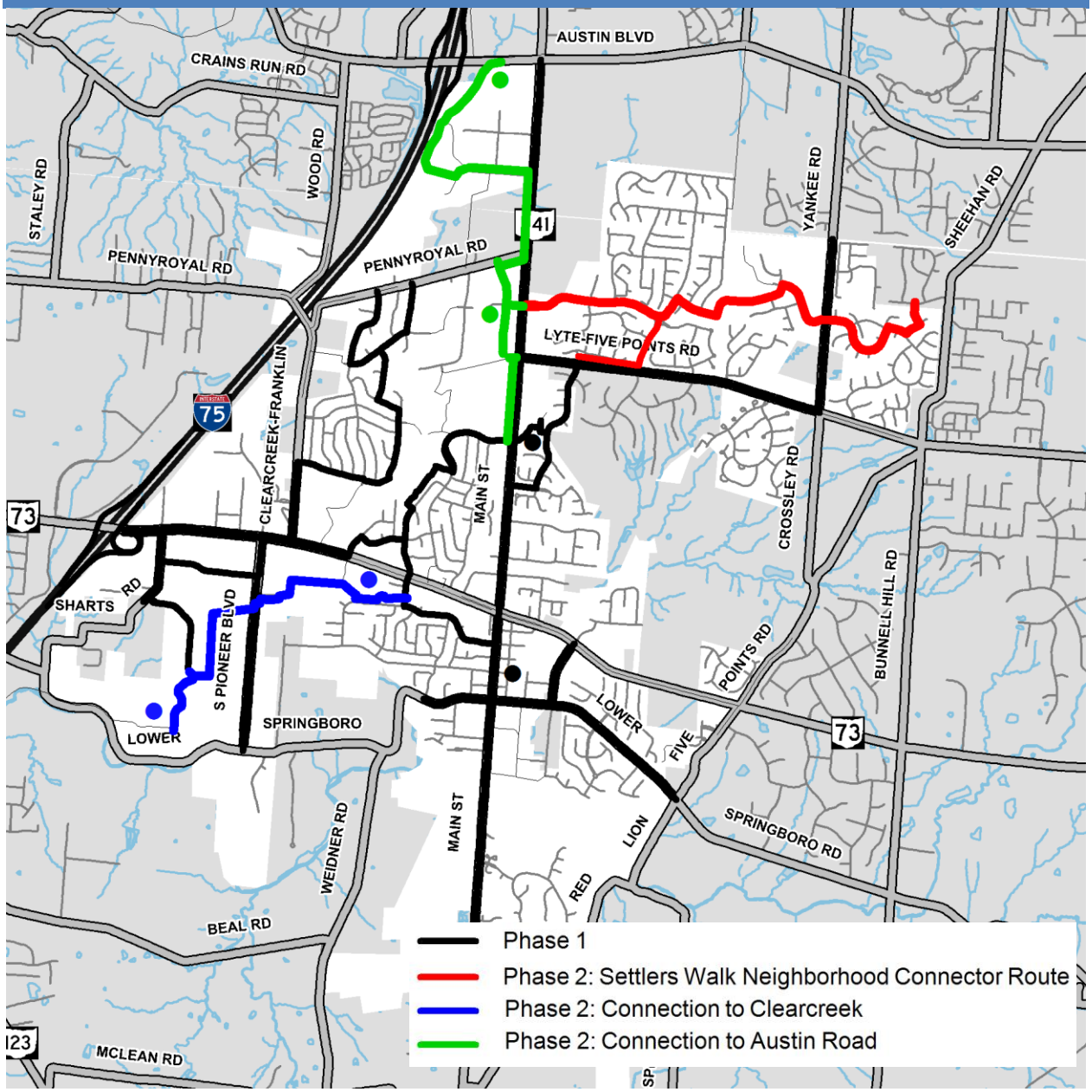
- Build a 5' sidewalk along the road right-of-way to complete the sidewalk gap between Tamarack Trail and Anna Drive.

PROPOSED ASPHALT PATHWAY (10' WIDE) COST ESTIMATE						
Road	From	To	Quantity	Unit	Unit Price	Total
Sidewalk (5' wide) along Road Right-of-way						
SR 741	Along Eaton Farms Property		1700	LF	$ 35	$ 59,500
Sidewalk (8' wide) along Road Right-of-way Outside City Jurisdiction						
SR 741 (west)*	County Line	West Tech Rd	1000	LF	$ 56	$ 56,000
Proposed Asphalt Pathway with Development (10' wide)						
South Tech Business Park**			4500	LF	$ 45	$ 202,500
Widen Existing Sidewalk (from 5' to 8' wide)						
SR 741 (west)	Pennyroyal Rd	West Tech Blvd	1200	LF	$ 21	$ 25,200
Pennyroyal Rd (south)	Gardner Rd	SR 741	800	LF	$ 21	$ 16,800
PROPOSED BIKE LANES COST ESTIMATE						
Road	From	To	Quantity	Unit	Unit Price	Total
Bike Lanes through Edge Striping with Bike Route Signage (pavement markings and signage):						
Anna Dr	SR 741	Gardner Rd	0.08	MI	$ 1,800	$ 144
Gardner Rd	Anna Dr	Pennyroyal Rd	0.5	MI	$ 1,800	$ 900
PROPOSED ACTIVE TRANSPORTATION HUB COST ESTIMATE:						
Location			Quantity	Unit	Unit Price	Total
Gardner Park			1	EACH	$ 20,000	$ 20,000
Does not include engineering fees or contingency					**Total Max:**	**$ 381,044**
*Outside of City Jurisdiction					**Total Min:**	**$ 178,544**

PHASE 2: COST ESTIMATE OVERVIEW

PHASE TWO COST ESTIMATE	Min	Max
Settlers Walk Neighborhood Connector Route	$ 6,420.00	$ 6,420.00
Connection to Clearcreek Park	$ 508,800.00	$ 508,800.00
Connection to Austin Boulevard	$ 178,544.00	$ 381,044.00
Total:	**$ 693,764.00**	**$ 896,264.00**

FIGURE 6.4B. PHASE 2 OVERVIEW MAP



6.5 PHASE 3

LONG TERM IMPROVEMENTS

Phase 3 focuses on completing the non-motorized network and includes the remaining network improvements. Due to the length of time it is going to take to complete the first two phases and the uncertainty of many of the undeveloped parcels in the third phase, the remaining improvements have been grouped as long term improvements in Phase 3. When Phases 1 and 2 are near completion, a more thorough evaluation should be done to determine what new opportunities are available and what the costs may be.

The following pages outline the remaining infrastructure improvements to complete the non-motorized network.

- Complete the Sidewalk System
- Recommended Road Crossing Improvements
- Recommended Neighborhood Connector Routes
- Complete the Pathway Segments
- Bike Lanes Dependent on Road Reconstruction

Please refer to Fig. 6.5A for an overview map of Phase 3 Implementation.

If the proposed trail outside the city Jurisdiction between Washington Church Road and Settlers Walk is developed the proposed north/south neighborhood connector route through Settlers Walk may be moved to an earlier phase. This route is significant as it is part of the Proposed Neighborhood Greenway and provides a connection to regional trails.

