



City of Ellisville Bikeable Walkable Community Plan

Adopted May 11, 2011



Ellisville Comprehensive Plan-Appendix B



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SECTION

I.

Executive Summary

The Ellisville Bikeable Walkable Community plan exemplifies the City’s vision to create a safe and pedestrian friendly infrastructure for community connectivity, improve the well being of residents, generate economic growth, and foster a sense of community in Ellisville. The plan will help the City build a state-of-the-art bicycle and pedestrian transportation network and become leaders in regional connectivity development.

The planning process for the Bikeable Walkable Plan included four steps: data collection, analysis, conceptual design, and the final report. Public input was critical in all stages of the process and helped ensure a comprehensive plan. The project vision, along with an achievable set of goals and policies, was developed to guide the planning process. As part of the project vision, biking and walking are to be: integral components of an interconnected transportation network, safe and convenient for people of all ages and abilities, routinely accommodated in transportation decisions and infrastructure improvements, supported by local government, schools, and the private sector, and enhancements to the quality of life in the City of Ellisville. Goals and policies developed during the planning process help to make the plan vision possible.

The infrastructure improvements and facility design guidelines recommended for bicycle and pedestrian facilities are derived from the data collection, analysis, and public input process. They are founded on the vision established for the project and they are reflective of the input garnered from the public, City staff and City leadership. The plan and guidelines delineate bicycle and pedestrian facility components, recommended signage, and recommended programs that will help the City as it builds a sophisticated multi-modal transportation network for its citizens.



SECTION 2.

Introduction

With the development of the Bikeable Walkable Communities Plan, the City of Ellisville has embarked upon a transformative journey to enhance and expand its existing biking and walking facility network. This plan expresses the City’s strong desire to: create a safe pedestrian friendly infrastructure for community connectivity, promote improved health and well being for City residents, generate economic growth for residents and businesses, and foster an enhanced sense of community. The Bikeable Walkable Plan will guide the City as it lays the foundation for progressive facility development and leadership in the regional connectivity movement.

The Bikeable Walkable Plan was created using a four step design process that included input from Ellisville citizens, community stake holders, City staff and City leadership. With public input, the process of data collection, analysis, conceptual design and final design resulted in a comprehensive plan that meets the needs and desires of the community.

2.1 Project Purpose

In the past, the City of Ellisville, like many other suburbs in the St. Louis region, has allowed the automobile to dominate its development and growth. Recently, the City has recognized the benefits of becoming a bikeable and walkable community and has taken steps toward improving pedestrian facilities for its residents. With the help of this plan, the citizens of Ellisville will reap the benefits of the plan: improved health, improved transportation options, reduced environmental impact due to automobiles, economic gains, a greater sense of community, and an overall enhanced quality of life.

The plan will help citizens of Ellisville see improvements in health. Adding bike and pedestrian facilities to the City’s existing transportation infrastructure will provide opportunities for residents of all ages to reach recommended amount of physical exercise. With improved pedestrian routes, increased levels of physical fitness can occur in safe and pedestrian friendly environments.

Improvements will be experienced by residents on the roads in Ellisville as people take advantage of new bike and pedestrian infrastructure. Infrastructure improvements will make biking and walking more convenient and appealing alternative transportation options. Additional facilities will allow more people to get “off the road” and get on their bikes or put on their walking shoes. This decrease in auto traffic will make roads safer, ease traffic congestion and decrease auto emissions.



Residents performing “walkability audit” throughout Ellisville



Economic gains from a bikeable walkable plan are many. As citizens begin to bike and walk they will be spending less money on fuel for their automobiles. Improved facilities are viewed as amenities that can raise nearby home values. Health care costs can be reduced because residents are getting more exercise and improving their health by walking and riding. Finally, improved facilities can connect individuals to retail and commercial destinations and increase local business traffic.

Enhanced facilities can also improve civic pride and the sense of community instilled in Ellisville residents. Bikeways and sidewalks connect people of all ages, even those that can not drive, to civic and cultural institutions, parks, and churches. They allow people to experience their neighborhoods immersed in an on-street environment and free to interact with neighbors they see along the way to their final destinations.

All of the above elements: improved health, improved transportation options, reduced environmental impact, economic benefits, and an improved sense of community, lead to an enhanced quality of life for residents of Ellisville. Together these advantages will make Ellisville a desirable place to live, work and play.

2.2 Planning Process

The methodology used in preparing the Bikeable Walkable Plan included four steps. Input from the public and City was crucial during all phases of the process and was pivotal to the creation of the final document.

Data Collection, the first step in the process, involved the development of the plan’s “foundation”. In this phase of work, existing base maps and aerial photos were collected for review. Site visits were made to gain a general inventory of existing land uses, existing pedestrian facilities and existing physical conditions. Case studies of similar projects and current planning trends were reviewed. A public forum, stakeholder meetings, and City staff interviews were held to garner input about existing facilities from the people who utilize the system on a daily basis.

The second step in the planning process was the analysis of the information compiled during data collection. All data was evaluated and sorted to identify opportunities and constraints for facility design, development, and implementation. Ultimately a set of goals and objectives was developed to guide the remainder of the design and planning process. During this phase of planning bikeability and walkability audits were held to assist the public in the analysis of the existing facilities.



Residents participating in the Public Workshop



Residents performing "walkability audit" along Manchester Rd.

Conceptual designs were based on the results of the analysis. Conceptual facility plans and design guidelines were created and presented to the public and City staff for review and comment at an open house.

The last step in the planning process was the development of the final master plan. In the final Bikeable Walkable Plan, facility plans were confirmed, facility guidelines were completed, supporting programs were identified, and an implementation strategy, including pre-engineering cost opinions, was developed. All of this information was combined and formalized in the final report document.

Although the designs, guidelines and implementation strategies for the Ellisville Bikeable Walkable Plan have been summarized in written document form, the plan should be thought of as fluid and adaptable. Recommendations made within the document speak to the needs and desires at the time the final document was prepared. As the City of Ellisville begins the phased implementation of the plan, it is important to keep in mind the difficulties of anticipating exact budgets, time lines and development opportunities. For this reason, it is recommended that this plan be reviewed and updated as progress is made to ensure it is based on current data and the latest standards. It is also important to note that the recommendations throughout this plan are based on standards set by both the American Association of State Highway and Transportation Officials (AASHTO)'s *Guide for the Development of Bicycle Facilities* and the Federal Highway Administration's *Manual on Uniform Traffic Control Devices (MUTCD)*. It is important that the City consult both of these manuals alongside the plan, especially during implementation. In particular, the MUTCD should be consulted to determine all regulatory guidelines for installations such as signs, striping, pedestrian signals, etc.



SECTION 3.

Vision, Goals, and Policies

Based on input from members of the community, City staff, and City leadership, a long-term vision, goals and policies have been formulated to guide future bicycle and pedestrian improvements in the City of Ellisville. Each policy creates a course of action to help achieve a particular goal, which in turn brings the City closer to the ultimate vision.

3.1 Vision

The City of Ellisville's vision for the future is that it will be a community in which residents, employees and visitors of all ages and abilities can safely, comfortably and conveniently travel to destinations in and around the City by bike and foot. In the City of Ellisville, bicycling and walking will be:

- Integral components of an interconnected transportation network
- Safe and convenient for people of all ages and abilities
- Routinely accommodated in private and public transportation decisions and infrastructure improvements
- Contributing to personal and community health
- Supported by local government, schools, and the private sector
- Important to residents' quality of life
- Options to reduce vehicle miles traveled, automobile congestion, and greenhouse gas emissions

3.2 Goals and Policies

Goal One: Establish a citywide bicycle and pedestrian transportation network.

- Develop a city-wide network of bicycle and pedestrian facilities that provides access to schools, parks, commercial areas, community amenities, public transit, neighboring communities, and other significant activity centers.
- Work in close partnership with neighboring municipalities, St. Louis County Agencies, the Missouri Department of Transportation, the Missouri Department of Conservation, and the Great Rivers Greenway District during plan implementation and system maintenance.
- Consider the needs of all cyclist types (advanced, casual and basic) in the planning, development, and maintenance of the bicycle facilities network.



- Require all new development to provide safe, continuous and convenient pedestrian and bicycle facilities.
- Require commercial, industrial, and institutional development to incorporate bicycle parking facilities.

Goal Two: Close gaps in the existing bicycle and pedestrian network and enhance connectivity between neighborhoods and adjacent land uses.

- Where feasible, connect residential neighborhoods with adjacent neighborhoods and land uses through shared use paths and sidewalks.
- Develop bicycle boulevards on corridors parallel to principle arterials to provide safe bikeways for all user types.

Goal Three: Apply consistent geometry, road markings, and signage standards to bicycle and pedestrian facility design in order to create a safe and continuous network that is easy for residents and visitors to navigate.

- Utilize design guidelines set forth by the American Association of State Highway Transportation Officials (AASHTO), the Federal Highway Administration (FHWA) and the Department of Justice's Americans With Disabilities Act (ADA) Standards for Accessible Design.
- Adhere to design principles recommended for Manchester Road in the Manchester Road Great Streets Plan.

Goal Four: Improve regional connectivity for cyclists and pedestrians.

- Provide linkages between Ellisville's bicycle and pedestrian network and existing and planned facilities in neighboring municipalities.
- Partner with neighboring municipalities and other government agencies to enhance existing connections and develop new connections to regional destinations and activity centers.
- Ensure that the bicycle and pedestrian network connects to transit stops.
- Develop continuous bicycle and pedestrian connections to the Meramec Greenway, utilizing Kiefer Creek Road and the Rock Hollow Trail.



Goal Five: Develop education, encouragement and enforcement programs and activities to support walking and bicycling as a safe, convenient and practical means of transportation.

- Work with public and private schools to encourage walking and cycling to and from school, to educate children and parents on bicycle and pedestrian safety, and to promote the benefits of walking, bicycling, and active living.
- Create a community wide map to highlight walking and bicycling routes and connections to destinations in and around the City.
- Work with the West County Chamber of Commerce, local businesses and neighboring municipalities to provide an incentive program to encourage walking and bicycling to local commercial destinations.
- Provide educational opportunities for safe cycling and bicycle maintenance to local residents and employees.
- Develop an education, awareness, and marketing program to promote the benefits of sidewalks and provide information regarding sidewalk funding, public rights-of-way, and similar issues of concern.



SECTION 4.

Existing Conditions

The study of Ellisville’s existing conditions was critical to the development of a sound plan based on relevant information. As part of the existing conditions study, the following elements were examined: topography and natural features, municipal codes, lands uses, transportation networks, recreational trails, and current plans and studies for bicycle and pedestrian facilities. The following page contains a context map depicting Ellisville and the existing features that relate critically to the bikeable walkable plan.

4.1 Topography and Natural Features

The City of Ellisville is approximately 4.3 square miles in size. It is located in west St. Louis County and is characterized by rolling hills and steeply wooded valleys that, in some cases, are cut by intermittent creeks. These characteristics are prevalent throughout the county.

The average elevation of the City is approximately 730 feet above mean sea level. The highest point, near the middle of the City, is near elevation 740 while the lowest point, near the south east corner of the City, is near elevation 560. The highest and flattest parts of the City are near the intersection of Manchester Road and Clarkson Road. This crossroads is close to the geographical center of the City. Manchester Road, or Highway 100, bisects the City in an east-west direction, while Clarkson Road bisects the City in a north-south direction. These major arterial roads visually divide Ellisville into four quadrants. Generally, the northern quadrants of the City have less varied elevation changes than the southern quadrants of the City. The varied elevations, steep terrain, and creek corridors in some parts of the City create barriers to bikable walkable facility development while flatter portions of the City and major road corridors lend themselves to facility improvement.

Most of the City is in the watershed of the Meramec River, which is approximately two miles from the City’s southern limits. A small portion of north-western Ellisville is in the Missouri River watershed and drains to the north. Several small, intermittent creeks, including Fishpot Creek and Kiefer Creek feed into the Meramec River. These creeks are located in some of the more steeply wooded valleys that remain undeveloped and in some cases have been acquired by the City for public lands.

Ellisville characteristically has hot, humid summers and dry winters. Average temperatures range from 88 in July to 22 in January. The average annual precipitation is 36 inches.



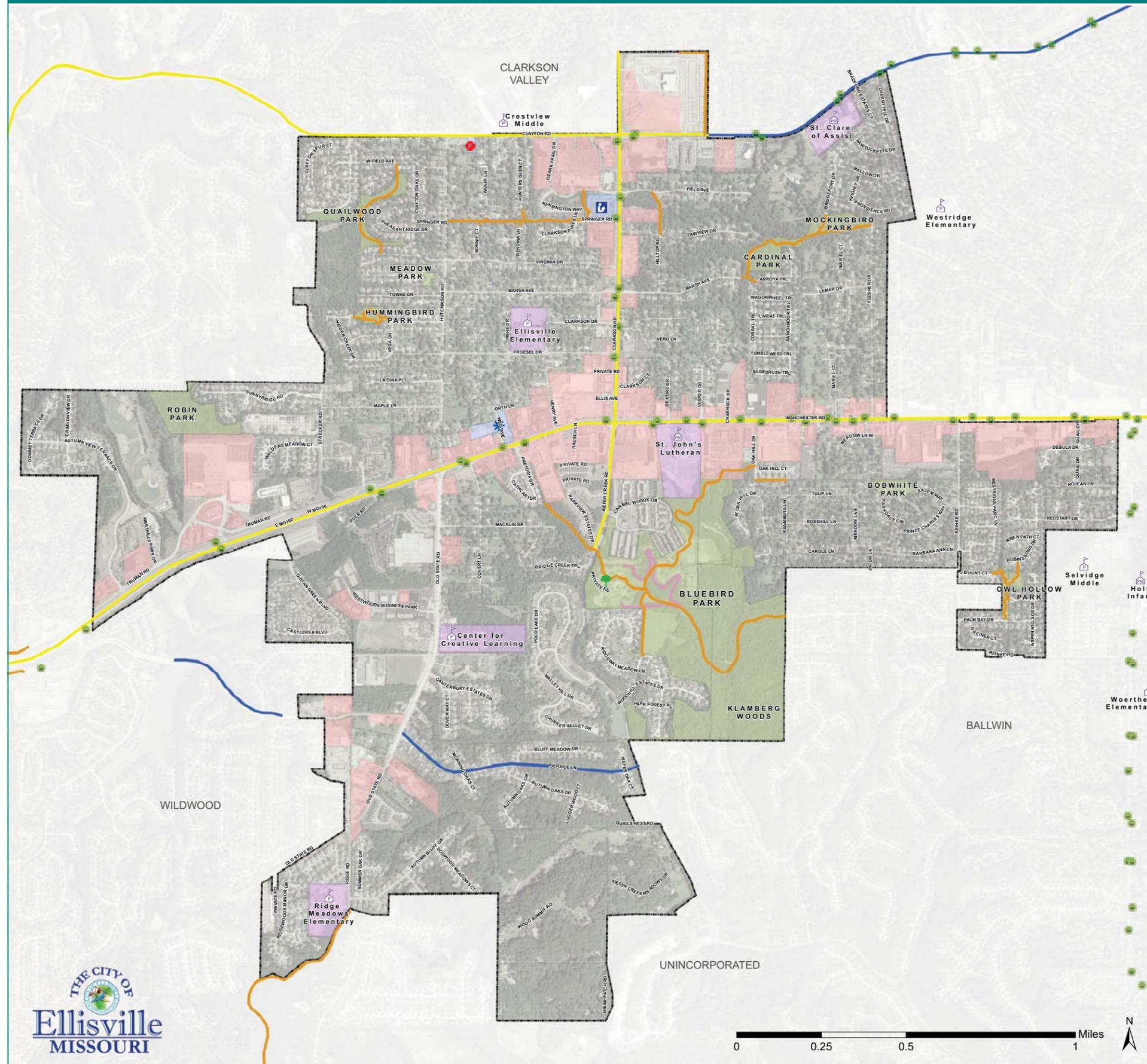
City of Ellisville Seal Statue at Manchester and Clarkson intersection



The environmental conditions, land forms, geology and temperatures in Ellisville are typical for this region of the country. In pre-settlement days, these conditions were ideal for the oak hickory forest that historically covered the land. Remnant woodlands in the steeply sloping parts of the City contain some native trees like shag bark hickory, burr oak, pin oak, sugar maple, serviceberry and redbud. However, today, Ellisville displays more typical mid-western, suburban landscapes. Native, and non-native, shade trees dot rolling lawns. These lawns cover most of the residential and commercial areas of town and foundation plantings are utilized to dress homes and retail areas.



The Ellis House, the first settlement in the area that is now Ellisville. Photo accessed from City of Ellisville website, <http://www.ellisville.mo.us>

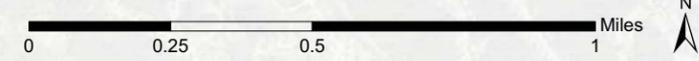


LEGEND

- Fire Department
- Parks Administration Building
- Ellisville City Hall - Police - EMS
- St. Louis County Library - Daniel Boone Branch
- Public School
- Private School
- Bus Stop
- Civic Property
- School Property
- Park
- Commercial
- Ellisville City Limits

Existing

- Multi-Use Trail - Class I
- Bike Lane - Class II
- Share the Road Signage
- Fitness Trail



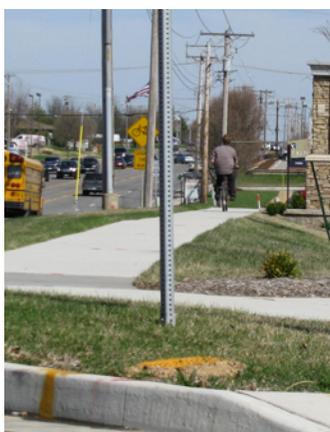


4.2 Ellisville Municipal Code

A municipality’s ordinances play a significant role in the development of bicycle and pedestrian facilities and the governing of cyclist and pedestrian movement. The Ellisville Municipal Code contains a number of zoning, subdivision, traffic control, and other ordinances relating to bicycle and pedestrian movement and facilities, many of which help to create an environment that supports and encourages non-motorized transportation. While many of these ordinances are standard components of a city’s code, certain ordinances, as discussed below, have a significant impact on the mobility of cyclists and pedestrians.



Pedestrian using sidewalk along Clayton Rd.



Bicyclist on sidewalk along Manchester Rd. retail corridor

Pedestrian Movement

Regulations dictating pedestrian mobility and behavior are found in Chapter 345: Pedestrians’ Rights and Duties, as well as a number of other sections of the traffic code. These ordinances establish procedures for safe, predictable, pedestrian travel, as well as rules dictating interactions between pedestrians and automobiles. The following pedestrian and automobile driver behaviors are regulated by the City code:

- Pedestrian movement at intersections and other potential conflict points with automobiles;
- Pedestrian crossing locations;
- Pedestrian behavior along roadways in the absence of sidewalks or parallel sidepaths; and
- Automobile driver’s responsibility to exercise great care when operating a vehicle in the presence of pedestrians.

Bicycle Movement

Regulations that govern the operation of a bicycle in the City of Ellisville are found in Sections 340, 345 and 380 of the City code. Similar to ordinances related to pedestrian travel, these ordinances have been adopted to create a safe environment for all road users to operate in a predictable manner. The City’s code mandates following bicycle and automobile driver behaviors:

- Motor vehicles may not stand or park in a bicycle lane;
- Cyclists may not ride on a sidewalk in the business district;
- Bicyclists must yield to pedestrians when riding on a sidewalk;



- Motor vehicles must overtake and pass a cyclist riding in the roadway in a safe manner;
- When riding a bicycle on the roadway, a cyclist must position himself or herself as far to the right as practicable;
- When riding on a shoulder adjacent to the roadway, cyclists must ride in the direction of vehicular traffic;
- When a path is provided adjacent to the roadway, cyclists must ride on the path;
- All children under the age of seventeen must wear a helmet; and
- Parking a bicycle in a manner that obstructs the flow of pedestrian traffic is prohibited.

These ordinances provide for the safe travel of cyclists of most skill levels and abilities. Advanced cyclists are afforded the opportunity to travel as a vehicle and utilize major collectors and arterials to travel to their destinations via the shortest, most efficient route. Basic cyclists can use collector and neighborhood streets to reach local destinations or to enjoy a recreational ride through a neighborhood. They may utilize sidewalks along arterial and collector roads when traffic volumes and speed discourage bicycling for most cyclists. Children cyclists, whose skill levels and confidence are not fully developed, can ride on the City's sidewalks, where present, and low-volume neighborhood streets to complete short trips.