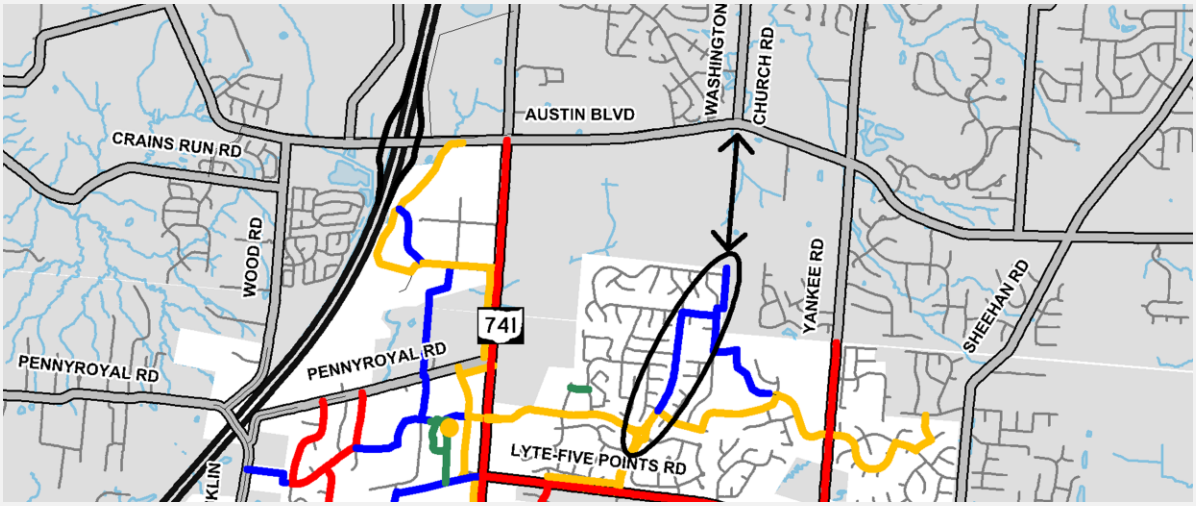
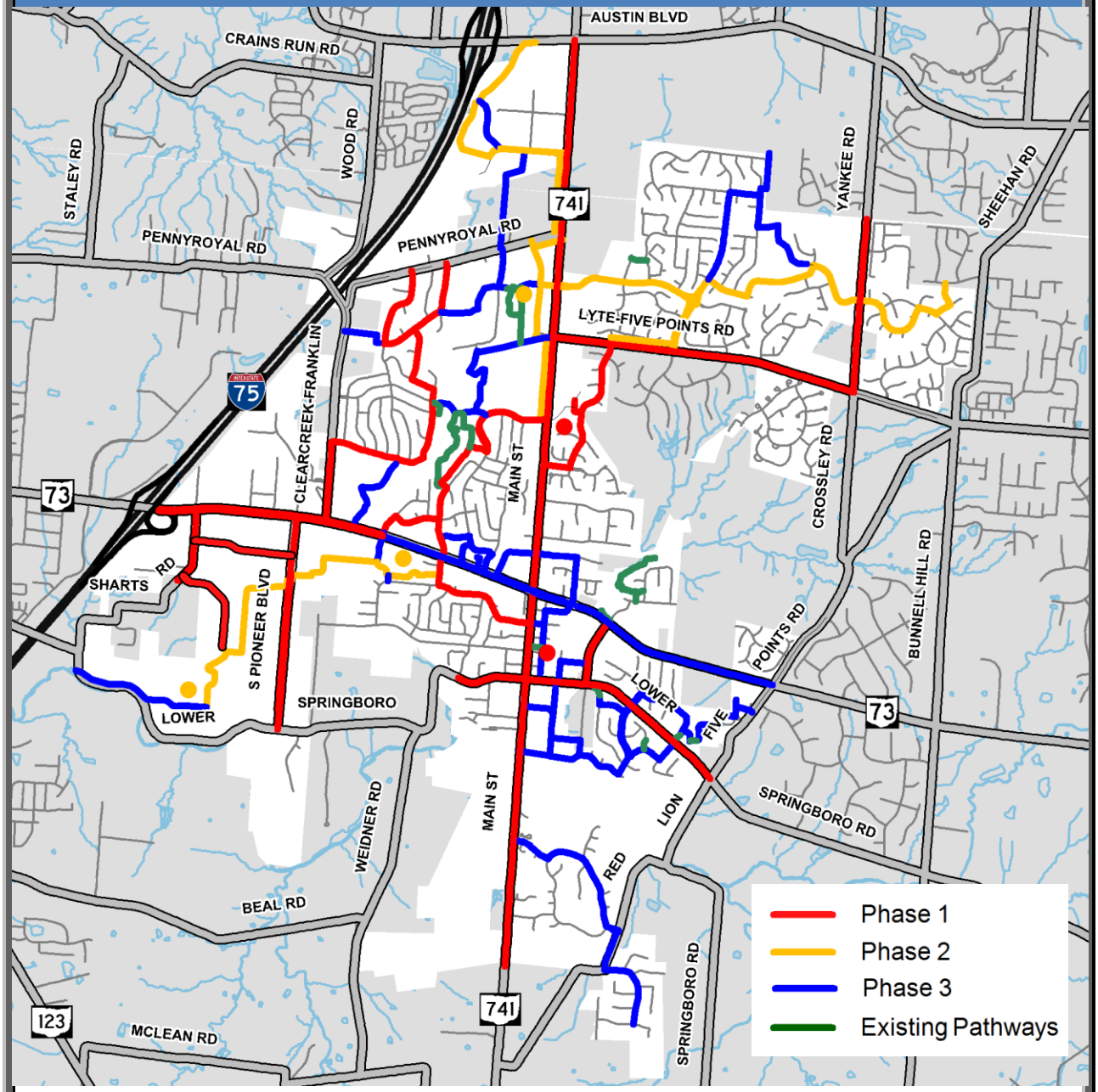


FIGURE 6.5A. PHASE 3 IMPLEMENTATION MAP



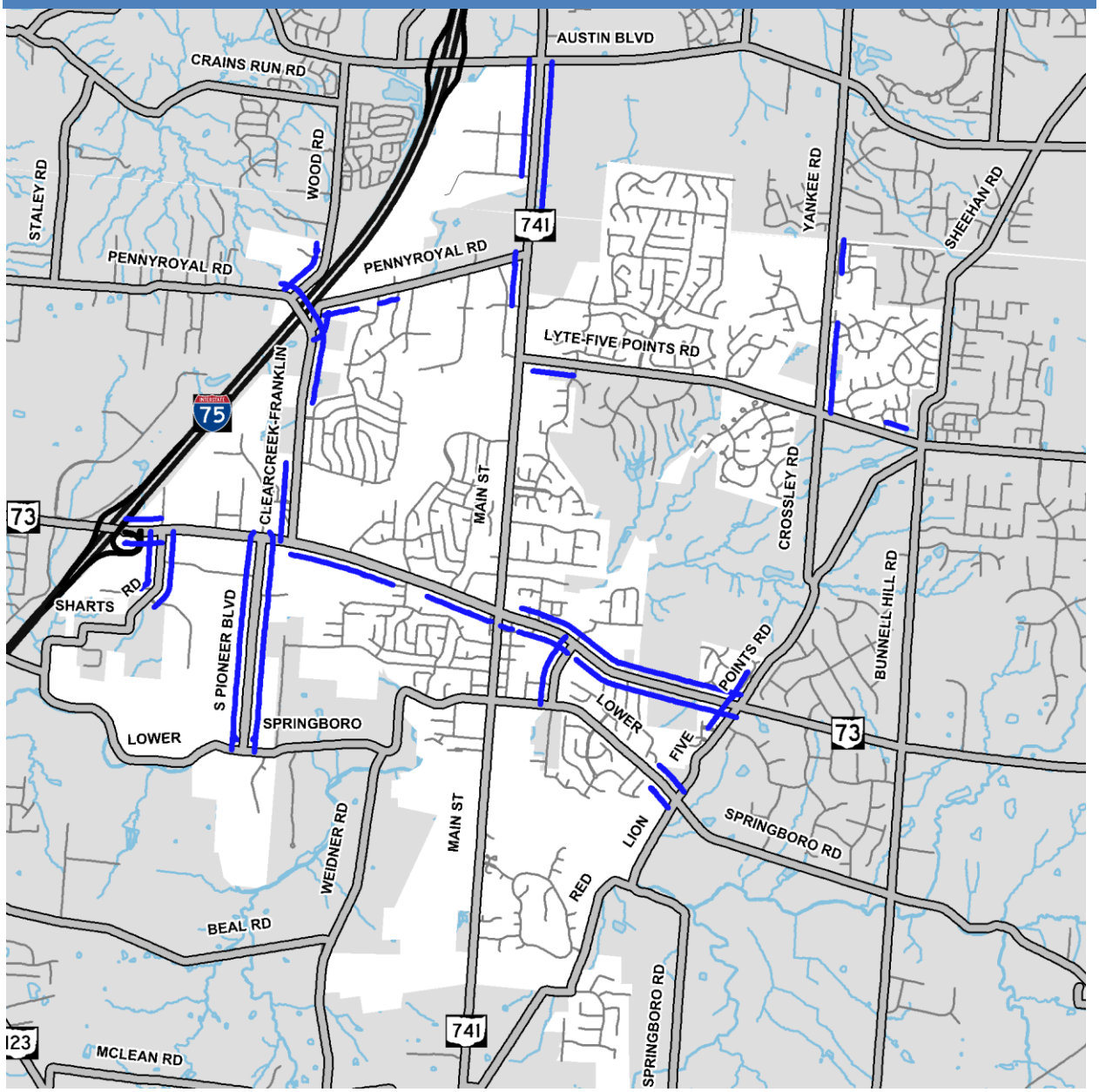
APPROXIMATELY 34 MILES OF NEW FACILITIES ARE PROPOSED IN PHASE THREE:

- 2 MILES OF BIKE LANES
- 9 MILES OF NEIGHBORHOOD CONNECTOR ROUTES
- 10.7 MILES OF ASPHALT PATHWAYS
- 13 MILES OF SIDEWALK (DUE TO SCALE THEY ARE NOT INCLUDED ON THIS MAP)

PHASE 3: COMPLETE THE SIDEWALK SYSTEM

Phases 1 and 2 focus on addressing some of the more critical gaps in the sidewalk system. Phase 3 should focus on completing the system. Completing sidewalk gaps can be costly so it is important to utilize opportunities, especially when a road is reconstructed or a property is developed.

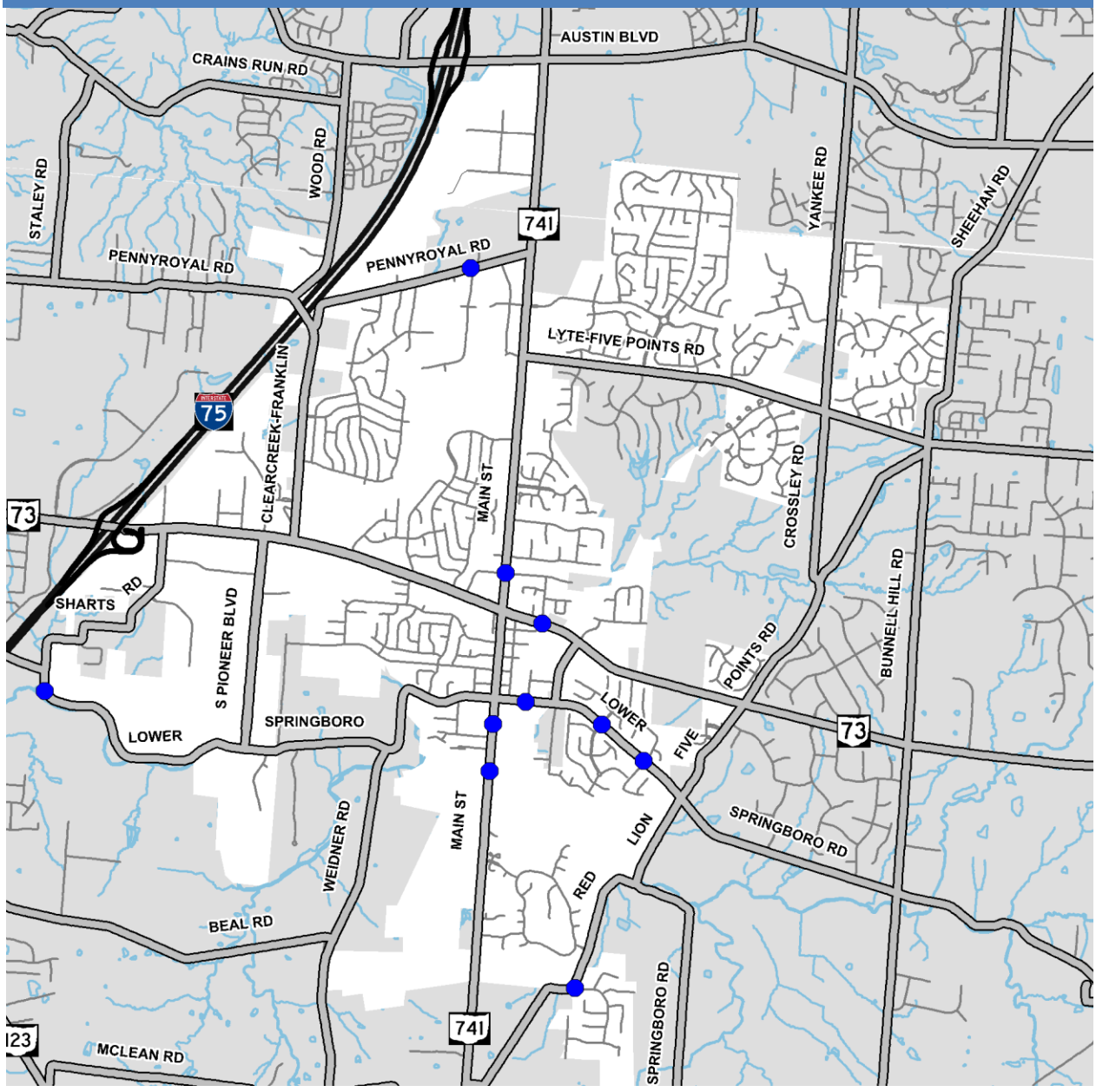
FIGURE 6.5B. COMPLETE THE SIDEWALK SYSTEM



PHASE 3: RECOMMENDED ROAD CROSSING IMPROVEMENTS

Many of the remaining road crossing improvements align with the neighborhood connector routes or provide mid-block crossings.