Pedestrian and Bicycle Facilities

The zoning and subdivision regulations set parameters that guide growth, development, and redevelopment in the City of Ellisville. These regulations also dictate how pedestrian and bicycle facilities must be designed and constructed. The following design characteristics are addressed in the zoning and subdivision regulations:

Block Lengths

Shorter block lengths can benefit pedestrians by impeding uninterrupted flow for automobile traffic, and in turn calm traffic. Shorter block lengths can also reduce pedestrian jaywalking and, when coupled with traditional neighborhood grid patterns of development, enhance pedestrian connectivity and route alternatives for pedestrians to reach local destinations. When shorter block lengths are not feasible, mid-



block crossings and sidewalk easements can be incorporated to increase pedestrian connectivity.

Section 405.110: Blocks

- A. *Blocks shall meet the following standards. Each block in a subdivision shall be numbered in a reasonable schematic method.*
- B. *In residential areas, blocks shall be not less than six hundred (600) nor more than one thousand three hundred twenty (1,320) feet in length measured along the greatest dimension of the enclosed block area, unless necessitated by topography. Block length in commercial or industrial areas shall be as determined by the Planning Commission to be suitable for the intended use.*
- C. *In blocks over six hundred (600) feet in length, the Planning Commission may require one (1) or more public walkways within an easement not less than ten (10) feet in width to extend entirely across the block and at locations deemed necessary at intervals not closer than four hundred (400) feet.*
- D. *Blocks shall each be wide enough to allow two (2) back to back lots, with a minimum depth of one hundred twenty (120) feet, except where adjoining a major thoroughfare or where one (1) through lot is necessary because of topographic conditions. (R.O. 2005 §23-46; CC 1997 §23-46)*

Sidewalks

The provision of sidewalks in all new subdivisions and developments ensures that the pedestrian network can continue to grow, connecting residents to the places they want to reach in the community. This section of the City’s subdivision regulations also states that, when deemed necessary by the Planning Commission, this requirement may be waived or reduced to conform to anticipated land use, traffic flow, or other conditions that do not warrant separated pedestrian facilities. Sidewalk width, which is set at a minimum of 4 feet, should be increased to meet existing or anticipated demand, ADA requirements, and other safety or accessibility needs.

Section 405.400: Sidewalks

Concrete sidewalks at least four (4) feet wide and five (5) inches thick with a four (4) inch crushed stone base shall be constructed on both sides of each street; provided, that the Planning Commission may recommend to the Council waiver or reduction of this requirement if it is established that the reasonably anticipated growth of the area and the probable nature of its development, its distance from concentrated urban development



and developments creating pedestrian travel and the estimated volume of vehicular travel on the streets make such sidewalks unnecessary for the protection of the public safety and welfare. (R.O. 2005 §23-119; CC 1997 §23-119)

Bicycle Parking

As commercial properties are redeveloped or change hands, owners are required to provide bicycle parking facilities according to the table below. The requirements apply to commercial developments with a gross square foot minimum of 10,000, leaving out a significant portion of commercial parcels in Ellisville. As the nature of commercial development changes to meet market demands, bicycle parking facilities requirements should be expanded to include smaller commercial properties.

Section 400.410: Miscellaneous Provisions

H. Upon construction or change in ownership, all commercial uses shall provide commercial duty bicycle rack(s) in accordance with the following:

Gross square footage of main building on platted parcel:	Rack or racks for a minimum of:
10,000--20,000	4 bicycles
20,001--35,000	6 bicycles
35,001--50,000	8 bicycles
50,001--100,000	10 bicycles
over 100,000	12 bicycles

The “inverted U” type bike is the required bicycle parking rack and shall be fabricated in accordance with specifications on file with the City Engineer. (R.O. 2005 §30-79; Ord. No. 2265 §1, 7-1-98; Ord. No. 2329 §1, 6-16-99; Ord. No. 2538 §1, 1-15-03; Ord. No. 2864 §1, 12-19-07)

Additional Considerations

Other general design considerations influence the pedestrian experience in the public realm. Street furniture, such as lighting, benches, newspaper stands, and other features can create a welcoming environment for pedestrians and can buffer pedestrian spaces from the roadway. The City’s zoning ordinances require the provision of shade trees and street lighting in new subdivisions and developments, as stated below.



Section 405.420: Shade Trees

A. *Along Streets.* The streets shall be provided with two (2) hardwood nursery grown shade trees having a trunk diameter of two and one-half (2½) inches measured at a height of six (6) inches above the finished ground level. Street trees shall be suitable for local soil and climate conditions and adapted to street use and approved by the Tree Board.

Section 405.450: Street Lighting

A. *Generally.* A street light shall be provided at each intersection of streets within a subdivision, at each intersection of a street with a pedestrian way and at each circular turnaround, but in no event shall there be fewer than one (1) street light for each four hundred (400) linear feet or portion thereof of street frontage between intersections or between a street intersection and the terminus of a dead-end street. Lighting intensity of each street light shall be equivalent to a six thousand eight hundred (6,800) mercury luminaire lamp or a one hundred seventy-five (175) watt lamp and the street light posts shall be at least sixteen (16) feet in height. Equivalents to these standards may be proposed and used when approved by the Director of Public Works.

Language in the zoning ordinances also allows the City Traffic Engineer to provide road markings and signage in order to address dangerous conditions for pedestrians crossing the roadway and to establish safety zones to improve pedestrian safety. These pedestrian safety zones are defined as areas of the roadway that are designated, signed and marked for the exclusive use of pedestrians.

Section 315.140: City Traffic Engineer To Designate Crosswalks And Establish Safety Zones

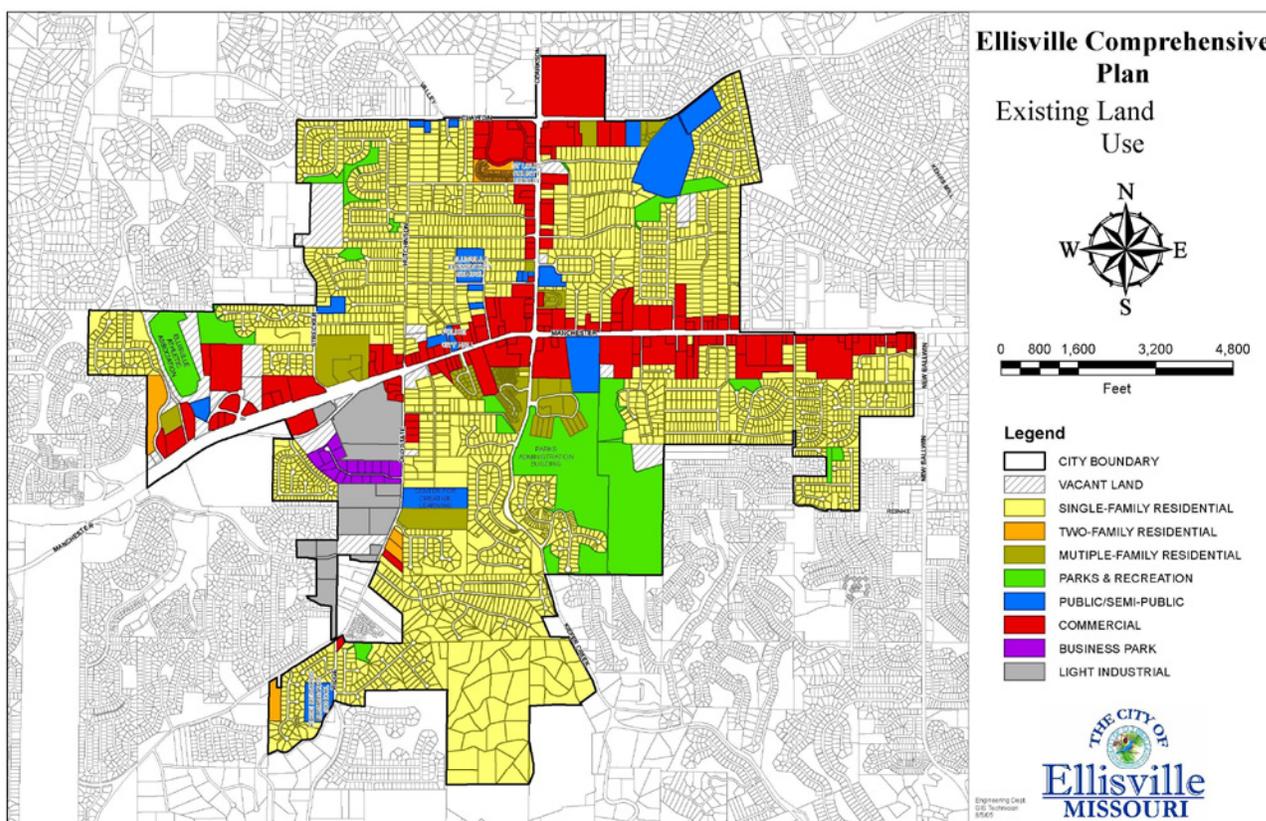
The City Traffic Engineer is hereby authorized:

1. *To designate and maintain, by appropriate devices, marks or lines upon the surface of the roadway, crosswalks at intersections where in his/her opinion there is particular danger to pedestrians crossing the roadway and at such other places as he/she may deem necessary.*
2. *To establish safety zones of such kind and character and at such places as he/she may deem necessary for the protection of pedestrians.*



4.3 Existing Land Uses

Land use patterns and the location of local destinations have a significant impact on development of a bicycle and pedestrian network. Natural resources, topographical constraints, long-established regional transportation routes, and single-use Euclidian zoning have all contributed to the pattern and form of growth throughout the City. The existing land uses in the City of Ellisville are displayed in the map below and discussed further in this section.



Typical Retail on Manchester Rd.

Commercial

Commercial development in the City of Ellisville, like many suburban communities, has grown outward from the intersection of two regional arterials: Manchester Road (State Route 100) and Clarkson Road (State Route 340). Commercial land uses in Ellisville prevail on both of these principal arterials, with the heaviest concentrations at the intersections of Manchester and Clarkson Roads, and Clayton and Clarkson Roads.



Typical Residential Street

Residential

Residential land uses, which comprise 60 percent of the City’s total land uses, are dispersed throughout the four quadrants of the City and are connected to commercial destinations by collector roads and minor arterials.

The single-use land development patterns and site-specific subdivision development that characterize Ellisville’s residential neighborhoods present a challenge to the facilitation of non-motorized transportation that is prevalent in suburban communities. A number of single-family subdivisions, especially in the south of Ellisville, are not within walking distance of commercial destinations, parks, schools, and other local amenities.

The distance people are willing and able to walk varies on an individual basis and typically ranges from a quarter mile to one mile. This leaves a portion of Ellisville residents outside of a typical walking distance to many local destinations. This range is determined not only by an individual’s physical ability, but also by the environmental characteristics of the area. Factors like sidewalk widths, street lighting, landscaping, buffers between the sidewalk and the roadway, block length, and even building setbacks can have an effect on walking range. As these qualitative factors combine to make a more pleasant walking experience, people are more willing to walk the extra block or two to reach their destinations.

Industrial

Few industrial land uses exist in the City of Ellisville. These industrial facilities are concentrated in an area south of Manchester Road and west of Old State road. This location is slated for future redevelopment as a business park, and considerations should be made to incorporate non-motorized circulation and bicycle parking into site design.

Public and Semi-Public Facilities

Public and semi-public facilities are interspersed throughout the City and can be found along major arterials as well as within residential neighborhoods. Ellisville residents benefit from a variety of public and semi-public land uses within the City’s boundaries. These include eleven public park areas and two trails that total nearly 200 acres and provide a wide variety of active and passive recreation facilities. The Daniel Boone Branch



St. Louis County Library- Daniel Boone Branch



of the St. Louis County Public Library System, two elementary schools and the Center for Creative Learning, all part of the Rockwood School District, and other institutional uses also fall within the City’s boundaries. The development of bicycle and pedestrian improvements that connect residents to these destinations can help reduce automobile use for short trips throughout the City.

Significant Destinations

There are a number of destinations in the City of Ellisville and neighboring municipalities that can be accessed by bike or foot. Parks, schools, places of worship, shopping centers, grocery stores, and other significant destinations should be considered in the identification and prioritization of recommended improvements for bicycle and pedestrian facilities. A list of significant destinations is provided below and on the following pages.



Bluebird Park



Ellisville City Hall

Parks & Recreational Facilities	Location	Acreage	City
Bluebird Park	Southeast	81.3	Ellisville
Klamberg Woods Conservation Area	Southeast	68	Ellisville
Bobwhite Park	Southeast	3.1	Ellisville
Cardinal Park	Northeast	6.41	Ellisville
Hummingbird Park	Northwest	2.39	Ellisville
Kiefer Creek Road Right-Of-Way	Southwest	0.51	Ellisville
Meadowlark Park	Northwest	0.89	Ellisville
Mockingbird Park	Northeast	5.13	Ellisville
Owl Hollow Park	Southeast	3.16	Ellisville
Quailwood Park	Northwest	8.07	Ellisville
Red Tail Hawk Park	Southwest	2.63	Ellisville
Robin Park	Northwest	29	Ellisville
Whippoorwill Park	Southwest	5.27	Ellisville
Woodpecker Trail	Northeast	0.58	Ellisville
Wren Trail	Northwest	2.26	Ellisville

Public Facilities	Address	City
City Hall	1 Weis Avenue	Ellisville
St. Louis County Library – Daniel Boone Branch	300 Clarkson Road	Ellisville



Public Schools	Address	City
Ellisville Elementary (K-5)	1425 Froesel	Ellisville
Green Pines Elementary (K-5)	16543 Green Pines Drive	Wildwood
Ridge Meadow Elementary (K-5)	777 Ridge Road	Ellisville
Woerther Elementary (K-5)	314 New Ballwin Road	Ballwin
Crestview Middle (6-8)	16025 Clayton Road	Ellisville
Lasalle Springs Middle (6-8)	3300 Hwy 109	Wildwood
Morgan Selvidge Middle (6-8)	235 New Ballwin Road	Ballwin
Eureka Senior High (9-12)	4525 Hwy 109	Eureka
Lafayette Senior High (9-12)	17050 Clayton Road	Wildwood
Marquette Senior High (9-12)	2351 Clarkson Road	Chesterfield
Center for Creative Learning (1-5)	265 Old State Road	Ellisville

Private Schools	Address	City
St. John Lutheran School (K-8)	15808 Manchester Road	Ellisville
Holy Infant Elementary School (K-8)	248 New Ballwin Road	Ballwin
St. Claire of Assisi (K-8)	15668 Clayton Road	Ellisville

Religious Institutions	Address	City
St. John Lutheran Church	15800 Manchester Road	Ellisville
First Baptist Church-Ellisville	137 Clarkson Road	Ellisville
Ellisville Church of Christ	62 Henry Avenue	Ellisville
West County Bible Church	82 Henry Avenue	Ellisville
Emerson Unitarian Universalist Chapel	73 Strecker Road	Ellisville
Lifegate Baptist Church	16081 Clayton Road	Wildwood
Ellisville United Methodist Church	15977 Clayton Road	Clarkson Valley
St. Martin's Episcopal Church	15764 Clayton Road	Ellisville



4.4 Existing Transportation Network

Ellisville residents are served by a multi-modal transportation network that connects destinations in and around the community. Automobile, pedestrian, bicycle and transit circulation utilize the City’s system of roadways, sidewalks and trails to provide residents access to commercial activity, job centers, schools, parks, and other community assets.

Automobile Transportation Network

A network of residential streets, neighborhood collectors, and minor and principle arterials enables vehicular traffic in Ellisville. This network has expanded outward from the intersection of Manchester Road and Clarkson Road to accommodate residential development throughout the City. Ownership and maintenance of roadways in Ellisville are divided among MoDOT (Clarkson Road, Manchester Road, and Clayton Road east of Clarkson Road), St. Louis County (Clayton Road west of Clarkson Road, Kiefer Creek Road, Old State Road, Strecker Road, and Valley Road), and the City of Ellisville (all other roadways). As such, coordination between these three entities will be necessary to address significant barriers to walking and bicycling on roadways owned and maintained by MoDOT and St. Louis County.



Intersection of Manchester and Clarkson



Clarkson Rd.

Traffic volumes and level-of-service, which determines a roadway’s capacity to efficiently move vehicular traffic, play a significant role in determining bicyclists’ and pedestrians’ perceived level of comfort and safety when traveling on roadways and sidewalks. Traffic counts and level-of-service analysis for principle and minor arterials in the City of Ellisville confirm residents’ perception and experiences that these roads, namely Manchester, Clarkson, and Clayton Road, carry extremely high volumes of automobile traffic and are very congested during weekday rush hours and on weekends. These conditions affect pedestrians and cyclists most significantly at intersections, commercial ingress and egress points, and along sidewalks immediately adjacent to the roadway.

Development patterns have limited through traffic on residential streets in Ellisville, pushing traffic onto arterials like Manchester Road and Clarkson Road, and in turn adding to high levels of congestion and delay.

Mass Transit

Multi-modal connections can increase the range of bicycling and walking trips, enhancing connectivity to local and regional destinations for cyclists



and pedestrians. Metro Transit St. Louis serves Ellisville with two bus routes: the # 57 Manchester and #58X Twin Oaks Express. The #57 Manchester, running from Downtown St. Louis to Wildwood via Manchester Road, provides hourly service, eastbound from 5am to 10pm, and westbound from 6am to 11pm. The #58X Twin Oaks Express connects West County municipalities along Clayton Road, Clarkson and Big Bend with Downtown St. Louis during morning and afternoon rush hours. Metro St. Louis also provides two bicycle racks on all Metro Busses and allows bicycles aboard the MetroLink light-rail service to support multi-modal transportation.

Bicycle Transportation Network

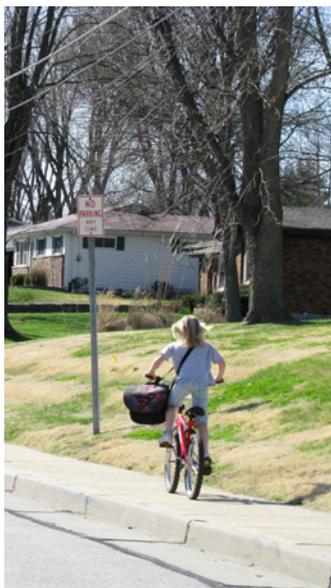
The City of Ellisville and the Missouri Department of Transportation (MoDOT) have constructed a number of bicycle facilities in the form of bicycle lanes, “share the road” signage, wide shoulders and multi-purpose trails to facilitate bicycle travel. Along with neighborhood streets, these facilities create a basic network of bikeways in and around Ellisville.

Neighborhood Streets

Ellisville’s residential streets and their related sidewalk system already provide for some level of non-motorized movement. Children and adults generally encounter bike-friendly streets that are easy to use for localized bicycle travel. However, through movement to further destinations, including commercial areas, institutions and other neighborhoods, is hampered by a significant number of cul-de-sacs, dead-end streets, and arterials. While cul-de-sacs and dead ends form physical barriers, principle arterials, namely Manchester Road and Clarkson Road, with high volumes of traffic, high traffic speeds and no designated bicycle facilities, represent significant psychological barriers that restrict bicycle movement.

Collectors and Arterials

Residential streets in Ellisville feed into collector and arterial roadways that carry vehicles to commercial destinations and to neighboring communities. Conditions for cycling vary on collector and arterial roadways in Ellisville, but are generally considered to be too dangerous for traveling on the roadway itself. Traffic volumes, traffic speeds, narrow lane widths, and a lack of designated bicycle facilities such as bike lanes all but prohibit bicycle transportation on principle arterials like Manchester and Clarkson Road. Only advanced cyclists utilize these roadways, either for recreational



Child cyclists utilize sidewalks to separate themselves from vehicular traffic.



or commuter purposes. Basic and child cyclists generally utilize adjacent sidewalks on arterials and collectors, but intermittent sidewalk facilities along Manchester Road create obstacles for residents wanting to access commercial destinations along this corridor.

The following improvements have been made on collector and arterial roadways in the City of Ellisville to benefit bicycle circulation:

Segment	Segment Limits	Length	Facility Type	Description
Clarkson Road (State Route 340)	City Limits to Manchester Road	0.9 miles	"Share the Road" signage	Share the Road signage on Clarkson has done little to create a comfortable, safe corridor for cycling activity.
Clayton Road (State Route HH)	0.3 miles east of Clarkson Road to City Limits	0.5 miles	Designated bicycle lanes (Class II Bicycle Facility)	0.5 miles of the 2.2-mile Class II Facility that stretches from east of Clarkson Road to Baxter Road. Clayton road is a major east-west bikeway in connecting West St. Louis County with the City of St. Louis.
Manchester Rd. (State Route 100)	City Limits to City Limits	3.1 miles	"Share the Road" signage	Only a small number of experienced cyclists use Manchester Road. High traffic volumes and speeds, coupled with a lack of wide outside lanes or dedicated bicycle facilities, render Manchester inaccessible to most cyclists.
Manchester Road (State Route 100)	City Limits to Hutchison Road/ Old State Road	1.1 miles	Wide outside shoulders	As Manchester Road opens up to a limited access freeway west of Hutchison Road, a wider variety of cyclists utilize the wide outside shoulders for recreational and transportation-oriented trips.
Pierside Lane	Old State Road to Kiefer Creek Road	0.7 miles	Combination bicycle and vehicle parking lanes	The bicycle/parking lanes on Pierside Lane provide a dedicated space to connect cyclists from southwest Ellisville and Wildwood to Kiefer Creek Road, a heavily used bikeway (despite a lack of signage and markings).