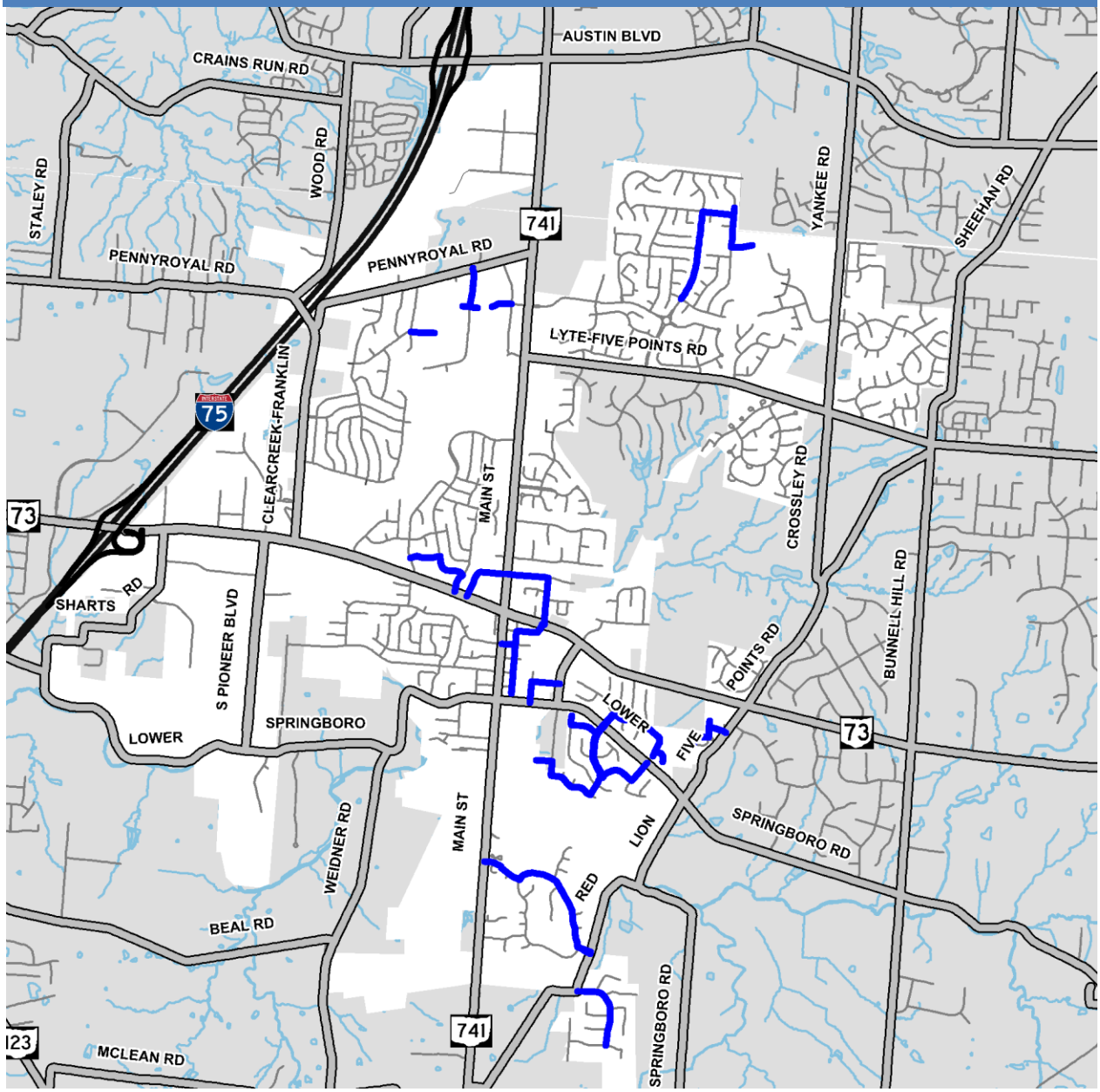
FIGURE 6.5C. RECOMMENDED ROAD CROSSING IMPROVEMENTS



PHASE 3: COMPLETE THE NEIGHBORHOOD CONNECTOR ROUTES

Phase 3 focuses on completing the neighborhood connector routes. While the neighborhood connector routes are relatively easy and economical to implement some are dependent on the construction of proposed pathways and road crossing improvements. It will be important to prioritize the implementation of the neighborhood connector routes in this phase based on progress of pathways implementation and road crossing improvements.

FIGURE 6.5D. COMPLETE THE NEIGHBORHOOD CONNECTOR ROUTES

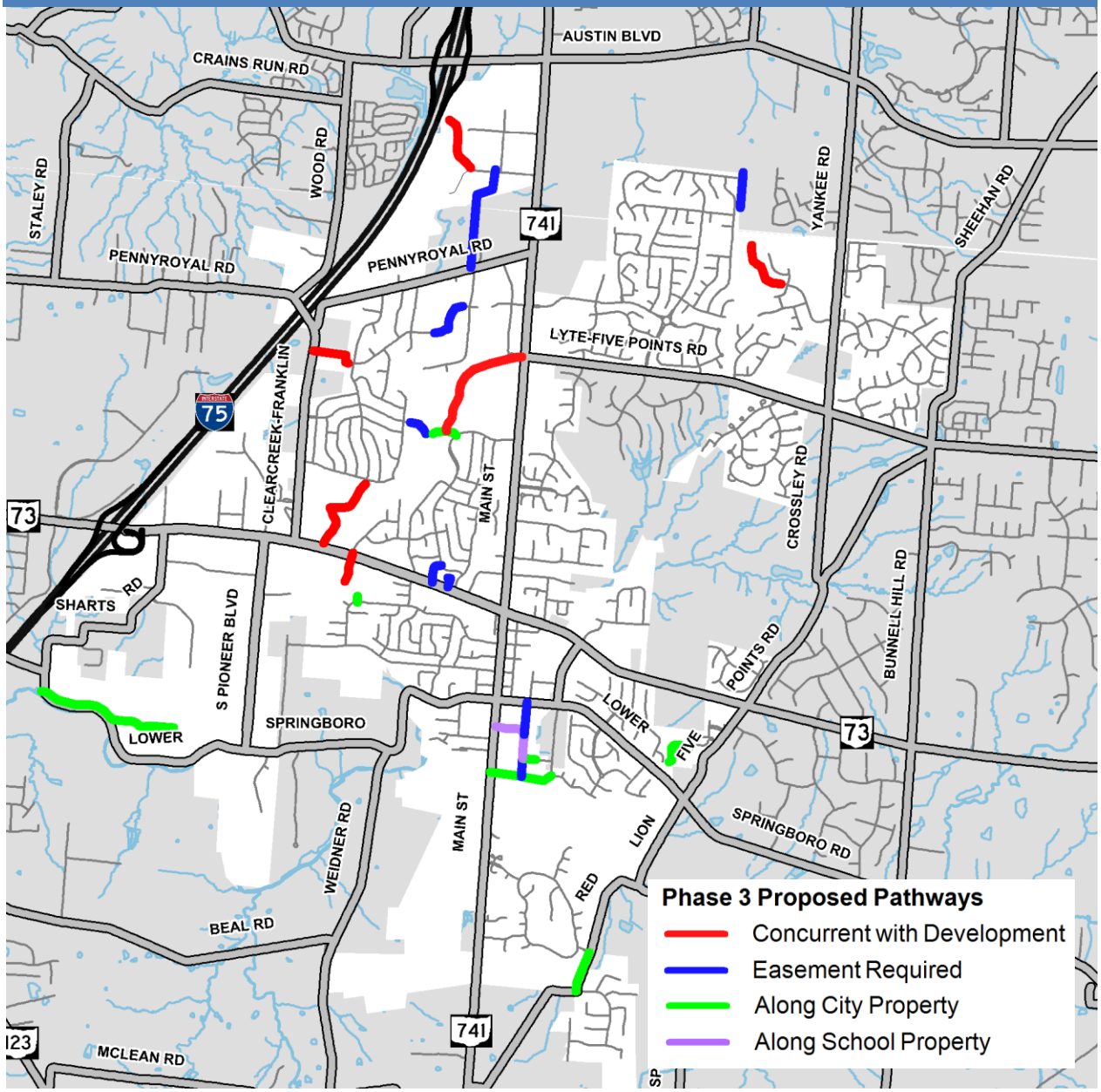


PHASE 3: COMPLETE THE PATHWAY SEGMENTS

A few of the remaining pathways are on public property or school property. More challenging though are the pathways that are either dependent on the acquisition of easements or development of a parcel.

When a site is redeveloped a non-motorized connection should be provided, either as a sidewalk along a roadway with bike lanes or a shared-use pathway.

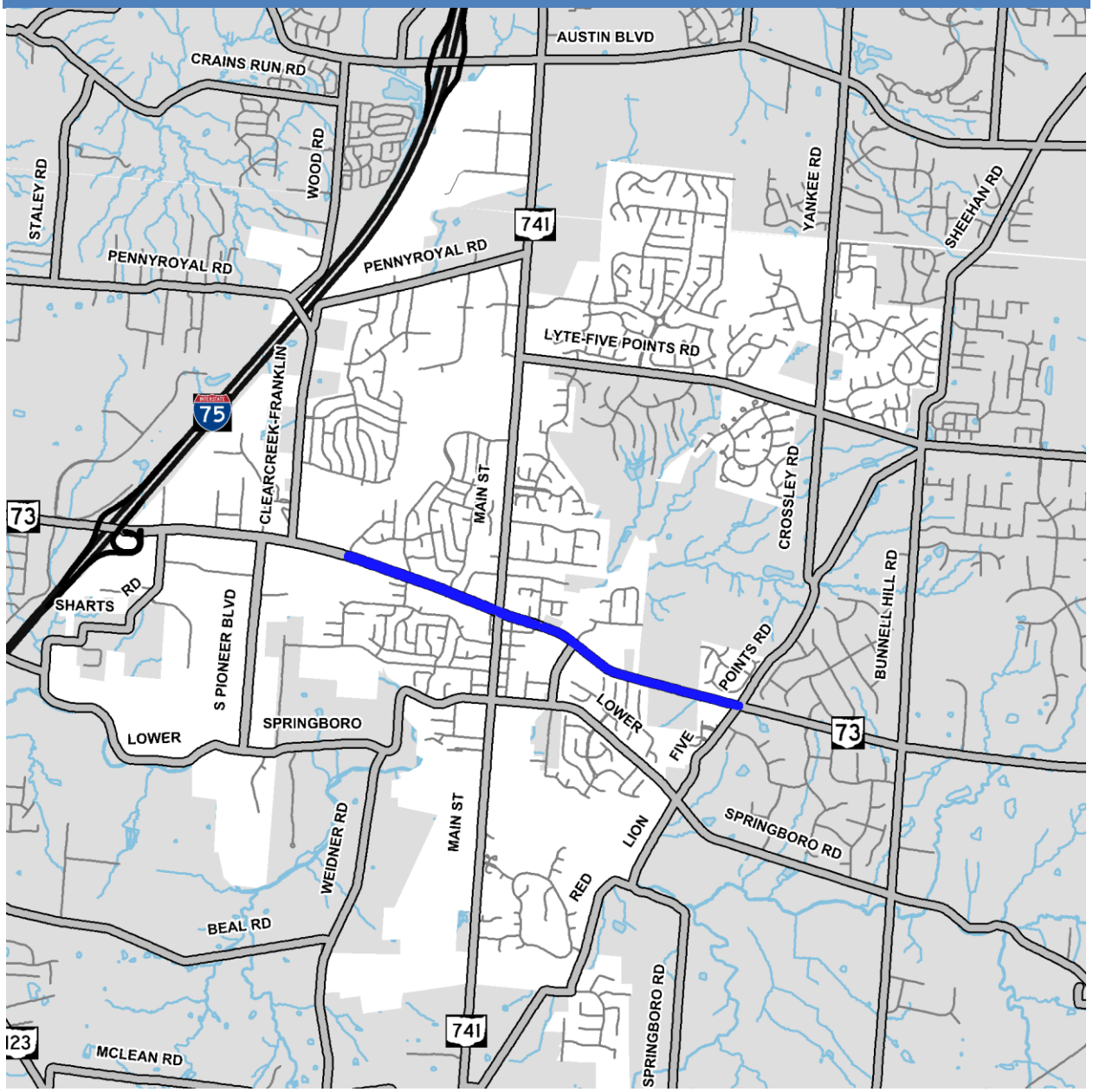
FIGURE 6.5E. COMPLETE THE PATHWAY SEGMENTS



PHASE 3: BIKE LANES DEPENDENT ON ROAD RECONSTRUCTION

The cost to add bike lanes to many of the roadways independent of a road reconstruction project would be significant. Thus to maximize the impact of finite resources bicycle improvements are expected to be implemented when the road is completely reconstructed (not just resurfaced).

FIGURE 6.5F. DEPENDENT ON ROAD RECONSTRUCTION



IMPLEMENTATION PLAN

6.6 SPECIFIC AREA CONCEPT PLANS

The following concept plans were prepared to show how some of the ideas of the plan may be applied to specific areas. These concept plans should not be taken as completely developed designs. Rather, they are to illustrate a design idea. The areas shown will require separate design studies that may involve a more detailed investigation of the site conditions including public input and the development of alternatives and draft preliminary plans.

The following pages illustrate the implementation recommendations for detailed areas.

LIST OF FIGURES

DOWNTOWN

Historic Downtown Springboro contains many of the elements of a bicycle and pedestrian friendly downtown such as short street blocks, small shops and businesses that line the street, seating and other amenities. The design of the downtown bicycle and pedestrian environment has a direct effect on the degree to which people enjoy the walking and biking experience. If designed appropriately, the walking and biking environment serves not only the people who currently walk and bike but also entices those who don't.

One of the biggest inhibitors to pedestrian activity in the downtown is South Main Street. During busy times of the day it carries large amounts of traffic and the corridor becomes very loud and difficult to cross. With two elementary schools near-by and numerous shops up and down the corridor, providing a safe and comfortable environment for bicycles and pedestrians is critical to the success of the downtown.