Multi-purpose trail route marker

Multi-Purpose Trails

A significant number of Ellisville’s parks contain multi-purpose trails that increase recreational opportunities within the parks themselves and, in many cases, enhance the non-motorized transportation network by providing connections between neighborhoods not afforded to vehicular traffic. When coupled with low-volume residential streets, these multi-purpose trails increase the range of non-motorized transportation significantly.

The following parks contain multi-purpose trails that provide connections to more than one neighborhood or subdivision: Bluebird Park/Klamberg Woods Conservation Area, Cardinal and Mockingbird Parks, Owl Hollow Park, Quailwood Park, and Whipoorwill Park. In addition, the Wren Trail, which runs from Hutchison to Clarkson Pine Lanes, provides connection to many neighborhoods and serves as a direct link to the Daniel Boone Branch of the St. Louis County Library. Hummingbird Park does contain a multi-purpose trail with multiple access points; however, the park only serves a single subdivision and does not significantly improve non-motorized circulation.

Pedestrian Transportation Network

Pedestrians in Ellisville utilize a network of sidewalks, crosswalks, multi-purpose trails, and residential roadways to travel throughout the City. While this network of pedestrian facilities is fairly extensive, a number of significant gaps and weaknesses discourage walking for even short trips.

Sidewalks

The sidewalk network that serves pedestrians in Ellisville is a reflection of the various development patterns of both private land and public infrastructure over the last sixty years. Sidewalk presence, design, and conditions vary in both residential neighborhoods and along minor and principal arterials.

The presence of sidewalks in residential neighborhoods in Ellisville generally correlates to the time of development. Older subdivisions and neighborhoods, like the Marshfield Acres, Cherry Hills West, Ranchmoor, and Ellisville Meadow, built in the 1950s, 1960s and 1970s, were constructed without sidewalks. The lack of sidewalks in these



Residential street with no sidewalk



Residential street with sidewalk



Sidewalk along a commercial corridor

subdivisions conformed to the values of the City’s residential population. With little traffic and fewer vehicles per household, pedestrians, bicyclists, and automobiles could share the roadway with little concern for potential conflict and accidents. As the number of cars per household grew, more daily trips increased traffic on residential streets, and the potential for conflict between automobiles and cyclists or pedestrians increased, worsening conditions for pedestrians.

Sidewalks were added to a number of these residential streets in the northwest quadrant of the City, including Froesel Drive, Marsh Avenue, and Maple Lane, greatly improving pedestrian safety and neighborhood connectivity to Ellisville Elementary.

Newer subdivisions developed in the 1980s and 1990s, like New Ballwin Estates, Woodhill Estates, the Oaks on Kiefer Creek, and Canterbury Estates, reflect the suburbanized character of development patterns of Ellisville and West County in general. The need for sidewalks for improved pedestrian safety and circulation was evident at the time of development, and sidewalks on both sides of the street were incorporated into the subdivision design. At that time, the City of Ellisville incorporated into the City’s subdivision regulations the requirement for 4-foot minimum sidewalks on both sides of the roadway, ensuring new development will enhance the pedestrian environment and link with existing facilities.

Sidewalks along commercial corridors are generally present, but the consideration, design, and maintenance of these facilities discourage pedestrians from walking to local destinations. While sidewalks are present along both sides of Manchester Road for the majority of the arterial’s 3.1-mile length in Ellisville, segments are fragmented by residential cross streets and an exorbitant number of curb cuts for access to commercial developments. Most of these curb cuts are not marked or signed to indicate a pedestrian crossing. These driveways disrupt the pedestrian realm and increase the risk for crashes between pedestrians and turning vehicles. In addition, the responsibility for the construction of sidewalks along Manchester Road has been left to each developer, creating a sidewalk network that varies from parcel to parcel. Sidewalk widths, distance from the roadway, the provision of shade trees, the number of curb cuts, the presence of crosswalk markings, and other design elements are inconsistent throughout.



Standard Crosswalk markings at Clarkson and Manchester intersection

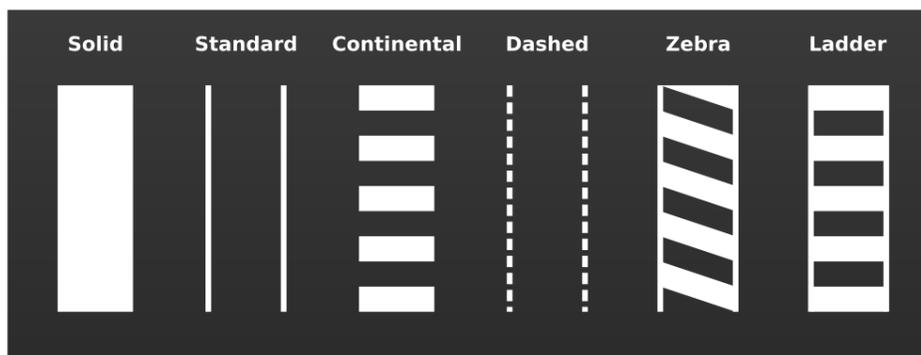


Continental Crosswalk markings on Hutchinson Rd. at the west entrance to Wren Trail

Pedestrian conditions on Clarkson Road are more consistent than on Manchester Road, but still suffer from a lack of separation between the sidewalk and the roadway, generally narrow sidewalk widths, and a considerable number of curb cuts and access points to adjacent commercial land uses. The design characteristics force pedestrians into unsafe and uncomfortable travel spaces, especially when traveling in groups, when encountering other sidewalk users traveling in the opposite direction, or when crossing access points for commercial destinations.

Crosswalks

Crosswalks are installed to define the pedestrian travel space on the roadway and reduce potential conflict between automobiles and pedestrians. Crosswalks in Ellisville are located at major intersections, at minor intersections with greater pedestrian traffic, and at mid-block locations to connect pedestrian facilities. These crosswalks contain a variety of roadway markings, signage and signalization to facilitate safe pedestrian movement and reduce potential conflict between pedestrians and automobiles. Of the utilized crosswalks commonly employed throughout the United States, which are displayed in the image below, the standard, continental and ladder crosswalks can be found throughout the City.



Typical Pedestrian Crossing Markings

Despite the presence of designated crosswalks in Ellisville, crossing principal arterials remains a significant impediment to pedestrian and bicycle mobility. Improving visual markings, adding signage, providing pedestrian refuge islands, and incorporating other design features to further demarcate the pedestrian travel way can reduce the risk of conflict and offer the sense of separation, safety and comfort that encourages pedestrian activity.



Klamberg Woods Trail



Pavement Deterioration at Mockingbird Trail

4.5 Existing Trails

A visual inventory and assessment of all existing multi-purpose pedestrian trails as well as the Bluebird Park fitness trail, was completed by the design team. The trails were inventoried in order to determine possible improvements and provide a basic understanding of issues that could affect trail replacement, phasing and costing.

The fitness trail in Bluebird Park is in poor condition. The asphalt surface is in a state of extreme deterioration and is completely missing in some areas. The fitness trail requires immediate attention which could involve a complete replacement or total removal. If the trail is eliminated, the fitness stations along the trail could be relocated alongside multi-purpose walking trails in the park.

Existing multi-purpose trail conditions are identified and categorized into three classes; Immediate Action, Short Term Action and Long Term Action. These classifications should act as a preliminary guide for the City as they complete a detailed review of trail conditions. Trail condition, trail prominence and trail usage should guide the City as they allocate improvement funds. Definitions of the classes are described below.

Immediate Action. The design team feels these types of trail conditions have deteriorated the existing trail beyond its intended function. These conditions are of major importance and should be addressed as soon as possible. (Examples: uneven pavement, trail washout, large cracks.)

Short Term Action. The design team feels these types of trail conditions are of moderate concern. Trail segments labeled with this designation are in fairly stable condition. There may be minor cracking, settling or erosion issues that could cause problems in the future, but immediate action is not required. A one to five year time frame for improvement/replacement is appropriate for this type of trail condition. (Examples: minor cracking, pavement heaving, minor erosion on trail edges.)

Long Term Action. The design team feels these types of trail conditions are not of immediate or short term concern. These trail segments are in good condition and need little to no improvement. Newly installed trails fall into this category. (Examples: little to no cracking, level surfaces, 8' wide asphalt or greater, stable base materials.)



Woodpecker Trail

The multi-purpose trail inventory is reflected in the maps on the following pages. A map was created for each existing multi-purpose trail within Ellisville's current trail system. They include:

- Owl Hollow Trail
- Wren Trail
- Hummingbird Trail
- Quailwood Trail
- Cardinal and Mockingbird Trail
- Woodpecker Trail
- Bluebird Park Trail/Klamberg Woods Trail/Whipoorwill Trail

Owl Hollow Trail EXISTING TRAIL CONDITIONS

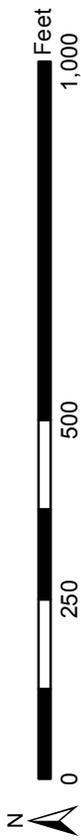


- Long Term Action
- Short Term Action
- Park
- Low Spot/ Poor Drainage
- + Narrow Trail Section



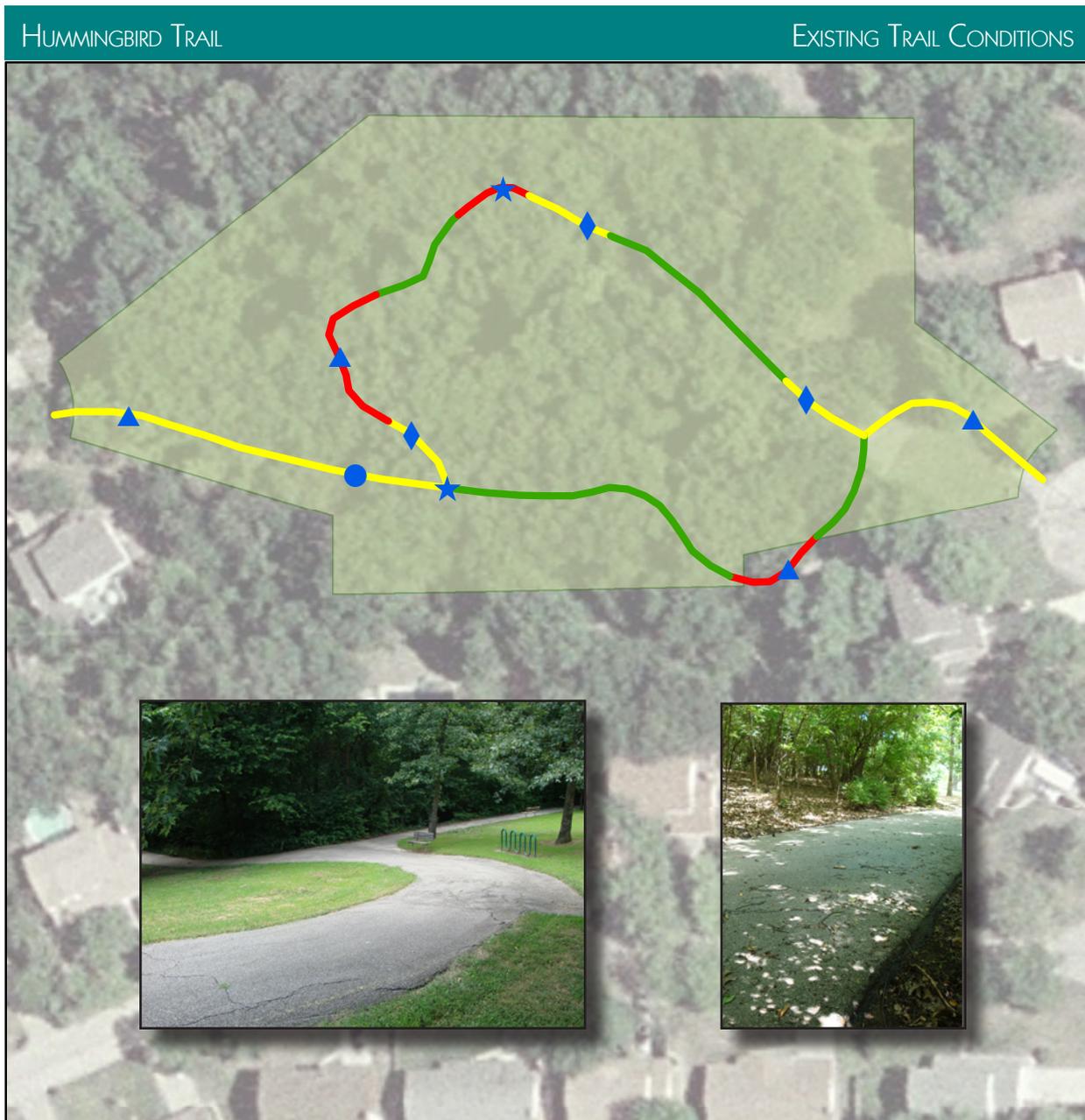
EXISTING TRAIL CONDITIONS

WREN TRAIL

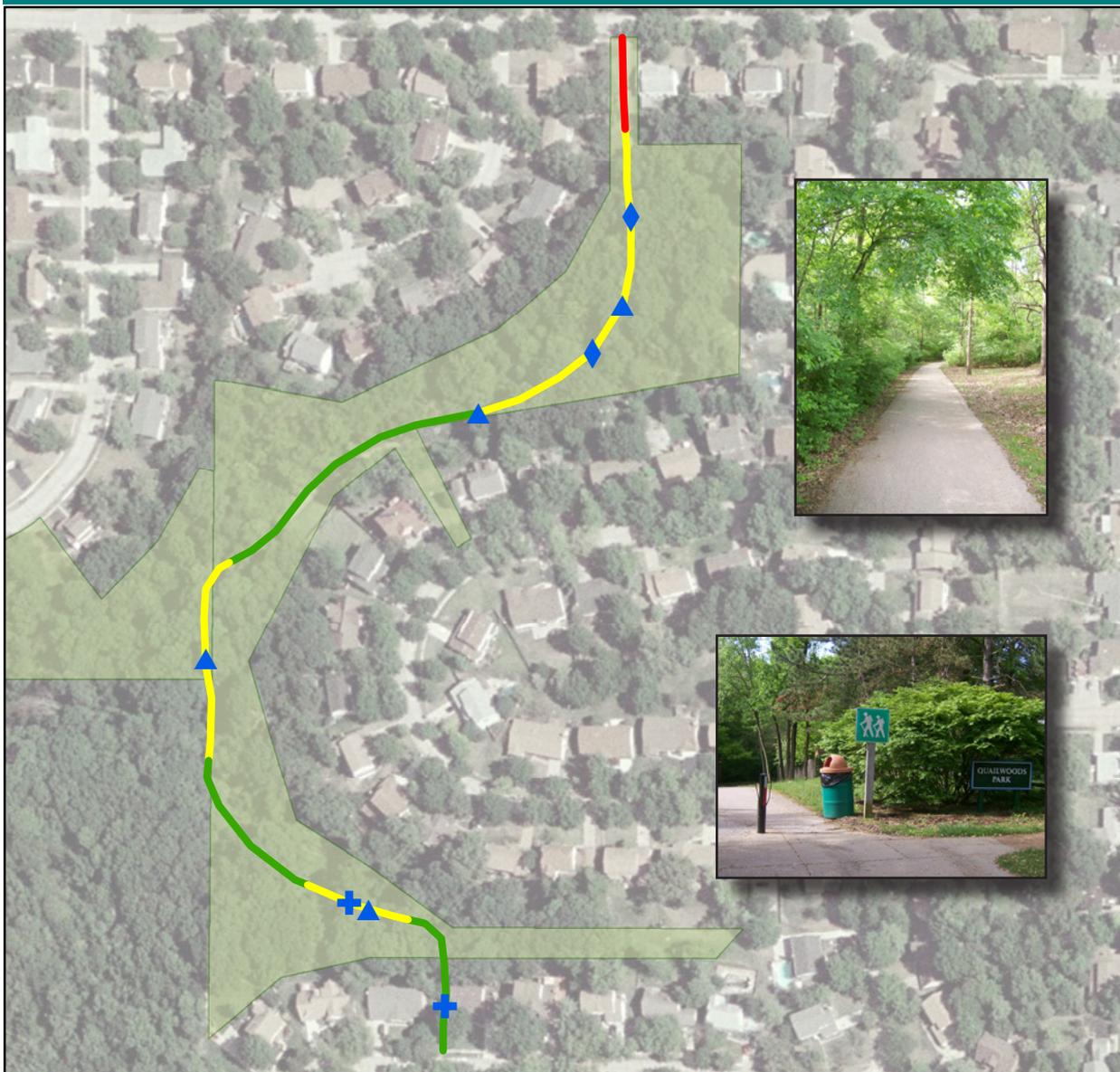


- █ Immediate Action
- █ Long Term Action
- █ Short Term Action
- ★ Extreme Cracking or Ridges
- ◆ Pavement Heave
- Condo Property - Not Maintained by City





QUAILWOOD TRAIL EXISTING TRAIL CONDITIONS



- Immediate Action
- Long Term Action
- Short Term Action
- Park
- ▲ Erosion Issue
- + Narrow Trail Section
- ◆ Pavement Heave

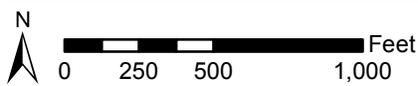
CARDINAL/MOCKINGBIRD TRAIL EXISTING TRAIL CONDITIONS



- Immediate Action
- Long Term Action
- Short Term Action
- Park
- ▲ Erosion Issue
- Low Spot/ Poor Drainage
- + Narrow Trail Section
- ◆ Pavement Heave



BLUEBIRD TRAIL/KLAMBERG WOODS TRAIL/WHIPOORILL TRAIL EXISTING TRAIL CONDITIONS



- | | |
|--|--|
| — Immediate Action | ▲ Erosion Issue |
| — Long Term Action | ★ Extreme Cracking or Ridges |
| — Short Term Action | ● Low Spot/ Poor Drainage |
| Park | + Narrow Trail Section |



4.6 Recent and Ongoing Plans and Studies

A number of local, regional and state planning documents and studies have the potential to impact bicycling and walking conditions in and around the City of Ellisville. These documents are outlined in this section of the report to highlight precedents, constraints and opportunities in the development of bicycle and pedestrian infrastructure and programming. The following documents have been analyzed for content relating to the Bikeable Walkable Community Plan:

- City of Ellisville Comprehensive Plan Update (2009)
- St. Louis Regional Bicycling and Walking Transportation Plan (2005)
- Community Wide Trail System Plan for the Cities of Ballwin and Manchester, Missouri (2007)
- The City of Wildwood Mobility and Access Plan (2007)
- The City of Chesterfield Bikeable Walkable Community Plan (2010)
- St. Louis Bicycle Master Plan (Current)
- Manchester Road Great Streets Initiative (Current)

City of Ellisville Comprehensive Plan Update (April 2009)

In 2009, the City of Ellisville adopted a comprehensive plan update to guide future growth and development in a manner that reflects the priorities and values of the City, with attention paid to land use, economic development, traffic circulation, community facilities, parks and recreation, and infrastructure. A number these components in this plan relate directly or indirectly to bicycle and pedestrian mobility, as described below.

Land Use Element

This component of the plan addresses concerns related primarily to commercial development along arterial corridors in the City, its impact on traffic circulation and adjacent residential neighborhoods, as well as the preservation and enhancement of existing natural landscapes.

Goal: Improve the City's high quality of life by providing for the proper distribution, location and extent of land uses by type and density.

Land use patterns, particularly the nature and form of commercial development, as well as the connections between residential land uses and commercial, recreational, and institutional uses, have a significant impact on bicycle and pedestrian circulation. The goals and objectives in the land use



element of the Comprehensive Plan stress the importance of commercial development and redevelopment along arterial corridors in a manner that improves traffic circulation and enhances connections to adjacent residential neighborhoods, both of which will benefit non-motorized transportation.