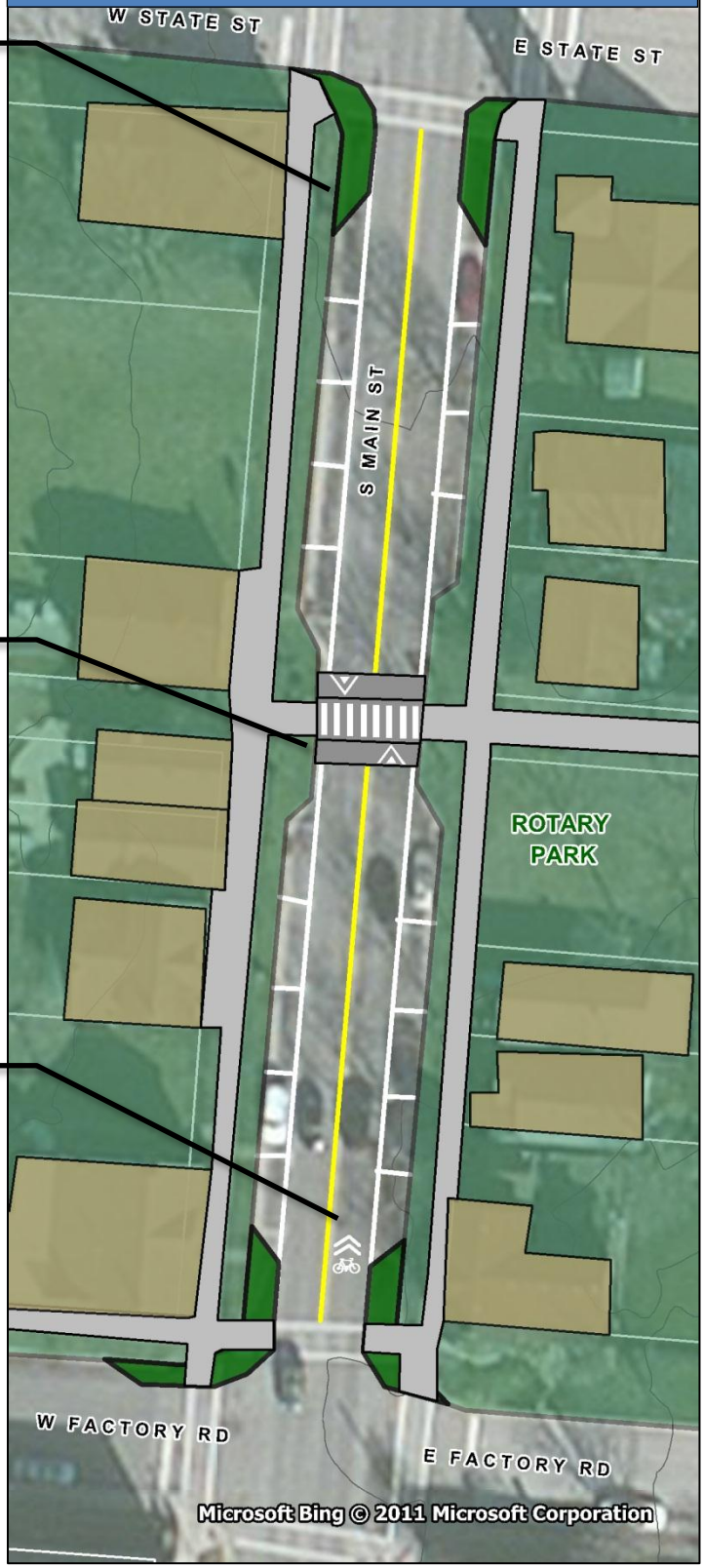
The following page provides recommendations to improve bicycle and pedestrian travel in Historic Downtown Springboro.

Curb Extensions should be placed at all road intersections where on-street parking exists to shorten crossing distances for pedestrians and improve visibility between motorists and pedestrians. Rain gardens should be incorporated into the curb extensions where possible.

Place Raised Crosswalk at mid-block locations where there are existing curb extensions to help calm traffic between intersections and provide a safe crossing for pedestrians. It is recommended that the mid-block crossing at Rotary Park be installed first.

Shared Lane Markings alert cars to take caution and allow cyclists to safely travel in the motor vehicle lane when a bike lane is not possible. These pavement markings should be accompanied by Share the Road signs.

FIGURE 6.6A. DOWNTOWN



Lytle –Five Points Road was identified as a high priority corridor for non-motorized transportation based on the web survey results and input from the public workshops. A large population of the City lives in the neighborhoods to the north of Lytle-Five Points Road and there is commercial activity on the west end of the road and Five Points Elementary School on the east end. Currently there are no bicycle facilities along this corridor, there are segments of disconnected sidewalks along the north side and a mile and a half between road crossings.

There are plans to widen the road to 40' from face of curb in 2013, followed by a resurface in 2014 where the road will become two through lanes and one center turn lane for the entire corridor. With the widening and resurfacing projects there are opportunities to add bike lanes, sidewalks and additional road crossings in the near future.

The following pages describe the recommendations for this corridor.

FIGURE 6.6B. LYTLE-FIVE POINTS ROAD: POTENTIAL BIKE LANES

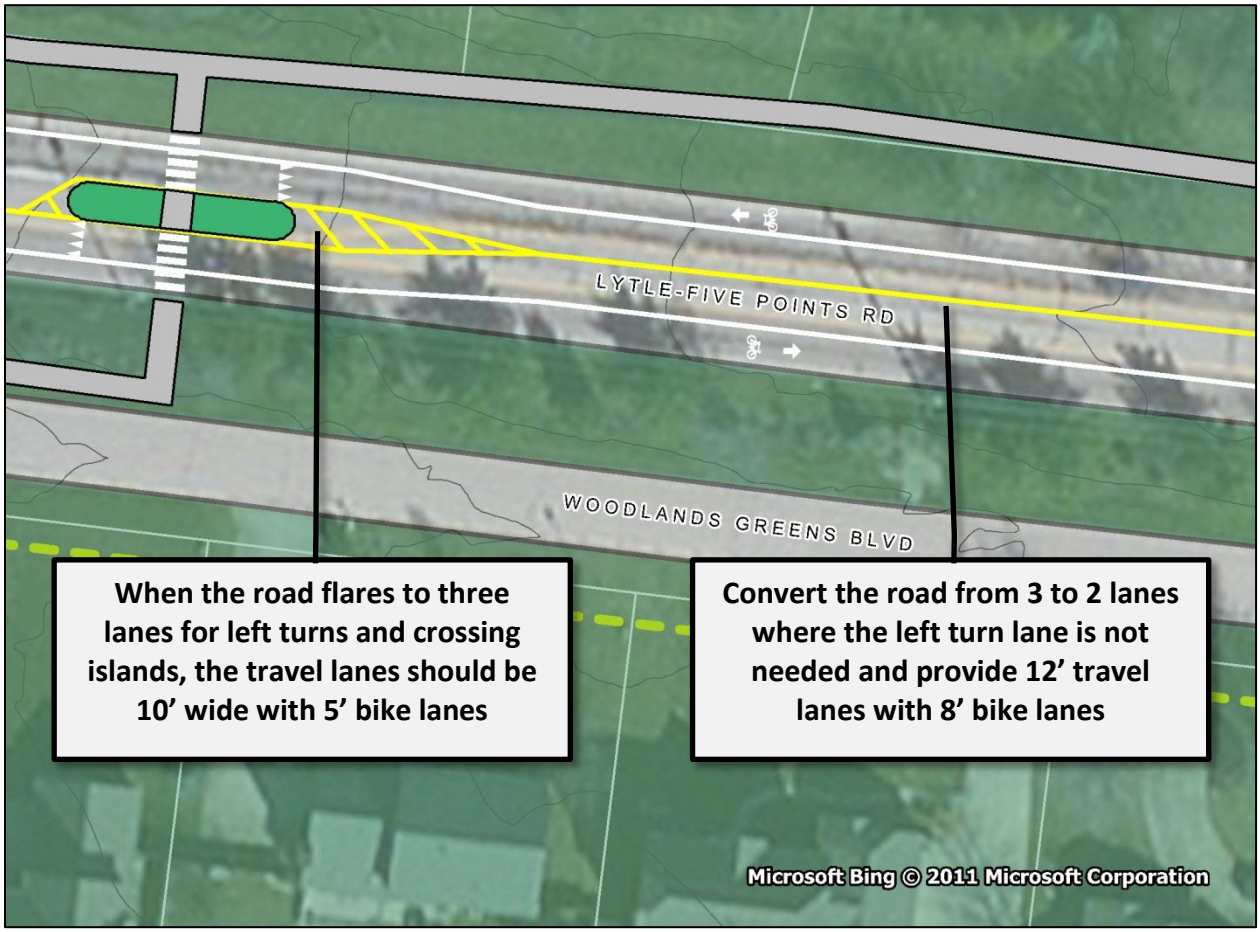


FIGURE 6.6C. LYTLE-FIVE POINTS ROAD AT TANGLEWOOD DRIVE / GREAT OAK DRIVE

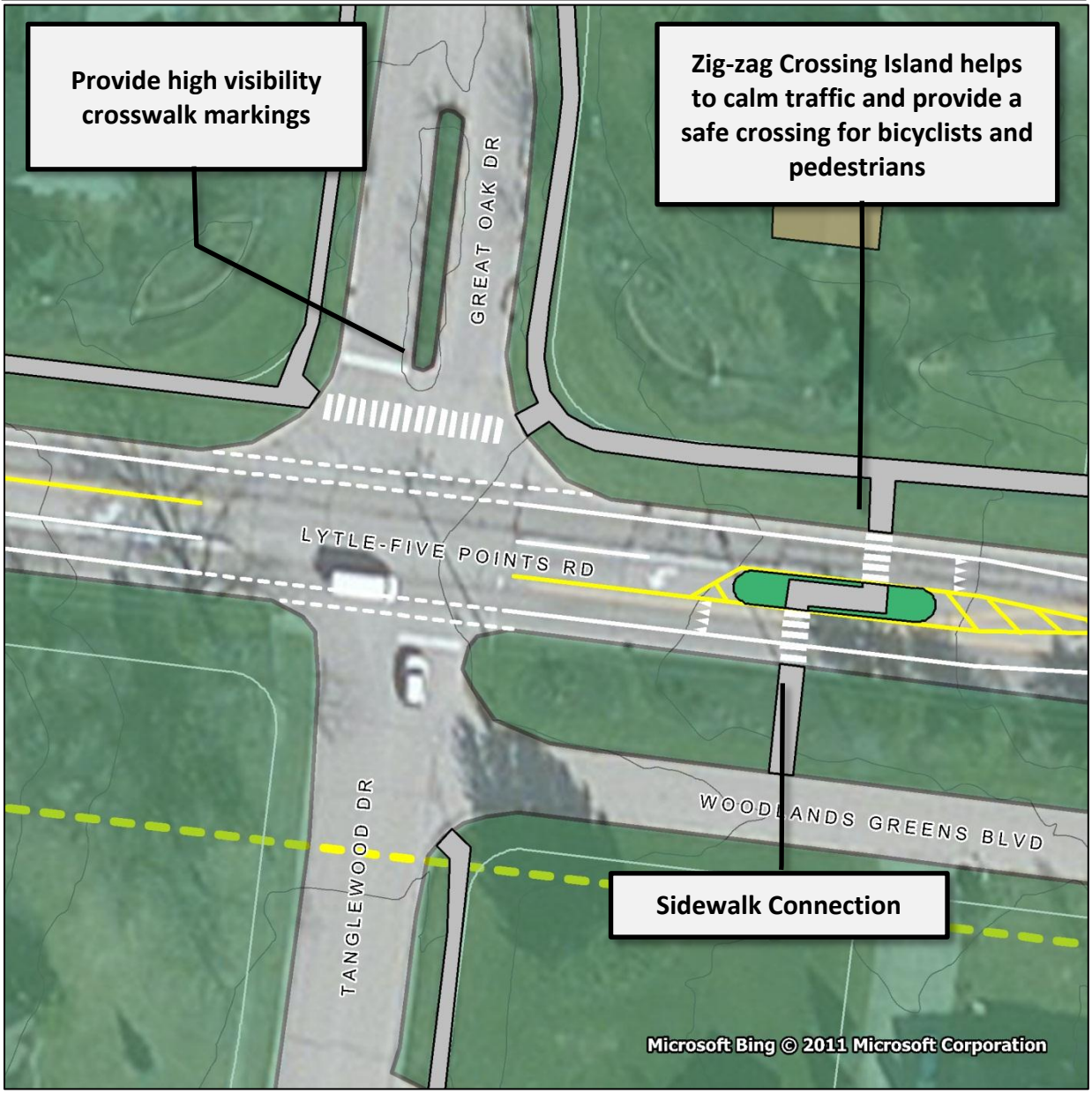


FIGURE 6.6D. LYTLE-FIVE POINTS ROAD AT SETTLERS WALK BOULEVARD

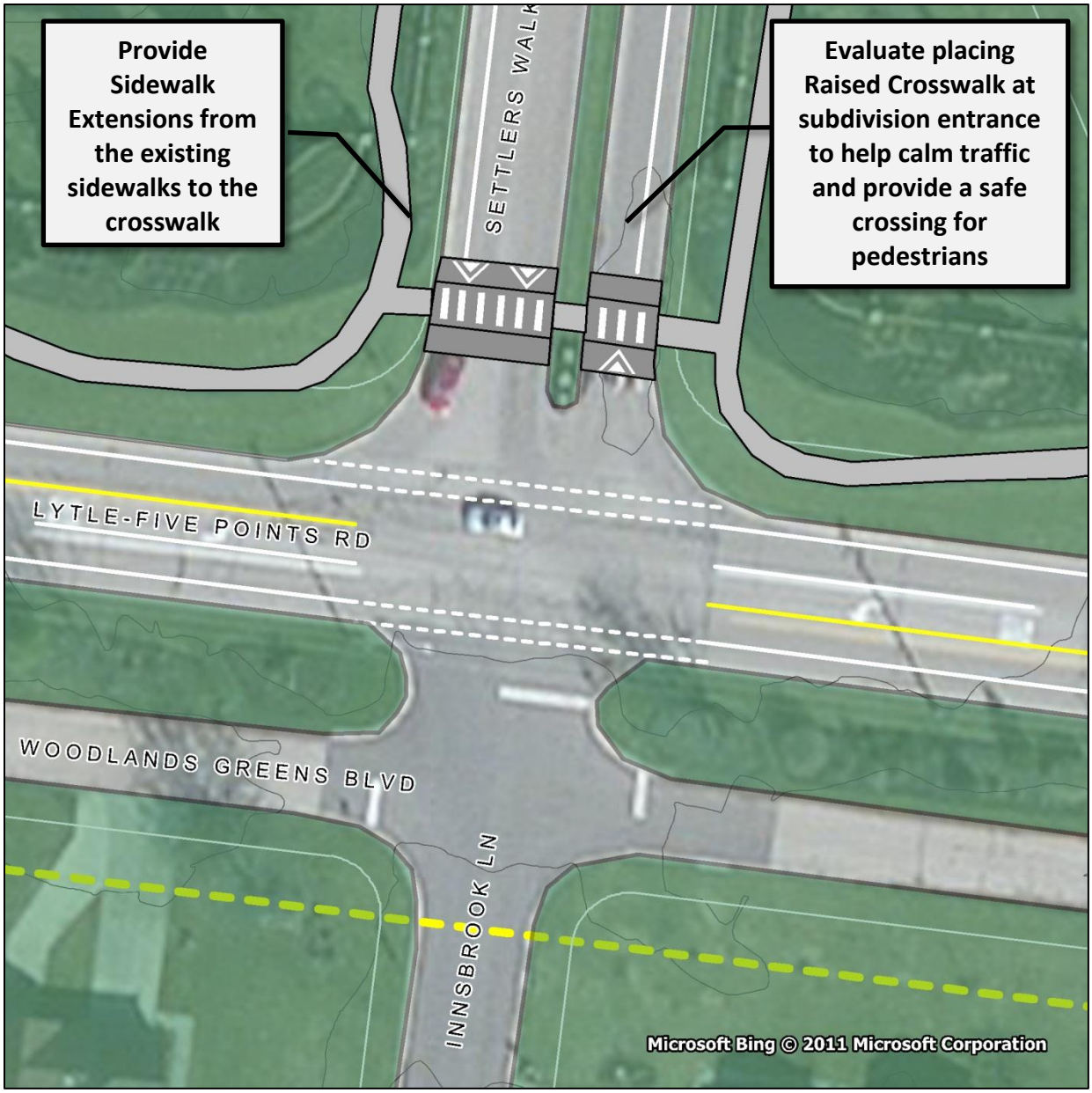
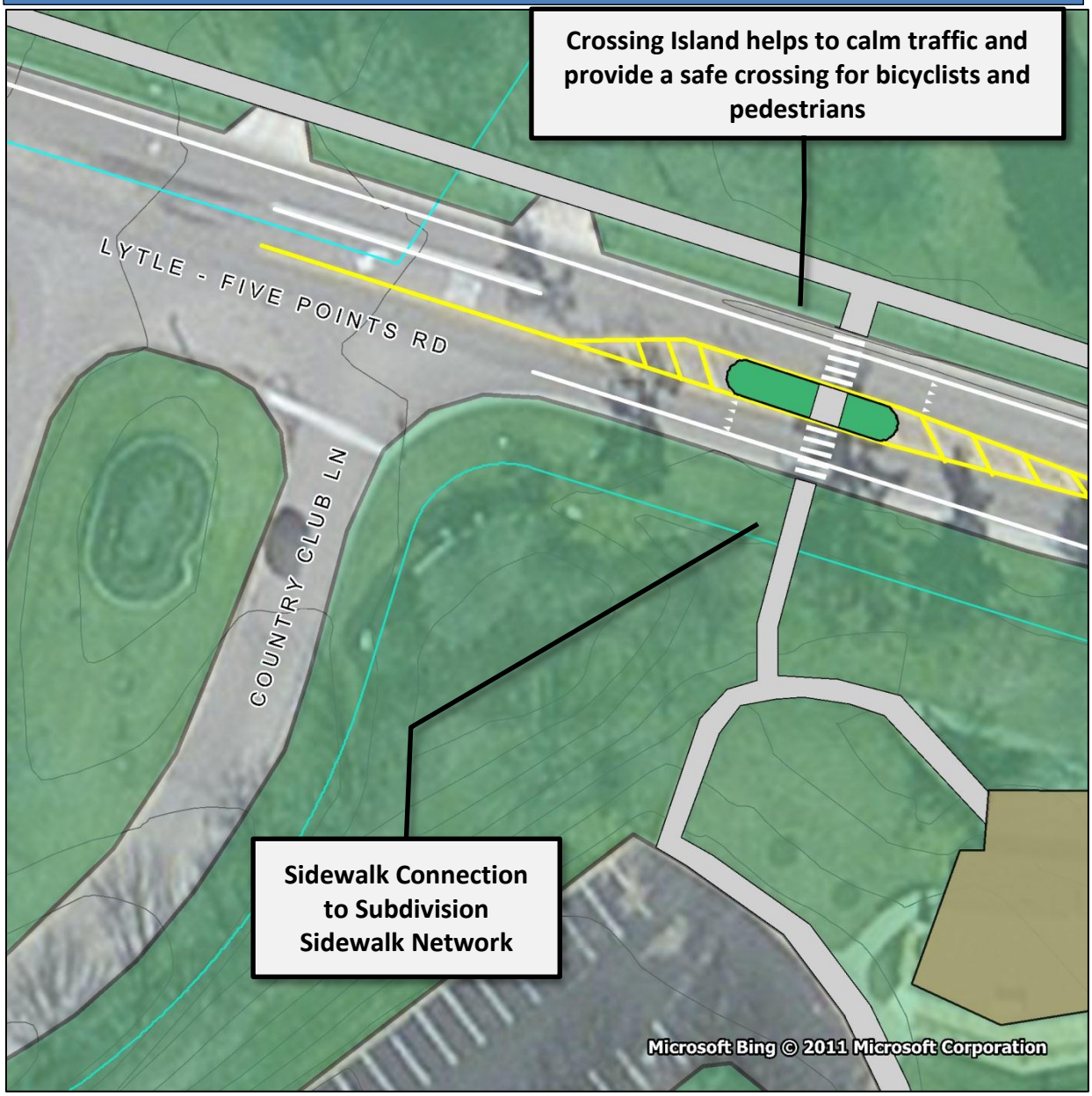


FIGURE 6.6E. LYTLE-FIVE POINTS ROAD AT COUNTRY CLUB LANE



Due to the complexity of the intersection, high speeds and high traffic volumes it is recommended that bicycle improvements at the intersection of SR 741 and Austin Boulevard be treated similar to a roundabout. As the bike lanes approach the intersection, entrance and exit ramps should be available giving the cyclist the option of using the sidewalk to get through the intersection if they are uncomfortable with taking a lane and going through the intersection as a motor vehicle.

FIGURE 6.6F. BIKE LANE TRANSITION TO SIDEWALK