Traffic Circulation Element

This component of the plan examines existing transportation systems with the purpose of identifying deficiencies, projecting future need, and identifying alternative transportation options. Attention is paid to the current level-of-service for vehicular traffic on arterials and major collectors, automobile accident hot spots, and existing transit service. The following goals and objectives relate to walking and bicycling in the City of Ellisville:

Goal: To improve the safe, efficient and reasonably convenient traffic system providing a variety of transportation modes.

Objective: Traffic impacts of future land uses on major streets need to be considered carefully in development review and approaches.

Objective: Additional signalized intersections will be provided including the intersection of Manchester and Reinke Roads.

Objective: Traffic calming strategies should be implemented on selected local streets in the City.

Objective: The use of interconnected parking areas between adjacent commercial developments shall be used to facilitate safe traffic movements.

Objective: Pedestrian circulation will be enhanced through installation of sidewalks in appropriate locations.

These goals and objectives have a significant impact on the form and function of public rights-of-way and adjacent land uses. Improving pedestrian connections through sidewalk improvements in appropriate locations, calming traffic on local collectors and neighborhood streets, and reducing the number of turning movements into businesses along principal arterials will help create safer, more connected network of non-motorized transportation facilities throughout Ellisville.

In addition to these goals and objectives, the traffic circulation element of the plan also encourages the installation of sidewalks along Strecker Road and Marsh Avenue to in order to facilitate pedestrian circulation.

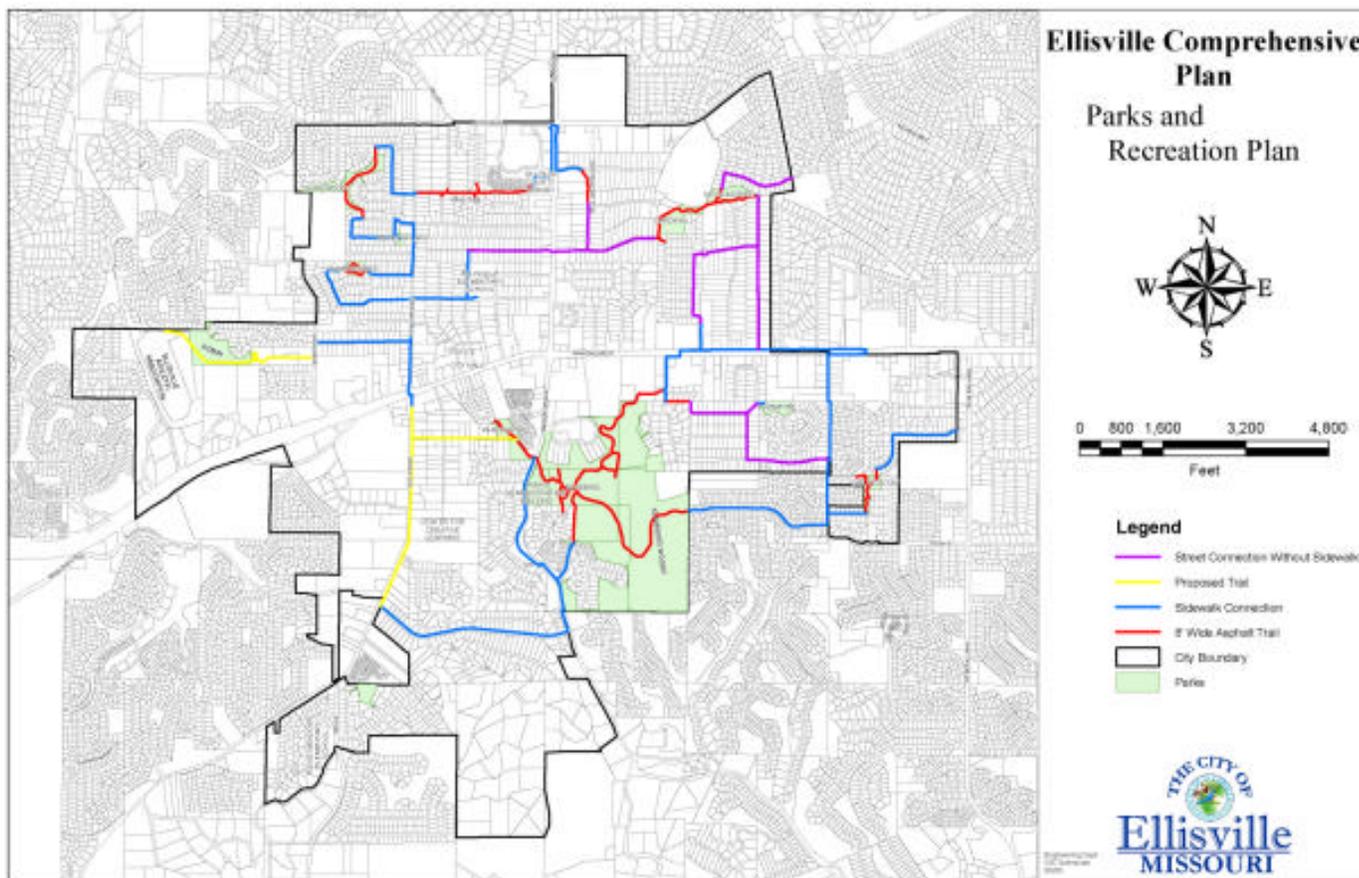


Parks and Recreation Element

This element of the plan examines existing conditions for park facilities, as well as recreational programs and events. The City’s seven-kilometer trail system is highlighted as a significant asset to community residents. Focus on improving active and passive recreation opportunities lies at the heart of this section, with the following goal and objective related specifically to bicycling and walking:

Goal: A comprehensive recreational program will be provided for all residents of the City.

Objective: The City’s excellent trail system shall be repaired, expanded and promoted.



Many of the City’s current trails are located on easements on property not owned by the City, which creates difficulties in both maintenance and long-term preservation. This section of the plan also indicates the City’s desire



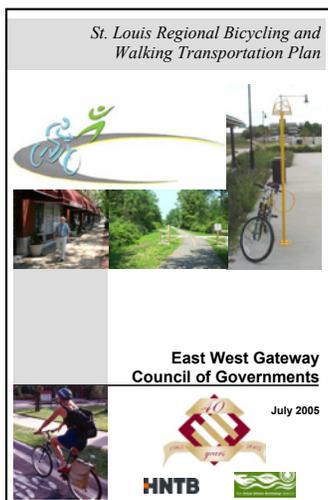
to own the property on which future trails will be developed, including the proposed trail from Strecker Road westward into Robin Park. The Parks and Recreation Plan map, pictured below, identifies current connections between parks by facility type, which include “street connection without sidewalks”, “proposed trail”, “sidewalk connection”, and “8-foot wide asphalt trail”.

The connections highlighted on the plan map identify significant gaps in the bicycle and pedestrian network, indicated by “street connection without sidewalk” segments. These segments are located on Marsh Ave, Hilltop Drive, Bridgeport Drive, Providence Road, Flesher Drive, Lemar Drive, Ranchmoor Trail, Klamberg Lane, Tulip Lane, East Meadow Lane, and Barbara Ann Lane. Sidewalks provide dedicated space not only for pedestrians, but also for child and casual adult cyclists – categorical cyclist groups that often lack the skills, confidence and experience to safely travel on the roadway, especially in the presence of moderate to heavy traffic volumes and speeds.

St. Louis Regional Bicycling and Walking Transportation Plan (July 2005)

Developed as an outgrowth of the region-wide transportation plan, Legacy 2030, the St. Louis Regional Bicycling and Walking Transportation Plan serves as a “how-to and when-to” resource for local communities as that desire to plan, design and develop bicycle and pedestrian facilities. Included in the document are survey results regarding municipal consideration of bicycle and pedestrian facilities, survey results relating to bicycle and pedestrian activity throughout the region, sample bicycling and walking suitability systems, which determine the capacity of existing facilities to serve cyclists and pedestrians, model ordinances for bicycle support facilities, marketing and education facts and information, and a summary of funding sources available for bicycle and pedestrian improvements.

The focus on tools and resources instead of recommendations for the development priority bicycling and walking corridors shifts the development of facilities to county and municipal governments, as well as special taxation districts like Great Rivers Greenway District and Metro East Parks and Recreation District, both of whom develop multi-use trails throughout the region. As such, coordination between various entities will be required to ensure that regional considerations are addressed in local planning, design and development efforts. As a result of this plan, Trailnet began its Bikeable Walkable Communities Program, partnering with local bicycle and





pedestrian experts and utilizing federal funding through the Transportation Enhancements Program, to develop local plans for municipalities throughout the region.

Community Wide Trail System Plan for the Cities of Ballwin and Manchester, Missouri (Oct. 2007)

A number of municipalities in West St. Louis County have developed trail plans and bicycle and pedestrian plans to create long-term strategies for improving conditions for non-motorized transportation and recreation. In 2007, Ballwin and Manchester completed the Community Wide Trail System Plan that identifies opportunities for the development of multi-purpose trails and on-street bicycle treatments that would create an interconnected network of facilities to improve access to local amenities and destinations within the two communities.

The plan also recommends connections to neighboring communities, including Ellisville. The following recommended on-street bicycle routes and multi-use greenway trails would connect to the City of Ellisville:

Segment	Facility Type	Limits	Description
Providence Road	Recommended Bike Route	Clayton Road to City Limits (Ellisville)	Neighborhood route connecting to Clayton Road bike lanes, Westridge Elementary, and the City of Ellisville.
Fish Pot Greenway	Recommended Multi-Purpose Trail	City Limits (Ellisville) to City Limits (approaching Meramec Greenway)	Connects Ballwin, Manchester and Ellisville, to Manchester Road and, regionally, to the Meramec Greenway.
Kiefer Creek Road	Recommended Share the Road Signage	City Limits (Ellisville, west of Richland Meadows Dr.)	Provides scenic connection along Kiefer Creek. Route already heavily used by recreational cyclists.
Buckhurst Drive	Recommended Bike Route	Northern terminus at Klamberg Woods CA to Richland Meadows Dr	Neighborhood route connecting residents to Klamberg Woods CA and Bluebird park in Ellisville
Oakwood Farms Lane	Recommended Bike Route	Western terminus at Klamberg Woods CA to Reinke Rd	Neighborhood route connecting residents to Klamberg Woods CA and Bluebird park in Ellisville
Reinke Road	Recommended Bike Route	Oakwood Farms Ln to New Ballwin Rd	Segment of a larger east-west route that parallels Manchester Road
Manchester Road	Planned Share the Road Signage	City Limits (Ellisville) to City Limits (east)	Regional route
Hillsdale Drive	Recommended Bike Route	West Skyline Drive/ Fish Pot Creek to southern terminus (Ellisville city limits at Manchester Road	Neighborhood route that connects Ballwin residents to Ellisville, Manchester Road, the planned Fish Pot Greenway, and Westridge Elementary



City of Chesterfield Bikeable Walkable Community Plan (Feb. 2010)

In early 2009, the City of Chesterfield partnered with Trailnet to develop a master plan to address bicycle and pedestrian transportation. Completed in early 2010, the Chesterfield Bikeable Walkable Community Plan identifies a number of bicycle and pedestrian improvements that have the potential to connect to Ellisville. Although separated by the City of Clarkson Valley, Ellisville and Chesterfield are less than a mile apart. Two recommended routes and one existing route will provide connectivity between the two municipalities:

Segment	Facility Type	Limits	Description
Clarkson/Olive	Planned Bike Lane	City Limits (Creve Coeur) to City Limits (Clarkson Valley)	This 7.3-mile bikeway is currently underutilized because of traffic volume and speeds and the lack of a dedicated bicycle facility with a continuous design. The addition of bike lanes to Olive and Clarkson Road would allow greater connectivity to local commercial activity and would provide a regional route to link to adjacent communities and significant destinations.
Kehrs Mill Road	Planned Share the Road Signage	Wild Horse Creek to City Limits (Ballwin)	Kehrs Mill Road is a commonly used bikeway in the City of Chesterfield. The addition of Share the Road signage will alert motorists to expect cyclists traveling on the roadway and adjust their driving behavior accordingly.
Clayton Road	Existing Bike Lane	City Limits (Town and County) to City Limits (Ballwin, Clarkson Valley)	Clayton road is one of the most heavily used east-west bikeways connecting West St Louis County to inner-ring suburbs, and ultimately the City of St. Louis. Bike lane treatments were added to segments of Clayton Road between Clarkson and Highway 141 when the road was redesigned by MoDOT in 2008.

The City of Wildwood Mobility and Access Plan (2007)

The City of Wildwood is well known for its extensive network of multi-purpose trails. Connecting residential neighborhoods with schools, parks, commercial destinations, regional greenways, and other local points of interests, the trail network is heavily used by Wildwood residents and



visitors from neighboring communities. In 2007, Wildwood adopted the Mobility and Access Plan to identify and prioritize improvements to address gaps in the non-motorized transportation system. A number of these recommended facilities, if developed, will connect the City of Ellisville to Wildwoods trail, sidewalk and bikeway network. These facilities are listed in the table below:

Segment Name	Limits	Priority	Destination
State Route 100	From City Limit (Ellisville) to City Limit (Franklin County)	1	There exists multiple use trails on both sides of portions of State Route 100. Recommend construction of additional trails both east and west to the city limits. These trails will serve as the major east-west spine for the City's system.
Great Rivers Greenway property (Rock Hollow)	Al Foster Memorial Trail to Old State Road and also Meadow Ridge Drive (Mac Acres Subdivision)	1	Rock Hollow Trail could Link Al Foster Memorial Trail, Ridge Meadows Elementary School, and the City of Ellisville.
Ridge Road	Old State Road/ Ridge Meadow Elementary School to St. Paul Road	1	Potential connections to Wolf Trail, Ridge Meadow Elementary School, Sherman Beach County Park, and the Al Foster Trail/ Meramec Greenway.
Clayton Road	State Route 109 to eastern City Limits (Ellisville)	1	Popular bike route has lanes in some sections
Old State Road	State Route 109 to eastern City Limits (Ellisville)	2	Connects to Glencoe Park, Hamilton-Carr Trail, Ridge Meadows Elementary School, into the City of Ellisville
Valley Road	Strecker Road to Clayton Road (southern City Limits at Ellisville)	2	Connects Crestview Junior High School, nearby neighborhoods, and is a good north-south connector in this area.

Linking Ellisville's bicycle and pedestrian network to these planned corridors ensures regional connections made and will afford Ellisville residents access to Wildwood's trail network and additional recreational amenities.

St. Louis Bike Master Plan (Current)

Great Rivers Greenway District is currently developing a bicycle master plan for the City of St. Louis, St. Louis County, and St. Charles County. The plan will examine the existing transportation network and identify improvements along arterial roads in within these three jurisdictions. The plan will help create standard design treatments for arterial bikeways throughout the St.



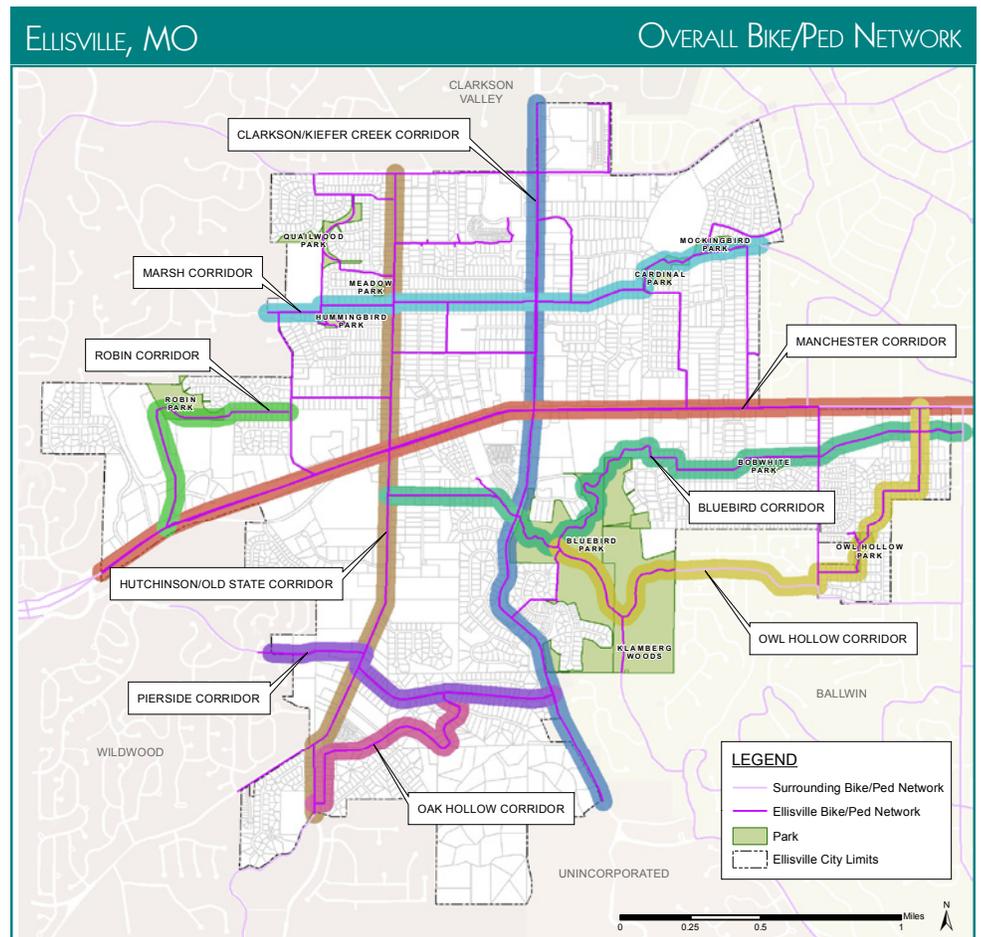
SECTION 5.

Recommended Improvements

The facility improvements in the Ellisville Bikeable Walkable Communities Plan are designed to: 1) enhance the City’s transportation networks, 2) create a safe and pedestrian friendly infrastructure for community connectivity, 3) promote improved health and well being of City residents, 4) generate economic growth for residents and businesses, and 5) foster an enhanced sense of community.

The recommended infrastructure improvements and facility design guidelines for bicycle and pedestrian facilities are derived from the data collection, analysis, and public input process. They are based on the goals, vision, and policies established for the project and they reflect the input garnered from the public, City staff and City leadership. The plan and guidelines delineate bicycle and pedestrian facility components that will facilitate the development of a sophisticated transportation network for its citizens.

The map below defines the major corridors of facility improvements within the City. The overall facilities recommendations and guidelines that follow address all aspects of improved facilities including: bicycle facilities, pedestrian facilities, recommended signage, and recommended programs.





5.1 Bicycle Facilities

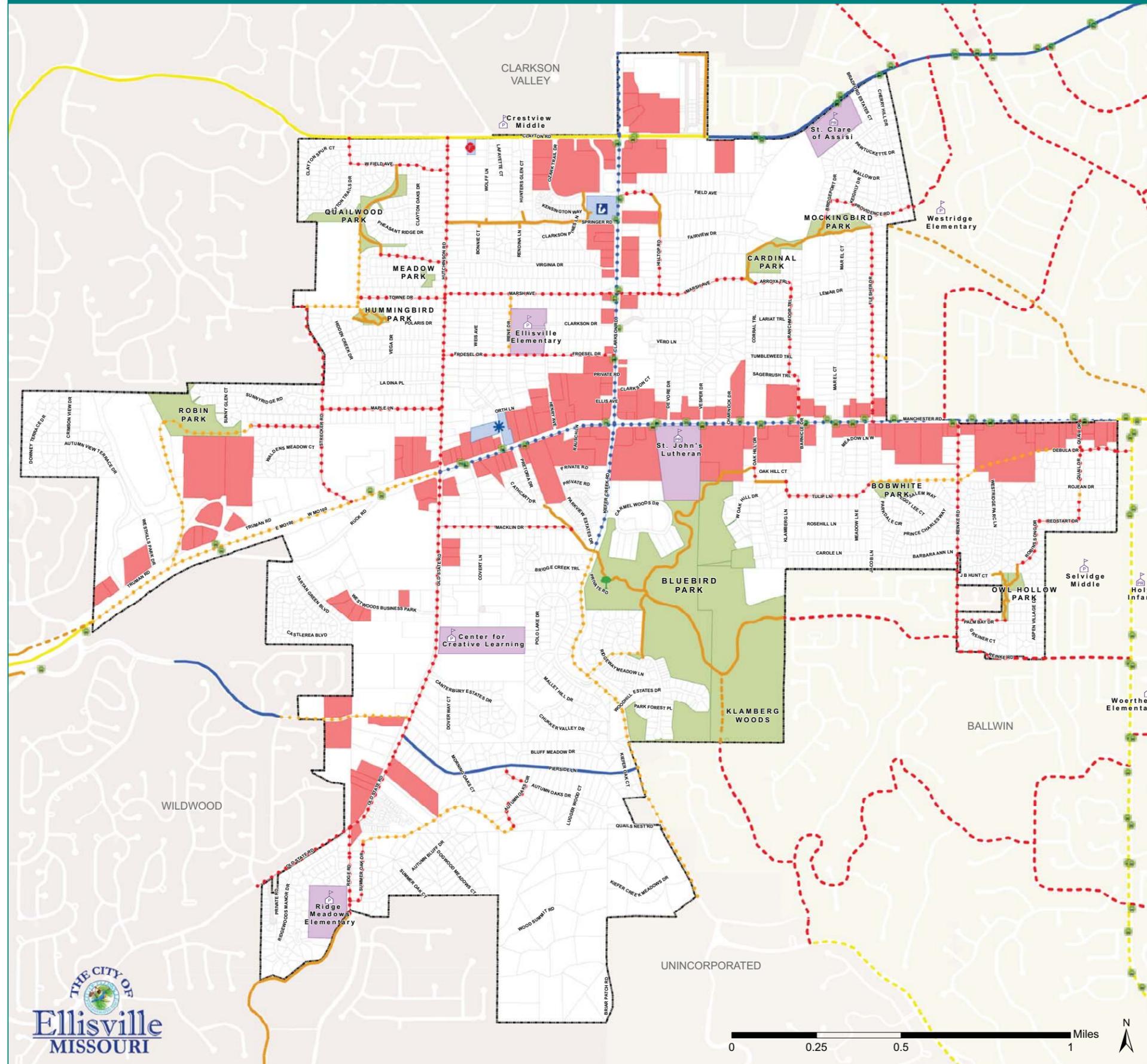
A safe, accessible, and interconnected network of bicycle facilities provides the foundation for a bikeable community. Signed bike routes, bicycle lanes, multi-purpose trails, and other bicycle facilities provide secure connections to parks, schools, transit stops, regional trail systems, commercial destinations, and other activity centers. Having a mix of facility types throughout the City ensures that bicycle riders of all ages and abilities, from advanced commuter and recreational cyclists to less experienced child riders, have the opportunity to access local amenities and connect to regional bicycle networks using routes that are safe, comfortable and convenient. The following pages contain recommended facilities, guidelines, and maps depicting a number of distinctive components that together make up the bicycle network. Varying roadway types, geography, and other existing conditions call for different types of bicycle facilities. In addition, a variety of bicycle facilities allow for a diversity of users.

Multi-Purpose Trails - Class I Facilities. The orange dotted lines on the recommendation map represent recommended multi-purpose trails, which provide off-street opportunities for recreational and transportation oriented cyclists. They also connect neighborhoods where cul-de-sacs and dead end streets have restricted bicycle and pedestrian mobility.

Bike Lanes - Class II Facilities. The blue dotted lines on the recommendation map represent recommended bicycle lanes, which are segregated travel lanes on the roadway reserved for use by cyclists.

Bike Routes - Class III Facilities. The red dotted lines on the recommendation map represent recommended signed shared roadways, more commonly referred to as bicycle routes. Bike routes designate preferred corridors for cyclists, provide linkages between trails, bicycle lanes, and other facilities, and help create an interconnected network for cyclists to efficiently travel through town. In some instances, bike routes, designated by green "Bike Route" signs, are supplemented by additional design treatments, including shared lane markings, share the road signage, and other innovative solutions, to enhance the safety and efficiency of the route network.

Recommended facilities, combined with existing facilities which are shown as solid lines on the recommendation map, form a complete and contiguous bicycle network.



LEGEND

- Fire Department
- Parks Administration Building
- Ellisville City Hall - Police - EMS
- St. Louis County Library- Daniel Boone Branch
- Public School
- Private School
- Bus Stop
- Civic Property
- School Property
- Park
- Commercial
- Ellisville City Limits

Existing

- Multi-Use Trail - Class I
- Bike Lane - Class II
- Share the Road Signage

Planned

- Multi-Use Trail - Class I
- Bike Route - Class III
- Share the Road Signage

Recommended

- Multi-Use Trail - Class I
- Bike Lane - Class II
- Bike Route - Class III





Multi-Use Trail - Class I Bicycle Facility

A Multi-Use Trail, also referred to as a Shared-Use Path, is a bikeway physically separated from motorized vehicular traffic by an open space or barrier located within the highway right-of-way or within an independent right-of-way. Multi-Use Trails may also be utilized by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. Generally, Multi-Use Trails should be used to serve corridors not served by streets and highways or where wide easements or rights-of-way exist, permitting such facilities to be constructed away from the influence of parallel streets. Multi-Use Trails should offer opportunities not provided by the road system. They can provide a recreational opportunity or, in some instances, can serve as direct commute routes if cross flow by motor vehicles and pedestrians is minimized. There may be situations where such facilities can be provided as part of planned developments. Another common application of a Multi-Use Trail is to close gaps in bicycle travel caused by construction of cul-de-sacs, dead end streets, railroads and major roadways or to circumvent natural barriers. Multi-Use Trails should be designed with safety for all types of users in mind, including pedestrians, joggers, dog walkers, people pushing strollers, and others likely to use the path.

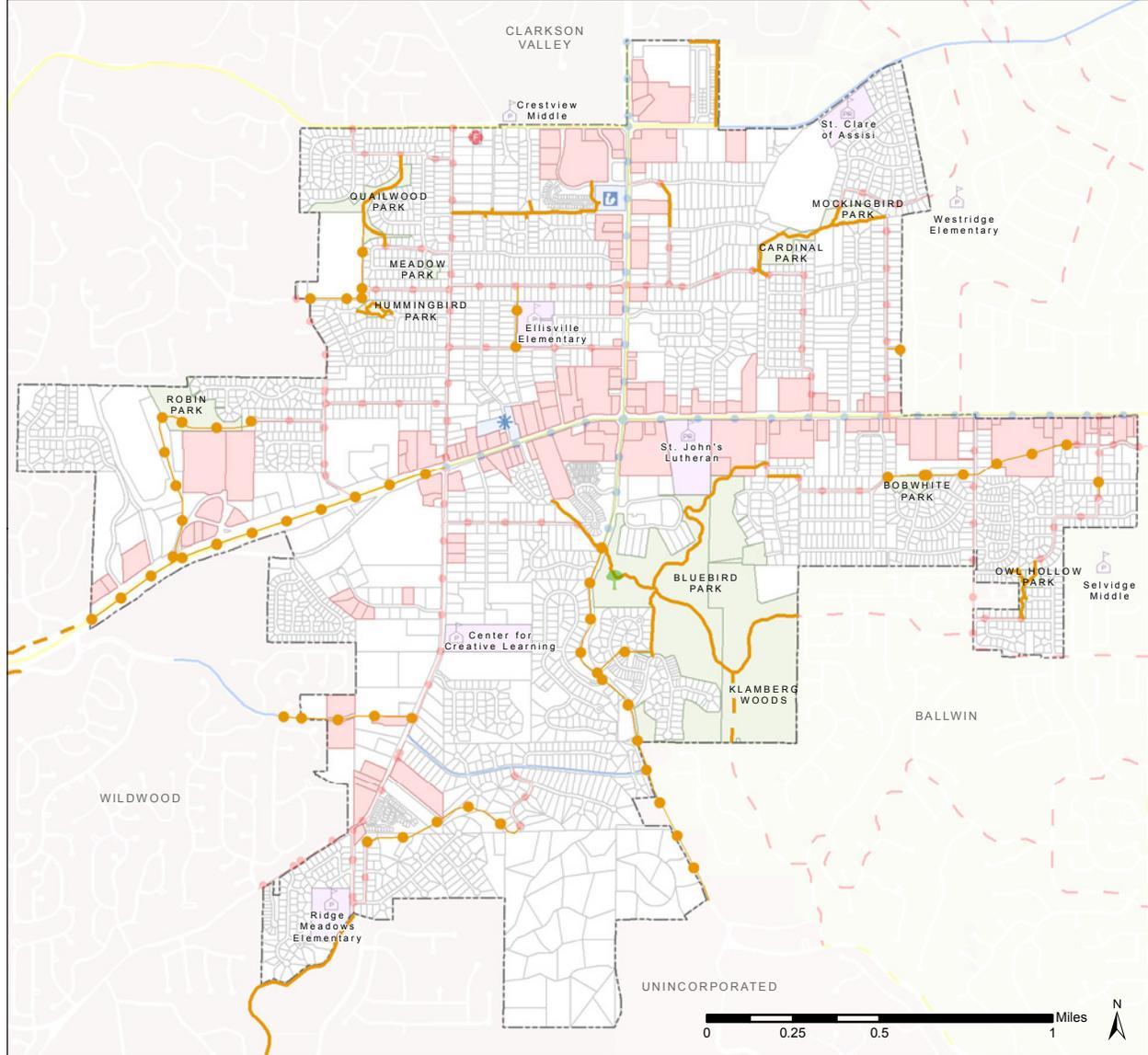
The map on the next page depicts the recommended Class I Facilities.



Class I Facility: Roller Blader on Grant's Trail in St. Louis MO



BICYCLE FACILITIES CLASS I - MULTI-USE TRAIL



**Class I Facilities
Multi-Use Trail**

- Existing
- - - Planned
- Recommended

Other Facilities

- Existing Class II - Bike Lane
- Existing Share the Road
- - - Planned Class III - Bike Route
- - - Planned Share the Road
- Recommended Class II - Bike Lane
- Recommended Class III - Bike Route

- ◆ Fire Department
- ◆ Parks Administration Building
- ◆ Ellisville City Hall - Police- EMS
- ◆ St. Louis County Library
- ◆ Private School
- ◆ Public School
- Civic Property
- School Property
- Park
- Commercial
- Ellisville City Limits

Bike Lane - Class II Bicycle Facility

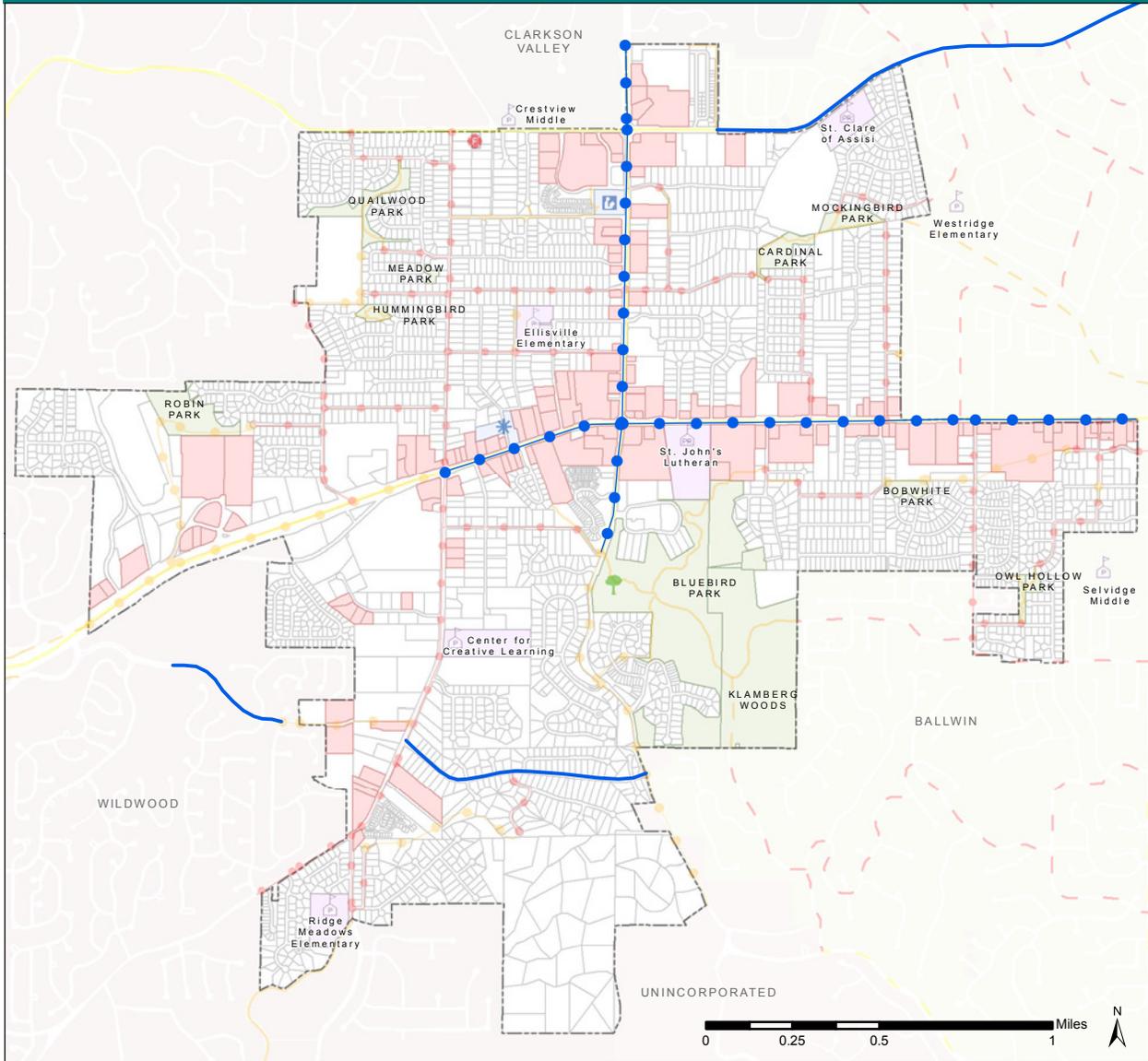
A Bike Lane is a portion of a roadway designated for the preferential or exclusive use of bicyclists by striping, signing and pavement markings. Bike lanes are intended to delineate the right of way assigned to bicyclists and motorists and to provide for more predictable movements by each. Bike lanes also help increase the total capacities of roadways carrying mixed bicycle and motor vehicle traffic. Another important reason for constructing bike lanes is to better accommodate bicyclists where insufficient space exists for comfortable bicycling on existing streets. This may be accomplished by reducing the width of vehicular lanes or prohibiting on-street parking to delineate bike lanes. In addition to striping, signing, and markings, other measures should be taken to ensure that bike lanes are effective facilities. In particular, bicycle-safe drainage inlet grates should be used, pavement surfaces should be smooth, and traffic signals should be responsive to bicyclists.

The map on the next page depicts the recommended Class II Facilities.



Class II Facility: Bicyclist using on-roadway designated bike lane

BICYCLE FACILITIES CLASS II - BIKE LANE



**Class II Facilities
Bike Lane**

- Existing
- Recommended

Other Facilities

- Existing Class I - Multi-Use Trail
- Existing Share the Road
- - - Planned Class I - Multi-Use Trail
- - - Planned Class III - Bike Route
- - - Planned Share the Road
- Recommended Class I - Multi-Use Trail
- Recommended Class III - Bike Route

- Fire Department
- Parks Administration Building
- * Ellisville City Hall - Police- EMS
- B St. Louis County Library
- P Private School
- S Public School
- Civic Property
- School Property
- Park
- Commercial
- Ellisville City Limits

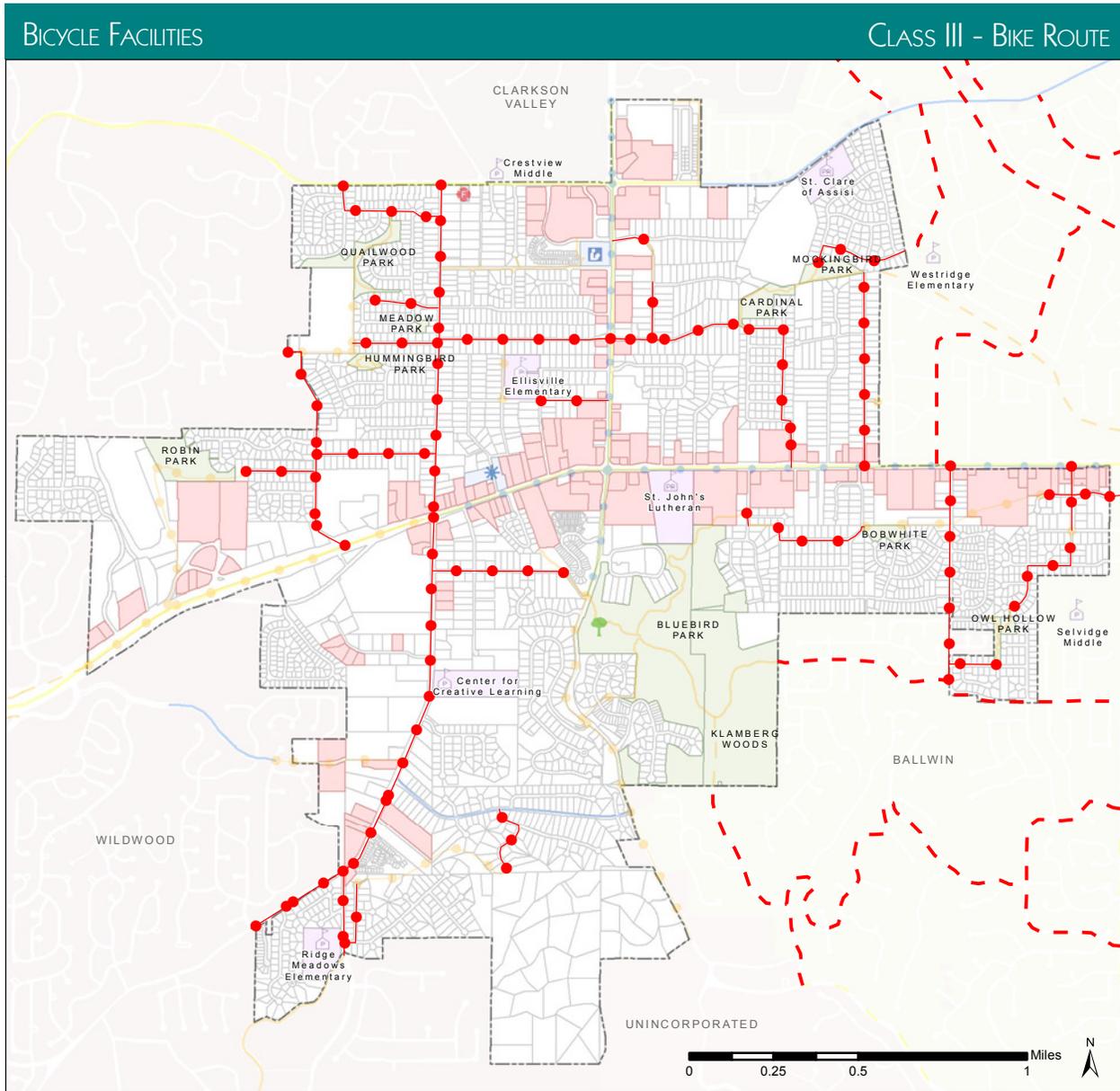
Bike Route - Class III Bicycle Facility

A Bike Route (Signed Shared Roadway) is a roadway designated by the jurisdiction having authority over the route. It has appropriate directional and informational route markers, with or without specific bicycle route numbers, in order to identify preferred bicycle routes and to provide continuity to other bicycle facilities. Bike Routes are most commonly designated by “Bike Route” signage, which can also incorporate directional and wayfinding signage to help users reach local destinations. Bike Routes should establish a continuous routing of the overall bicycle trail system. In some instances, a community’s existing street system may be fully adequate for efficient and safe bicycle travel. Road conditions make striping and signage for bicycle use unnecessary even without the presence of widened curb lanes or wide shoulders. These designated routes are suitable for bicycle travel at present, are low-demand corridors and are considered appropriate for bicycle travel. Other roads may need additional modifications or enhancements, such as shared lane markings or “Bicyclists May Use Full Lane” signage, in order to create safe and efficient facilities for cyclists.

The map on the next page depicts the recommended Class III Facilities.



Class III Facility: Bike Route Signage in Riverside, IL



Class III Bike Route

- - - Planned
- Recommended

Other Facilities

- Existing Class I - Multi-Use Trail
- Existing Class II - Bike Lane
- Share the Road Signage
- Planned Class I - Multi-Use Trail
- Planned Share the Road
- Recommended Class I - Multi-Use Trail
- Recommended Class II - Bike Lane

- Fire Department
- Parks Administration Building
- * Ellisville City Hall - Police- EMS
- St. Louis County Library
- ⌘ Private School
- ⌘ Public School
- Civic Property
- School Property
- Park
- Commercial
- ⌘ Ellisville City Limits



Shared Lane Markings



Shared Lane Signage

Two enhancements to the traditional Bike Route facilities are being recommended for the City of Ellisville. They are “Bike Boulevards” and “Shared Lane Markings”. These additional enhancements are further described on the following pages.

Additional Enhancements to Bike Route - Class III Facilities

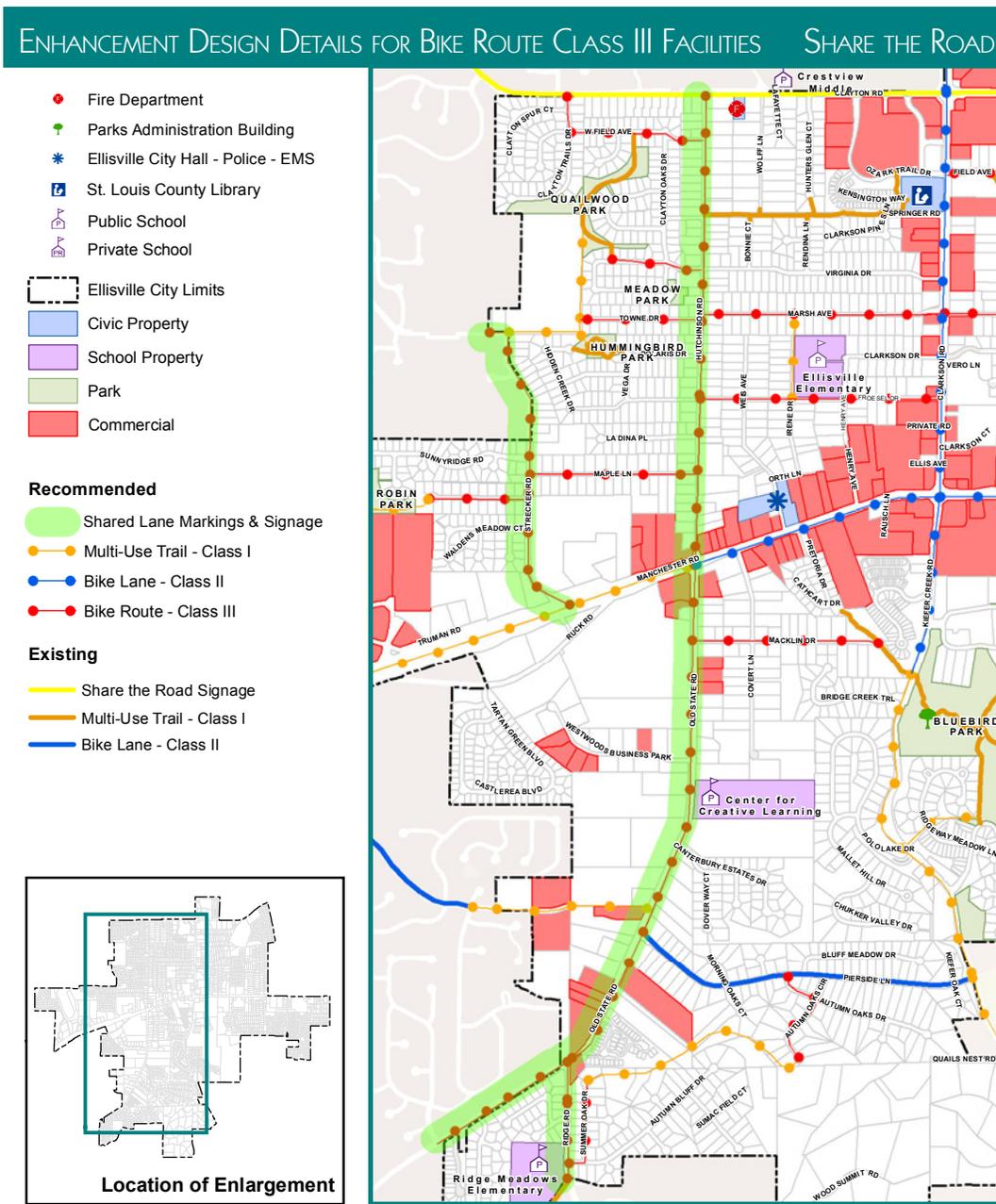
Additional recommended enhancements to Class III Facilities include: Shared Lane Markings, Shared Lane Signage, and Bike Boulevards. The following pages describe these enhancements and depict their recommended locations within the proposed facilities.

Shared Lane Markings. Shared lane markings, or “sharrows”, are pavement markings applied to a traffic lane to indicate the bicyclist’s preferred path of travel when sharing lanes with motor vehicle traffic. Shared lane markings help reduce the chance of collision between cyclists and open doors of parked cars on roads that allow on-street parking. They encourage safe passing of bicyclists by motorists and reduce the incidence of wrong-way bicycling. They provide an additional indicator to motorists to be aware of bicyclists on the roadway. Shared lane markings can supplement bike route signage to provide an additional level of safety and comfort for cyclists on roads with narrow outside travel lanes, on-street parking, and other physical constraints that prevent the installation of bicycle lanes.

Shared Lane Signage. “Share the Road” signage is used to warn motorists of the presence of cyclists on roadways commonly used by cyclists. These signs can be seen in Ellisville on Manchester and Clarkson Roads, which are not designated bicycle facilities, but are commonly used by advanced commuter and recreational cyclists. While not a facility type in and of itself, “Share the Road” signage can be used to alert motorists of potential bicycle traffic and to enhance safety for all road users, whether on a designated bicycle facility or on an undesignated roadway. “Share the Road” signs should be on roadways which are open to both bicycle and motor vehicle travel. They may be on an existing roadway or street with wide curb lanes, or on a road with paved shoulders. Signed “Share the Road” bikeways serve to provide continuity to other bicycle facilities or to designate preferred routes through high-demand corridors. Signing of “Share the Road” bikeways should indicate to bicyclists that particular advantages exist to using these routes compared with alternative routes. This



means that responsible agencies have taken actions to assure that these routes are suitable as shared routes and will be maintained in a manner consistent with the needs of bicyclists. Signing also serves to advise vehicle drivers that bicycles are present.





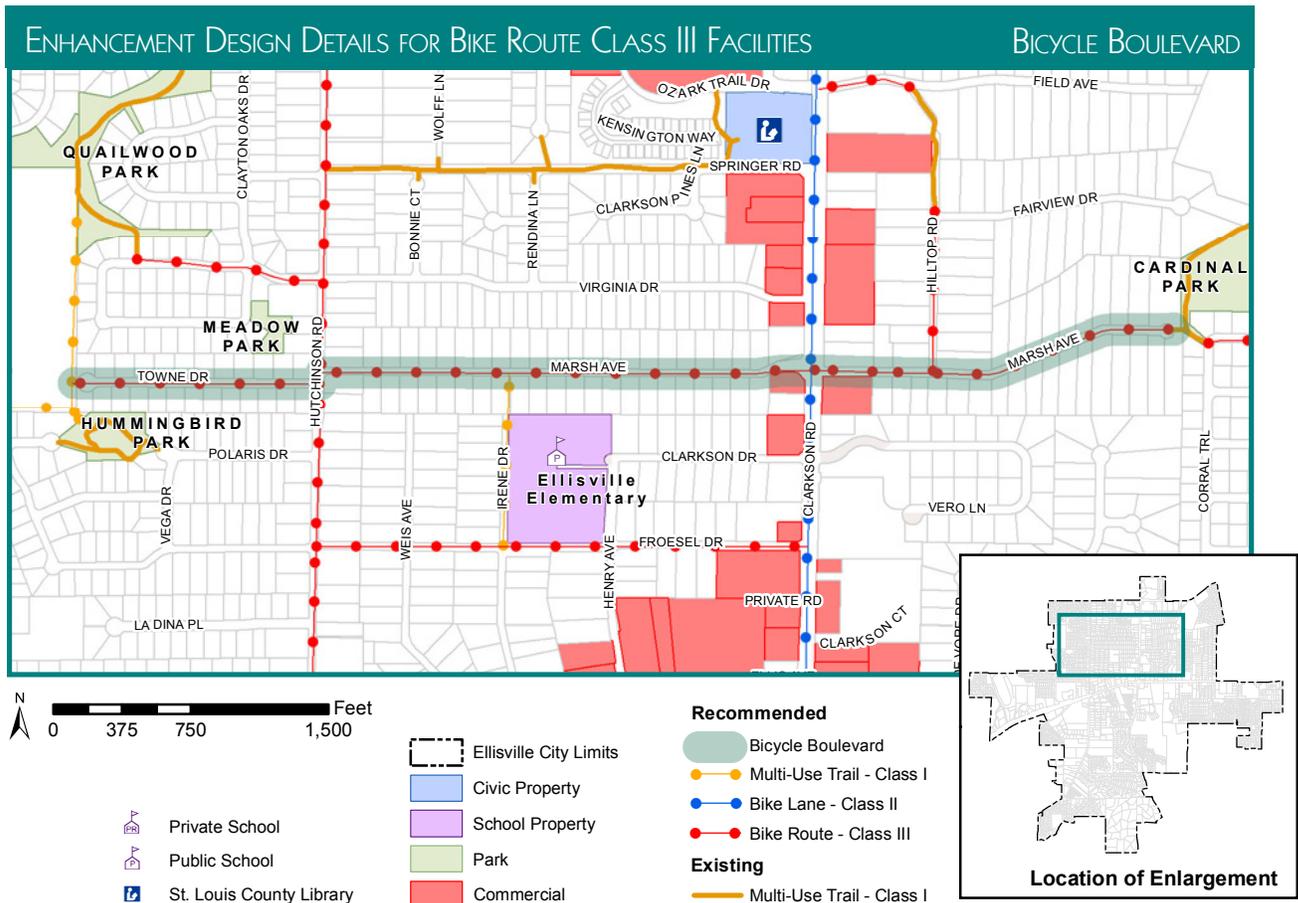
Morro Street Bike Boulevard, San Luis Obispo, CA



Channing Street Bike Boulevard, Berkeley, CA

Bike Boulevard. A Bicycle Boulevard is an innovative bikeway treatment that combines shared roadway markings and signage, directional signage, and traffic calming techniques in order to provide a comfortable, convenient and attractive corridor for cyclists of all abilities. Bicycle boulevards are characterized by low motor vehicle volumes, low motor vehicle speeds, safe intersection crossings, and minimal delay for cyclists. Often located parallel to arterial roadways, bicycle boulevards provide the connections to local destinations necessary to encourage bicycle trips for a variety of purposes, whether it be commuting to work or school, shopping at local retail destinations, or visiting a local park.

The map below depicts the location of the recommended bike boulevard and shared lane marking facilities.





5.2 Pedestrian Facilities

Safe, connected, comfortable and accessible sidewalks, crosswalks and trails play an integral role in supporting walking as a functional transportation mode in the City of Ellisville. While many local destinations are within walking distance, the lack of sidewalks, safe crossings, and other pedestrian facilities makes walking for short trips an undesirable option. The recommended pedestrian facilities in this plan create an interconnected network that enhances pedestrian safety and provides direct, convenient and contiguous routes linking residential neighborhoods with parks, schools, transit stops, retail developments, local and regional trails, and other destinations in and around the City of Ellisville. The pedestrian facilities include “Sidewalks” and “Enhanced Pedestrian Nodes”.

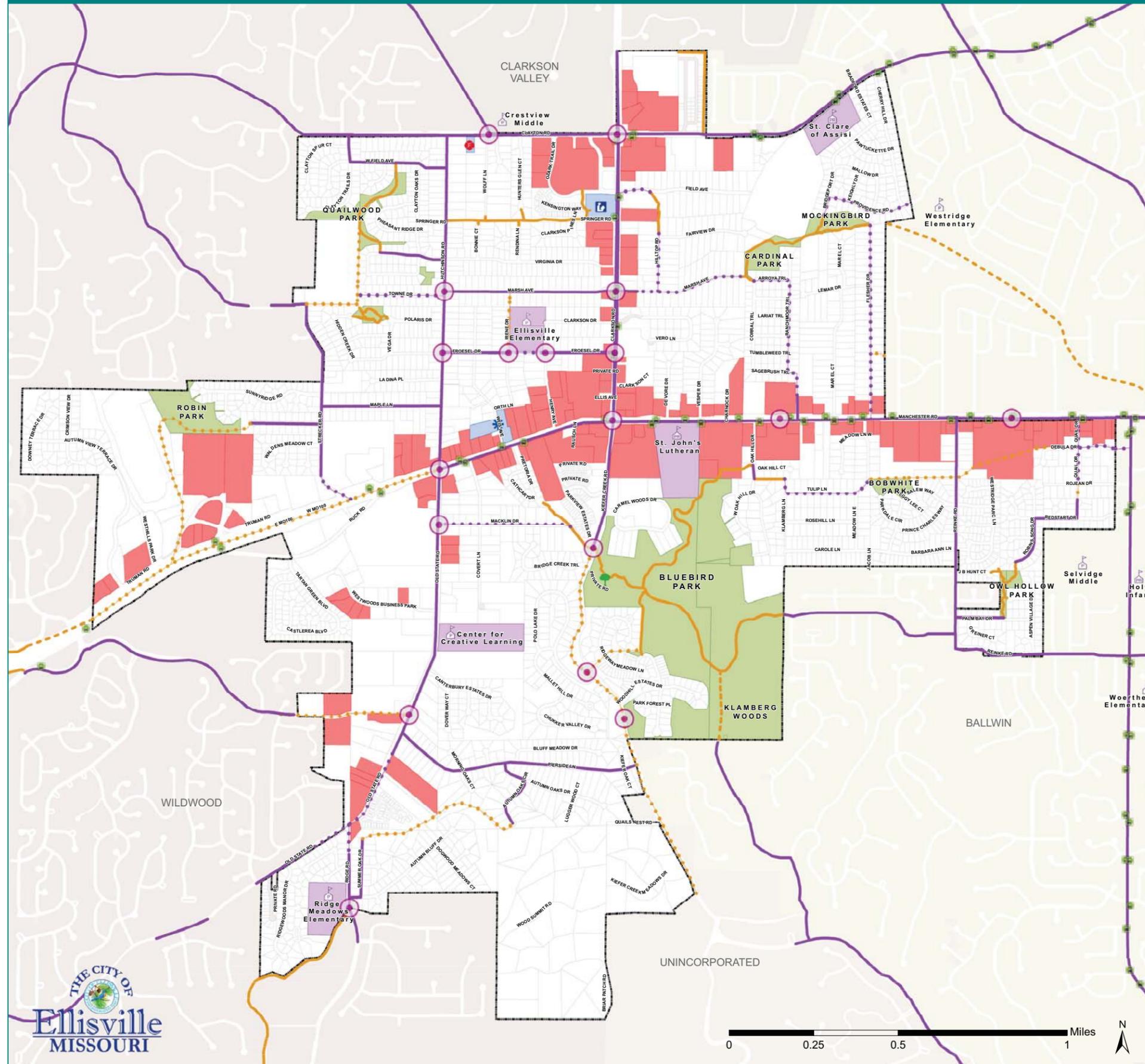
Sidewalks

The purple dotted lines on the following map represent recommended sidewalks. These facilities connect to existing sidewalks, shown as solid purple lines, and existing multi-purpose trails, shown as solid orange lines. The recommended sidewalks, combined with the existing facilities, form a completed pedestrian network that mirrors the bicycle network.

Enhanced Pedestrian Nodes

Based on the existing and proposed sidewalks, the purple circles on the following map represent intersections that are recommended for improvement.

There are a variety of pedestrian related treatments that can be incorporated at intersections. Many of these treatments can also be used to mitigate or improve non-motorized conditions along existing roadways. Descriptions of multiple types of pedestrian node enhancements are on the pages following the “Pedestrian Facilities” map. For purposes of this study, the treatments were categorized into two main groups; “Geometric Treatments” and “Traffic Signals”. A brief discussion of each category is included after the “Pedestrian Facilities” map.



LEGEND

- Fire Department
- Parks Administration Building
- Ellisville City Hall - Police - EMS
- St. Louis County Library- Daniel Boone Branch
- Public School
- Private School
- Bus Stop
- Civic Property
- School Property
- Park
- Commercial
- Ellisville City Limits

Existing

- Existing Sidewalk
- Multi-Use Trail

Planned

- Multi-Use Trail

Recommended

- Proposed Sidewalk
- Multi-Use Trail
- Enhanced Pedestrian Node



Enhancements to Pedestrian Nodes - Geometric Treatments

Geometric treatments are aimed at improving safety of non-motorized users along a roadway. They range from improved signing to an alternate design treatment within the roadway cross section.



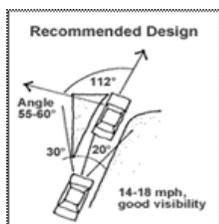
Enhanced Crosswalk



Curb Extension



Raised Island



Australian Right-Turn Lane

Enhanced Crosswalk. Crosswalks are one of the easiest treatments to install, but should only be used when deemed necessary. FHWA Report, “Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations”, documents the appropriate use of crosswalks and their effectiveness. If a crosswalk is deemed appropriate, enhancements to improve their visibility should be considered. In addition to the type of crosswalk (zebra, i.e.) itself, there are several aesthetic treatments can be added to improve visibility, such as stamped brick patterns or concrete banding. Developing a set of crosswalk standards for different roadway corridors should be considered as the City begins to implement the various projects included within this study.

Curb Extensions. This particular treatment is aimed at reducing the curb-to-curb distance that pedestrians must cross. There are several variations that can be implemented along a particular corridor. Along a residential street, a bulb-out design might be preferred, while along a commercial roadway the use of a more elaborate design maybe preferred to allow on-street parking.

Raised Islands. Constructing a raised island within the middle of a roadway provides pedestrians with a refuge. This “holding” area allows them to cross the roadway using a two step process versus crossing the entire roadway all at once. Several different designs are available depending on the type of roadway being crossed by the pedestrian.

Australian Right-Turn Lane. This treatment improves the drivers’ sight distance while negotiating right turns in addition to improving the drivers’ awareness of pedestrians. The length of the pedestrian crossing is also reduced by eliminating the rather large islands that separate through and right turning traffic.



Traffic Circle/Mini-Roundabout



In Roadway Knock-Down Sign



In-pavement flashing warning lights



Pedestrian Count-Down Timer

Traffic Circle. The use of a traffic circle or mini-roundabout is aimed at improving both traffic and pedestrian related issues. The benefit to drivers is the ability to control traffic via yield signs versus that of a two or four-way stop. Traffic speeds are typically lower, thus improving safety of all roadway users, including pedestrians and bicyclists.

Overhead Signing. The addition of an overhead sign that identifies a pedestrian crossing can provide increased awareness to the driver. Drivers typically see overhead signs at further distances, thus providing them with more time to recognize and adjust their driving habits based on the upcoming crossing. The signs can be made “active” to further alert drivers that pedestrians are actually crossing the roadway.

In Roadway Knock-Down Signs. This alternative has been shown to improve driver awareness at several locations across the Country. The sign is bolted into the road at and/or prior to a crosswalk. The signs area very visible to the motorist and provides them with additional information that pedestrians may be present.

In-Pavement Flashing Warning Lights. This particular treatment has been very popular over the past several years due to its overall improvement in pedestrian safety. The system consists of lights embedded in the pavement that are activated by detection of a pedestrian at the crosswalk. The lights can be seen during the day as well as at night. There are a variety of vendors that advertise this system and their benefits.

Enhancements to Pedestrian Nodes - Traffic Signals

Traffic Signal related treatments are relatively effective at improving pedestrian safety. They are aimed at providing additional information to both the pedestrian and driver regarding a particular pedestrian along the road. There are several treatments, besides a full traffic signal, that can be implemented to provide a safer crossing. The installation of a full traffic signal must meet signal warrants due to the requirements of the MUTCD. Generally, a high number of pedestrians are required to meet the warrant. A brief discussion of each treatment is included below.

Pedestrian Count-Down Timers. The addition of a pedestrian count-down timers are aimed at informing the pedestrian how much time is available to cross the street after the walk indication terminates. Studies have found this treatment to improve pedestrian safety at signalized intersections.



Blank-Out Sign



Rectangular Flashing Beacon



Cross Alert



HAWK (High-intensity Activated crossWalk)

Leading Pedestrian Interval (LPI). The purpose of a LPI is to provide the pedestrian with a “head-start” (typically three to seven seconds) before vehicles receive a green light. Intersections with a high number of turning vehicles would be a good candidate for this treatment. The installation of LPI’s has been found to improve vehicles yielding to pedestrians.

Blank-Out Signs. Blank-out signs can be installed at a signalized intersection to give additional information to drivers when certain phase indications are displayed. For example, when a pedestrian activates the Walk indication, a blank-out sign can display “No Turn on Red”. This should lead to a significant reduction in vehicle-pedestrian conflicts, thus improving pedestrian safety.

Rectangular Flashing Beacon (RFB). This particular treatment focuses on providing drivers with an “active” warning device that pedestrians may be ahead. As a pedestrian approaches the crosswalk, they activate flashing yellow lights and/or illuminate pedestrian signs, thereby alerting drivers that pedestrians are ahead. The overall system is solar-powered, thus minimizing maintenance costs when compared to a traffic signal.

Crosswalk Enhancer. This system is very similar to the RFB, but includes a strobe light that flashes on/off once it has been activated by a pedestrian. The flashing strobe lights provide an additional signal to the driver that they should be aware of pedestrians in the crosswalk.

Cross Alert. This system is similar to the Enhancer, but with an appearance similar to that of a typical pedestrian signal installation. The main difference, however, is that flashing yellow lights illuminate along both approaches to the crosswalk. Yellow caution signs are also activated for vehicles approaching the crosswalk. Another key advantage of this system is that it utilizes radar and is automatically triggered by pedestrian detection.

HAWK (High-intensity Activated crossWalk). The high-intensity activated crosswalk is similar to a true pedestrian signal, but has been slightly modified to improve traffic flow. The actual signal displays are modified as depicted in the picture to the left. The red indications are only displayed when activated by a pedestrian desiring to cross the roadway. Drivers are more likely to react to this design compared to that of a typical signal that “rests” in green. Variations to the HAWK are the Pelican and Puffin signals.



Existing Bike Lane marking on Pierside Lane in Ellisville

5.3 Recommended Signage

Just as with any traffic control devices, roadway signs and lane markings indicating bicycle facilities must conform to the Federal Highway Administration’s Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD includes extensive information on sign design and lane marking options and should be consulted when planning roadway indications for bicycle facilities.

Roadway Indications for All Bicycle Facilities

For Class II Bike Lane facilities, MUTCD Sign R3-17 should be used and may be combined with R3-17a and R3-17b when appropriate. For Class III Bike Route facilities, Sign D11-1 should be used. Finally, for Share the Road bikeways, Signs W11-1/W16-1 are called for.

The “Recommended Signage” map, following this section, indicates the corridors where each type of sign should be located. (Note that existing facilities may already contain the appropriate signs. Also, some areas may require a change in signage, such as existing Share the Road facilities along Clarkson or Manchester Rd. which are recommended in this plan as bike lane, bike route, or multi-use facilities.)

More Information: <http://mutcd.fhwa.dot.gov>

R3-17; R3-17a-b Class II Facilities	D11-1 Class III Facilities	W11-1; W16-1 Share the Road
 <p style="text-align: center;">R3-17</p>  <p style="text-align: center;">R3-17a</p>  <p style="text-align: center;">R3-17b</p>		



Design Concept for Destination Signs along Ellisville bicycle facilities



The current Multi-Use Trail Route sign should continue to be used throughout the City of Ellisville's Multi-Use facilities.

Original Destination Signs

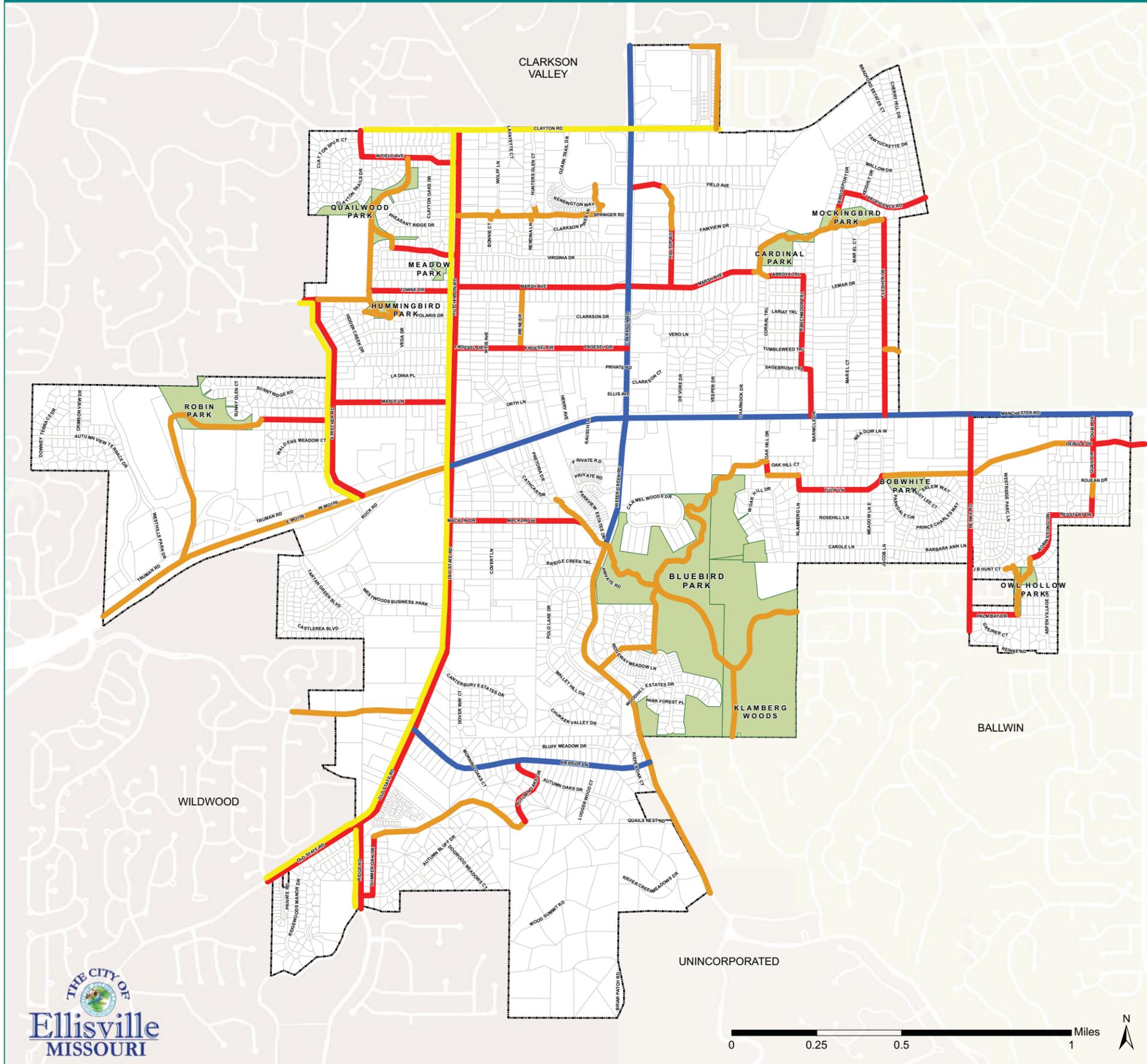
The city should consider additional signage to provide more information to bicycle users. Signs to indicate direction and distance to significant destinations allow bicyclists to more effectively use the bicycle facilities as an integrated transportation system. Destinations marked by signs could be, but are not limited to: Bluebird Park and neighborhood parks, Daniel Boone Branch Library, City Hall, schools, and designated commercial hubs. A suggested design for the signs that integrates the City of Ellisville seal is shown at the left. This sign is based on MUTCD guidance, MI-8 and MI-8a signage.

A set of signs designed specifically for the City of Ellisville also aids in identifying and branding the citywide bicycle system for all passersby, not just bicycle users. Before implementing such signage, the City should come up with a uniform design as well as a clear plan for where the signs should be located.

Multi-use Facility Signage

The City currently marks existing Class I Multi-Use facilities with a “Multi-Use Trail Route” sign containing symbols for both pedestrians and bicycle users. The same sign should continue to be placed in new multi-use facilities in order to provide consistency. Old signage, not matching this standard, should be replaced when possible.

The following map depicts the types of signage and potential locations related to the proposed facilities.



LEGEND

-  Park
-  Ellisville City Limits

Recommended Signage

<p> Multi-Use Trail Signage -</p>	
<p> Bike Lane Signage -</p>	
<p> Bike Route Signage -</p>	
<p> Share the Road Signage -</p>	





5.4 Recommended Programs

Creating a positive environment for cycling and walking goes beyond physical infrastructure improvements. A comprehensive approach to increasing bicycle and pedestrian activity must include education, encouragement, enforcement, and evaluation programs. Whether developing a city-wide map highlighting bicycle and pedestrian routes and local destinations, or establishing Safe Routes to Schools programs to encourage more children to walk and bike to school, these programs provide valuable resources to residents and weave bicycling and walking into the fabric of the community.

The following programs represent potential solutions to a number of different issues and obstacles that currently limit bicycling and walking in the City of Ellisville.

Community-Wide Bicycle and Pedestrian Route Map

Purpose: Print and distribute maps of the bicycle and pedestrian network to encourage residents to walk and bike to destinations in and around town.

Description: A community-wide bicycle and pedestrian map is one of the most effective ways to encourage bicycling and walking throughout the City. Such a map informs residents that preferred routes and safe and accessible infrastructure link neighborhoods to destinations throughout the community, while also highlighting local parks, schools, shopping areas, and other significant amenities within Ellisville.

When published as a pamphlet or made available online through the City's website, a community-wide map can also provide bike safety tips, information about achieving daily recommended physical activity through walking and biking, and other useful resources that encourage residents to choose walking and biking for transportation and recreational purposes.

Online Resources:

Springfield, MO Bike Routes Map:

www.springfieldmo.gov/traffic/pdfs/BIKE_ROUTE.pdf

Exeter, UK Walking Map: www.exeter.gov.uk/CHttpHandler.ashx?id=13302&p=0

Bowling Green, OH Bike Routes Map:

<http://www.bgohio.org/boards-commissions/bicycle-safety-commission>

Grand Forks, ND & East Forks, MN Bike Map:

www.grandforksgov.com/Planning/BikeMap_Brochure.pdf



Recreational Biking and Walking Maps

Purpose: Utilizing the planned bicycle and pedestrian network, develop recreational loops with distances based on daily recommended physical activity to encourage residents to bike and walk in Ellisville.

Description: Whether incorporated into the Community-Wide Bicycle and Pedestrian Route Map, or published on a separate map or maps, these recreational routes will encourage residents to walk and bike for fitness and exercise. Each route should be linked with local destinations to create opportunities for residents and visitors to visit parks, shop at businesses within the community, and begin to incorporate active transportation into daily routines. In larger cities, neighborhood walking maps have been developed to link residents to fitness and short trip opportunities. In a community the size of Ellisville, a single map with three to four routes can cover the needs of the entire community. Similar to a community-wide bicycle and pedestrian network map, recreational maps should include safety tips, health tips, recreational loop information, and other useful information to encourage residents to increase physical activity.

Online Resources:

City Walks San Diego: <http://www.co.san-diego.ca.us/parks/walks.html>

City Walks Sacramento: http://www.parks.ca.gov/pages/23997/files/map_print.pdf

Columbus, OH Neighborhood Walking Maps:

<http://publichealth.columbus.gov/columbus-walking-maps.aspx>

Kirkland, WA Neighborhood Walking Maps:

http://www.ci.kirkland.wa.us/depart/parks/Parks/Neighborhood_Walking_Maps.htm

Sidewalk Education Program

Purpose: Provide information to residents and property owners in Ellisville of the cost and benefits of sidewalks.

Description: Sidewalks provide a significant benefit to Ellisville residents, creating safe, accessible connections for people of all ages and abilities to reach important local destinations. Currently, many residents in Ellisville believe the costs of sidewalks outweigh the benefits. As the City prepares to construct new sidewalks, a concurrent outreach program should be developed to inform residents of the cost of sidewalk development, who bears the cost of sidewalk construction, what liability issues are



associated with sidewalks, and the many benefits that sidewalks bring to the community.

Online Resources:

Health By Design - Sidewalks Facts Sheet:

<http://www.healthbydesignonline.org/projects.html>

Perils for Pedestrians – Retrofitting a Community with Sidewalks:

<http://www.pedestrians.org/retrofit.htm>

SafeRoutes

National Center for Safe Routes to School



Safe Routes to School

Purpose: Encourage children to walk and bike to school and educate parents, school district staff on the benefits of walking and bicycling to school.

Description: In Ellisville, many children live within walking and bicycling distance to school, yet very few actually walk and bike to school. Safe Routes to School programs aim to build a safe, positive, and welcoming environment for children to incorporate physical activity into their daily routines. Walking School Buses, Bike Trains, Bicycle Rodeos, National Walk to School Day, Safe Routes to School walking maps, and other activities have successfully increased walking and biking to school throughout the country.

Online Resources:

Trailnet’s Safe Routes to School Program:

http://www.trailnet.org/saferoutes_program.php

Safe Routes to School National Partnership: <http://www.saferoutespartnership.org/>

National Center for Safe Routes to School: <http://www.saferoutesinfo.org/>

FHWA Safe Routes to School: <http://safety.fhwa.dot.gov/saferoutes/>

National Bike Month Activities

Purpose: Encourage residents of all ages to bike in and around Ellisville for transportation and recreational purposes during National Bike Month.

Description: During the month of May, cities across the country host events to encourage residents to bicycle for both transportation and recreation. Some common events include commuter 101 workshops, family group rides, adult and children cycling classes, bike-to-school events, and other exciting events to get people out on their bikes. The City of Ellisville should host events during the month of May to encourage Ellisville residents to get out and ride. The League of American Bicyclists has a number of valuable





online resources to help make local efforts in Ellisville successful, including an event organizing handbook, a calendar linking to local events and activities, and tips for people interested in commuting to work.

Online Resources:

League of American Bicyclists: <http://www.bikeleague.org/programs/bikemonth/>
 Get about Columbia: <http://www.getaboutcolumbia.com/>
 City of Rock Hill, South Carolina:
<http://www.ci.rock-hill.sc.us/viewPR.aspx?ID=276>

Shop By Bike Program

Purpose: Encourage residents to bike to local businesses by developing an incentive program that rewards trips by bicycle.

Description: In the United States, roughly 40 percent of all trips are 2 miles or less, a distance easily accessible by bicycle.* With a variety of commercial destinations in Ellisville and the neighboring communities of Ballwin and Wildwood, Ellisville residents have convenient access to a variety of businesses within biking distance. Ellisville should seek to develop partnerships with the West County Chamber of Commerce, local businesses, and potentially the neighboring cities of Ballwin and Wildwood, to incentivize bicycle trips to local businesses, which can in turn promote local businesses and increasing customer loyalty. Additional components to a shop by bike program may include providing education to residents on how to equip a bicycle for carrying groceries and other items and encouraging local businesses to provide sufficient bicycle parking.

Online Resources:

Bicycle Benefits: <http://www.bicyclebenefits.org>
 Bicycle Alliance of Washington: <http://www.bicyclealliance.org/commute/index.html#parking>

Youth Bike Safety Education

Purpose: Teach Ellisville youth basic cycling safety skills and encourage bicycling among children.

Description: Typical school-based bicycle education programs inform children about the rules of the road, the proper use of bicycle equipment, basic





cycling skills, street crossing skills, and the benefits of bicycling. Education programs can be a component of a Safe Routes to School program, or incorporated into school district's physical education curriculum. Successful programs are often built upon community partnerships, with support from the city, school district, police department, active cyclists, and local non-profits.

Online Resources:

Bike Smart: <http://www.bikesmart.org/>

San Francisco Bicycle Coalition: <http://www.sfbike.org/?youth>

Cascade Bicycle Club Education Foundation:

<http://www.cbcef.org/youth-bike-programs.html>

Adult Cycling Skills Courses

Purpose: Provide adult cycling skills courses to Ellisville residents.

Description: The vast majority of cyclists in the United States do not receive any formal training on safe cycling practices, basic cycling skills, or the rules of the road. As a result, many adults do not feel comfortable or safe riding on public streets. To address this education gap and encourage adults to bicycle for recreation and transportation, the City of Ellisville should partner with local partners to provide cycling courses for area adults. The most common program is the League of American Bicyclists courses, which include Road I, Road II, and Commuting. These courses, administered by League Certified Instructors, cover bicycle safety checks, fixing a flat, on bike skills, crash avoidance techniques, and traffic negotiation.

Online Resources:

League of American Bicyclists: <http://www.bikeleague.org/programs/education/>

Targeted Speed Trailer Program

Purpose: Reduce vehicle speeds on key pedestrian and bicycle corridors and alert motorists to the presence of other road users through the targeted use of speed trailers.

Description: High-speed vehicular traffic is a significant discouraging factor for non-motorized transportation throughout the City of Ellisville. The use of speed trailers in targeted locations in the City can help lower traffic



speeds and create a safer environment for cyclists and pedestrians. The City can use the speed trailers to improve safety near elementary schools, parks, and other key destinations.

Online Resources:

Albany, OR Neighborhood Speed Watch Program:

<http://www.cityofalbany.net/police/programs/speedwatch.php>

Annual Bicycle and Pedestrian Counts

Purpose: Conduct annual counts of bicycle and pedestrian travel to track activity on local trails and bikeways and at significant intersections.

Description: Bicycle and pedestrian counts can be useful tools in tracking the change in bicycle and pedestrian activity on local facilities. Tracking the increase in bike and pedestrian activity helps local governments measure the benefits of investments in bicycle and pedestrian infrastructure and programs, and can justify the need for new facilities as well.

Online Resources:

National Bicycle and Pedestrian Documentation Project:

<http://bikepeddocumentation.org/>



SECTION 6.

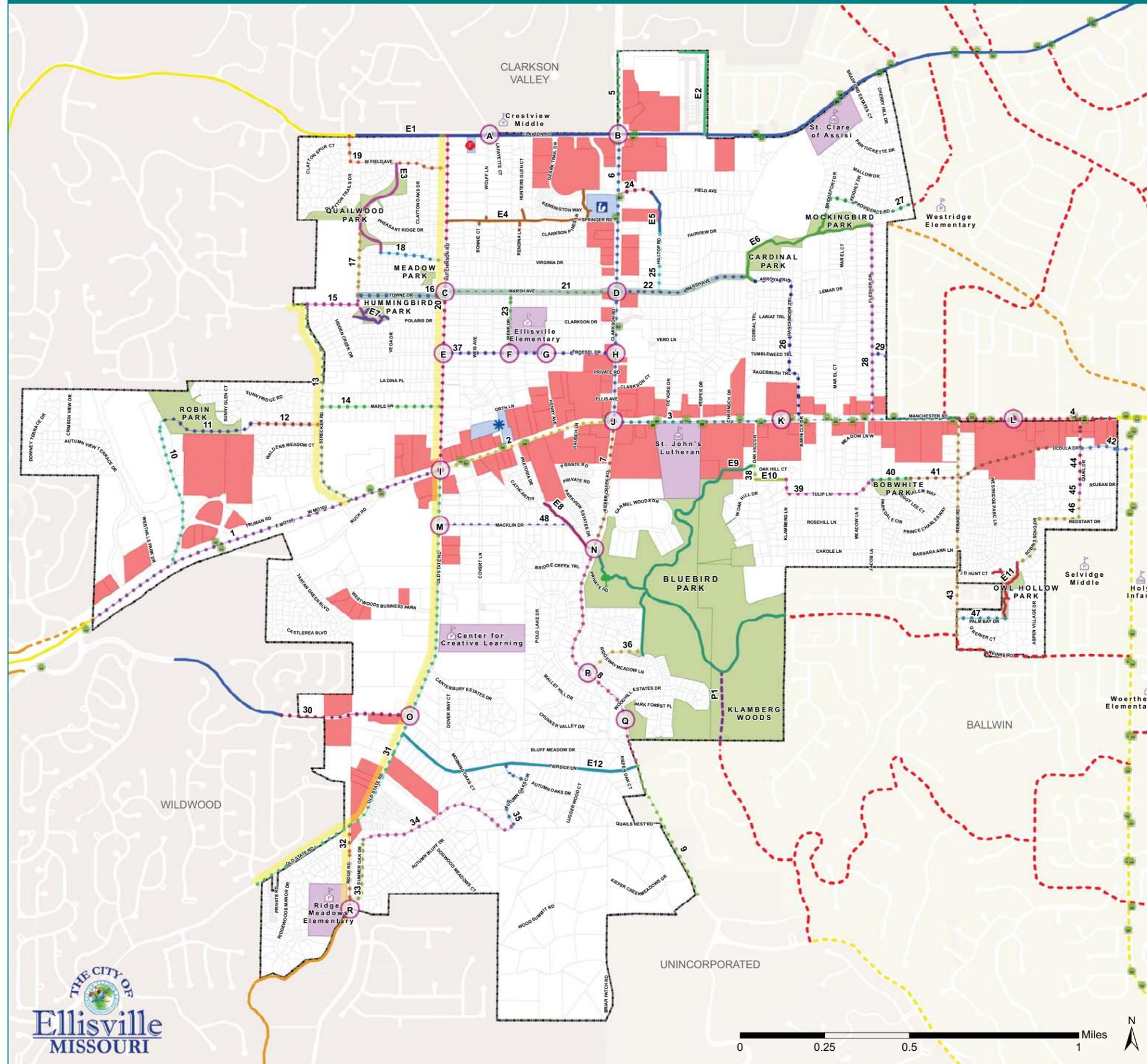
Priorities and Implementation

The recommendations and guidelines set forth in the previous chapter are achievable with a sound, phased approach to implementation. Identification of priorities is the first step in the development of such an approach. The following chapter describes the evaluation process utilized to prioritize segments of the bikeable walkable plan.

It should be understood that this plan is a long-range document. Over time, priorities may change or developments may occur that present opportunities for implementation of facilities that are not identified as priorities. As with any master planning effort, the schedule of implementation is dependent on a variety of factors and can change based on opportunities for funding, property ownership, community support and collaboration with other infrastructure projects. As implementation begins, an ongoing evaluation of prioritization should occur to accommodate these types of variables. The following recommendations are intended as a starting point for implementation while providing flexibility for change if needed.

6.1 Segment and Node Evaluation

The “Facilities Segments Map” on the following page depicts the proposed and existing bikeable walkable facilities for the City of Ellisville. Existing facilities and pedestrian nodes were segmented for inventory and analysis while proposed facilities were segmented in order to prioritize implementation. Facility segments were defined by location, physical changes in the facility location, length of the facility, and facility type.



LEGEND

- | | |
|--------------------------|-----------------|
| Fire Department | Bus Stop |
| Parks Administration | Civic Property |
| City Hall - Police - EMS | School Property |
| St. Louis County Library | Park |
| Public School | Commercial |
| Private School | City Limits |

Existing Facilities Segments

- E1 - Clayton Rd.
- E2 - Northeast City Boundary
- E3 - Quailwood Trail
- E4 - Wren Trail
- E5 - Woodpecker Trail
- E6 - Cardinal/Mockingbird Trail
- E7 - Hummingbird Trail
- E8 - Whipoorwill Trail
- E9 - Bluebird Trail/Klamberg Trail
- E10 - Connector
- E11 - Owl Hollow Trail
- E12 - Pierside Ln.

Planned Facility Segment

- P1 - Klamberg Woods Trail

Recommended Facility Segments

- 1 (Segments are represented by varying colors and labeled by segment number directly on the map.)
- 2
- 3
- 4
- 5
- 6 ... Etc...

Recommended Enhancements

- Bicycle Boulevard
- Share the Road Signage

Enhanced Pedestrian Node

- (Nodes are labeled A-Q directly on the map.)

Non-Ellisville Existing

- Multi-Use Trail - Class I
- Bike Lane - Class II
- Share the Road Signage

Non-Ellisville Planned

- Multi-Use Trail - Class I
- Bike Route - Class III
- Share the Road Signage



Criteria Classifications for Segments

Once the segments and nodes were delineated, they were prioritized using a set of criteria developed to identify implementation strategies. Three categories of criteria were developed in order to evaluate the facility segments. The categories include: Connectivity, Safety, and Feasibility. These categories are described in detail below and a graphic representation of these evaluations can be found following the written description.

Connectivity

Connectivity of each segment was evaluated to ensure that facility improvements lead to a more locally and regional connected system. A continuous network of facilities provides added convenience for all users. Segments were evaluated for the following types of connectivity:

Regional - Evaluates whether the facility segment links directly to a bike or pedestrian facility outside of the City of Ellisville.

Extension - Evaluates whether the facility segment is an extension of an existing multi-use trail or bike lane.

Mass Transit – Evaluates whether the facility segment provides a direct link to a bus stop.

School – Evaluates whether the facility segment provides a direct link to a school within the City of Ellisville.

Civic – Evaluates whether the facility segment provides a direct link to a civic institution, like City Hall, the County Library, Parks Administration Building, EDGE Aquatic Center, or Police Department.

Commercial – Evaluates whether the facility segment links to retail or commercial destinations, like department stores, drug stores and grocery stores.

Park – Evaluates whether the facility segment falls within an existing City park.



Safety

Factors related to the safety of each segment were evaluated to ensure that facility improvements create a safer bike and pedestrian environment. Segments were evaluated for the following safety improvement possibilities:

Manchester/Great Streets – Evaluates whether the facility segment will be an improvement planned in the Manchester Great Streets Initiative. These improvements will lead to a safer environment as facility users navigate Manchester Road, one of the largest and most intimidating barriers to connectivity in the City.

High Incident – Evaluates whether the facility segment would improve of an area that has incidents of pedestrian / bicycle accidents or high incidents of auto accidents. Two sources were utilized for this evaluation; Missouri State Highway Patrol accident reports from 2005 through 2009 and the Ellisville Police Department 2009 annual report. Segments identified by the Highway Patrol's Reports as having a bicycle or pedestrian accident in them were evaluated as high incidence segments. Additionally, segments identified as "Problematic Traffic Accident Areas" on the City of Ellisville's Police Report were evaluated as high incidence segments.

Feasibility

Feasibility of each segment was evaluated to determine the probability of project construction. Segments were evaluated for the following feasibility issues:

Ellisville Owned – Evaluates whether the segment is being constructed on property owned by the City. Outside ownership may increase cost of development and make the construction project less feasible.

Minimal Barriers – Evaluates whether the facility segment has minimal physical barriers to construction. Extensive physical barriers may increase cost of the construction and make the project less feasible.

Sufficient ROW – Evaluates whether there is sufficient right-of-way to construct the facility segment. Acquisition of right-of-way may increase the timeline and cost for development and make the project less feasible.



Recommended Segments - Criteria Rankings

Recommended Segment	Roadway Name	From	To	Bike Facility Type	Ped. Facility Type	Corridor	CRITERIA															Total Score	Comment(s)
							CONNECTIVITY						SAFETY			FEASIBILITY							
							Regional	Extension	Bus Stop	School	Civic	Commercial	Park	Manchester/ Great Streets	Pedestrian Node*	High incident	Ellisville-owned	Minimal barriers	Sufficient ROW				
1	Manchester Road	West City Boundary	Old State Road	Class I	Class I	Manchester	√		√			√		√	√						6		
2	Manchester Road	Old State Road	Clarkson Road	Class II	Sidewalk	Manchester			√		√		√	√	√							6	
3	Manchester Road	Clarkson Road	Reinke Road	Class II	Sidewalk	Manchester	√		√	√		√		√	√							7	High incident check based on TWO accidents in segment
4	Manchester Road	Reinke Road	East City Boundary	Class II	Sidewalk	Manchester	√		√			√		√								5	
5	Clarkson Road	North City Boundary	Clayton Road	Class II	Sidewalk	Clarkson/Kiefer Creek		√	√			√		√	√					√		6	Improving Existing Facility-Replaces Share-the-Road Signs
6	Clarkson Road	Clayton Road	Manchester Road	Class II	Sidewalk	Clarkson/Kiefer Creek		√	√		√	√		√	√				√			7	Improving Existing Facility-Replaces Share-the-Road Signs
7	Kiefer Creek Road	Manchester Road	Whipoorwill Trail Crossing	Class II	Sidewalk	Clarkson/Kiefer Creek		√				√		√			√					4	
8	Kiefer Creek Road	Whipoorwill Trail Crossing	Pierside Lane	Class I	Class I	Clarkson/Kiefer Creek		√						√			√					3	
9	Kiefer Creek Road	Pierside Lane	South City Boundary	Class I	Class I	Clarkson/Kiefer Creek		√									√					2	
10	Ellisville Athletic Association	Manchester Road	Robin Park	Class I	Class I	Robin		√			√						√	√				4	
11	Robin Park	Ellisville Athletic Association	Bentshire	Class I	Class I	Robin					√	√					√	√	√			5	
12	Bentshire	Robin Park	Strecker Road	Class III	Sidewalk	Robin											√	√	√	√		3	
13	Strecker Road	City Boundary	Manchester Road	Class III	Sidewalk	Robin Park			√								√	√	√	√		4	
14	Maple Lane	Strecker Road	Hutchinson Road	Class III	Sidewalk	Robin											√	√	√			3	
15	Easement 01	Strecker Road	Towne Drive	Class I	Class I	Marsh			√			√					√					3	
16	Towne Drive	Easement 01	Hutchinson Road	Class III	Sidewalk	Marsh								√			√	√	√			4	
17	Easement 02	Towne Drive	Quailwood Park	Class I	Class I	n/a			√								√					2	
18	Virginia Drive / Clayton Oaks Drive	Quailwood Park	Hutchinson Road	Class III	Sidewalk	n/a			√								√	√	√			4	
19	W. Field Avenue	Clayton Road	Hutchinson Road	Class III	Sidewalk	n/a			√								√	√	√			4	
20	Hutchinson Road	Clayton Road	Manchester Road	Class III	Sidewalk	Hutchinson/Old State			√			√		√			√	√	√			6	
21	Marsh Avenue	Hutchinson Road	Clarkson Road	Class III	Sidewalk	Marsh			√	√		√		√			√			?		5	
22	Marsh Avenue	Clarkson Road	Cardinal Park	Class III	Sidewalk	Marsh			√	√		√		√			√			?		5	
23	Ellisville Elementary School Connection	Marsh Avenue	Ellisville Elementary School	Class I	Class I	n/a			√		√			√			√					4	Improves Existing Facility-Replaces 4' Sidewalk
24	Field Avenue	Clarkson Road	Woodpecker Trail	Class III	Sidewalk	n/a			√	√							√	√	√			5	
25	Hilltop Drive	Woodpecker Trail	Marsh Avenue	Class III	Sidewalk	n/a			√								√	√	√			4	
26	Arroya Trail / Ranchmoor Trail	Cardinal Park	Manchester Road	Class III	Sidewalk	n/a			√	√		√					√	√	√			6	
27	Bridgeport Drive / Providence Road	Mockingbird Park	East City Boundary	Class III	Sidewalk	n/a		√	√								√	√	√			5	
28	Flesher Drive	Mockingbird Park	Manchester Road	Class III	Sidewalk	n/a			√	√		√					√	√	√			6	
29	Parkway Drive	Flesher Drive	East City Boundary	Class I	Class I	n/a											√		√			2	Paper Street
30	Pierside Lane	West City Boundary	Old State Road	Class I	Class I	n/a		√	√													2	Portion of segmnet outside of City Boundary
31	Old State Road	Manchester Road	West City Boundary	Class III	Sidewalk	Hutchinson/Old State			√		√			√	√		√	√	√			8	
32	Ridge Road	Old State Road	South City Boundary	Class III	Sidewalk	Hutchinson/Old State		√	√		√						√	√	√			7	Connection to Rock Hill Trail
33	Summer Oaks Dr / Autumn Bluff Dr	North End of Summer Oaks Drive	Ridge Road	Class III	Sidewalk	Oak Hollow		√	√		√						√	√	√			6	
34	Easements / Common Ground 01	Summer Oaks	Autumn Oaks Circle	Class I	Class I	Oak Hollow						√					√					2	
35	Autumn Oaks Cir / Autumn Oaks Dr	Easement / Common Ground 01	Pierside Lane	Class III	Sidewalk	Oak Hollow			√								√	√	√			4	
36	Easements / Common Ground 02	Kiefer Creek Road	Bluebird Park	Class I	Class I	n/a			√					√			√					3	
37	Froesel Drive	Hutchinson Road	Clarkson Road	Class III	Sidewalk	n/a				√	√		√				√	√	√			7	portion of existing sidewalk is on school property, not ROW
38	Oak Hill Drive	Bluebird Park	Oak Hill Court Trail	Class III	Sidewalk	Bluebird			√								√	√	√			4	
39	Klamberg Ln. / Tulip Ln. / E. Meadow Ln.	Oak Hill Court Trail	Bobwhite Park	Class III	Sidewalk	Bluebird			√								√	√	√			4	
40	Bobwhite Park	E. Meadow Lane	East End of Bobwhite Park	Class I	Class I	Bluebird						√					√	√	√			4	
41	Easements / Common Ground 03	Bobwhite Park	Debula Drive	Class I	Class I	Bluebird											√					1	Along Creek (name?) from Reinke to Debula Dr.
42	Debula Drive	Easement / Common Ground 03	East City Boundary	Class III	Sidewalk	Bluebird		√				√						√	√			4	Portion of segmnet outside of City Boundary
43	Reinke Road	Manchester Road	South City Boundary	Class III	Sidewalk	n/a		√	√	√		√					√	√	√			7	
44	Quail Drive	Manchester Road	End of Quail Drive	Class III	Sidewalk	Owl Hollow			√	√		√					√	√	√			6	
45	Quail Drive Connection	End of Quail Drive	Quail Court	Class I	Class I	Owl Hollow											√					1	Paper Street
46	Quail Ct. / Redstart Dr. / Robins Song Dr.	Quail Drive Connection	Owl Hollow Park	Class III	Sidewalk	Owl Hollow			√								√	√	√			4	
47	Palm Bay	Owl Hollow Park	Reinke Road	Class III	Sidewalk	Owl Hollow			√								√	√	√			4	
48	Macklin Drive	Old State Road	Whipoorwill Trail	Class III	Sidewalk	Bluebird			√								√	√	√			5	



Priority Categorization

On the “Facility Segments Evaluation Chart”, the criteria are tabulated for each segment and a total score is identified. The scoring allows the segments to be divided into three categories for prioritization of implementation; Tier One (Score of 6-8), Tier Two (Score of 4-5), and Tier Three (Score of 1-3). Segments meeting the highest number of criteria fall into Tier One. Segments meeting the mid-range number of criteria fall into Tier Two. Segments meeting the lowest number of criteria fall into Tier Three.

Tier One projects will have the greatest impact on the bicycle and pedestrian facilities plan and may encounter the fewest amount of obstacles for implementation. The City should strive to implement these projects in the near term, within 1 to 5 years.

Tier Two projects are important to the bicycle and pedestrian facilities but may pose moderate challenges related to implementation. The City should strive to implement these projects in the mid-term, within 6 to 10 years.

Tier Three projects will have moderate impact on the bicycle and pedestrian facilities plan and/or may pose more challenges than the remaining projects. The City should strive to implement these projects in the long term, within 11 or more years.

Pedestrian nodes recommended for improvement should, if possible, be implemented at the time an adjacent facility segment is constructed in order to create the most cohesive and consistent facility network. Therefore, nodes adjacent to Tier One facilities should be implemented in the near term. Nodes adjacent to Tier Two facilities should be implemented in the mid-term and nodes adjacent to Tier Three facilities should be implemented in the long term.

Because many recommended facilities include property not currently in City control, evaluation of land and easement acquisition for all planned facilities should be begin immediately, regardless of project tier categorization.

Final evaluation break downs, tier categorizations, and facility inventories are depicted on the following pages.



Tier Categorization (based on total scores from criteria ranking chart on previous page)

TIER ONE (Score of 8-6)	TIER TWO (Score of 5-4)	TIER THREE (Score of 3-1)
31- Old State Road (8)	4- Manchester Road (5)	8- Kiefer Creek Road (3)
3- Manchester Road (7)	11- Robin Park (5)	12- Bentshire (3)
6- Clarkson Road (7)	21- Marsh Avenue (5)	14- Maple Lane (3)
32- Ridge Road (7)	22- Marsh Avenue (5)	15- Easement 01 (3)
37- Froesel Drive (7)	24- Field Avenue (5)	36- Easements / Common Ground 02 (3)
43- Reinke Road (7)	27- Bridgeport Drive / Providence Road (5)	9- Kiefer Creek Road (2)
1- Manchester Road (6)	48- Macklin Drive (5)	17- Easement 02 (2)
2- Manchester Road (6)	7- Kiefer Creek Road (4)	29- Parkway Drive (2)
5- Clarkson Road (6)	10- Ellisville Athletic Association (4)	30- Pierside Lane (2)
20- Hutchinson Road (6)	13- Strecker Road (4)	34- Easements / Common Ground 01 (2)
26- Arroya Trail / Ranchmoor Trail (6)	16- Towne Drive (4)	41- Easements / Common Ground 03 (1)
28- Flesher Drive (6)	18- Virginia Drive / Clayton Oaks Drive (4)	45- Quail Drive Connection (1)
33- Summer Oaks Dr / Autumn Bluff Dr (6)	19- W. Field Avenue (4)	
44- Quail Drive (6)	23- Ellisville Elementary School Connection (4)	
	25- Hilltop Drive (4)	
	35- Autumn Oaks Cir / Autumn Oaks Dr (4)	
	38- Oak Hill Drive (4)	
	39- Klamberg Ln. / Tulip Ln. / E. Meadow Ln. (4)	
	40- Bobwhite Park (4)	
	42- Debula Drive (4)	
	46- Quail Ct. / Redstart Dr. / Robins Song Dr. (4)	
	47- Palm Bay (4)	



Planned Segments

Planned Segment	Roadway/Trail Name	From	To	Bike Facility Type	Ped. Facility Type	Corridor
P1	Klamberg Woods Trail	Bluebird Trail	South City Boundary	Class I	Class I	n/a

Existing Segments

Existing Segment	Roadway/Trail Name	From	To	Bike Facility Type	Ped. Facility Type	Corridor
E1	Clayton Road	Share-the-Road (WILDWOOD)	Bike Lane (BALLWIN)	Class III	Sidewalk	n/a
E2	Northeast City Boundary	City Boundary	City Boundary	Class I	Class I	n/a
E3	Quailwood Trail	Field Ave.	Virginia	Class I	Class I	n/a
E4	Wren Trail	Hutchinson Rd.	Field Ave.	Class I	Class I	n/a
E5	Woodpecker Trail	Field Ave.	Fairview Drive	Class I	Class I	n/a
E6	Cardinal/Mockingbird Trail	Marsh Ave./Arroyo Trail	Bridgeport Dr./Flesher Dr.	Class I	Class I	Marsh
E7	Hummingbird Trail	Hidden Creek Dr.	Vega Dr.	Class I	Class I	n/a
E8	Whipoorwill Trail	parcel off Pretoria Dr.	Kiefer Creek Rd.	Class I	Class I	Bluebird
E9	Bluebird Trail/Klamberg Trail	Bluebird Park boundaries	Oak Hill Dr.	Class I	Class I	Bluebird
E10	Oak Hill/Klamberg Connector Trail	Oak Hill Dr.	Klamberg Ln.	Class I	Class I	Bluebird
E11	Owl Hollow Trail	Palm Bay Drive	JB Hunt Ct./Robin Song Dr.	Class I	Class I	Owl Hollow
E12	Pierside Lane	Old State Rd.	Kiefer Creek/East Boundary	Class II	Sidewalk	Pierside

Recommended Pedestrian Nodes

Node	Main Street	Cross Street	Adjacent Segments	Corridor(s)
A	Clayton	Valley/Wolff	E1	n/a
B	Clarkson	Clayton	E1, 5, 6	Clarkson/Kiefer Creek
C	Hutchinson	Marsh	20, 21, 16	Hutchinson/Old State; Marsh
D	Clarkson	Marsh	6, 21, 22	Clarkson/Kiefer Creek; Marsh
E	Hutchinson	Froesel	20, 37	Hutchinson/Old State
F	Froesel	Irene	23, 37	n/a
G	Froesel	Henry	37	n/a
H	Clarkson	Froesel	37, 6	Clarkson/Kiefer Creek
I	Manchester	Old State	1, 2, 20, 31	Hutchinson/Old State
J	Clarkson	Manchester	2, 3, 6, 7	Clarkson/Kiefer Creek; Manchester
K	Manchester	Best Buy	3	Manchester
L	Manchester	Shop 'n Save	4	Manchester
M	Old State	Macklin	31, 48	Hutchinson/Old State; Bluebird
N	Kiefer Creek	Whipoorwill Trail	E8, E9, 7, 8	Clarkson/Kiefer Creek; Bluebird
O	Old State	Pierside Ln.	30, 31	Hutchinson/Old State; Pierside
P	Kiefer Creek	Polo Lake Dr.	8, 36	Clarkson/Kiefer Creek
Q	Kiefer Creek	Crossing	8	Clarkson/Kiefer Creek
R	Ridge Rd.	Elementary School	32	Hutchinson/Old State



6.2 Cost Breakdown

The following information provides a general opinion of probable construction costs for the implementation of recommended facilities in the Ellisville Bikeable Walkable Communities Plan. Costs are based on conceptual design evaluation of the facilities and pre-engineering design development. The unit cost numbers are based on variety of sources, including both regional and national construction bids from similar bikeable walkable projects. Planning level unit cost estimates were developed for a variety of elements typically used in bike or pedestrian related projects.

Basic Design Elements and Typical Features

For purposes of this study, improvement elements were divided into two main categories; Basic Design Elements and Typical Features. Basic Design Elements are considered to be key components that are required to make a particular connection possible. Typical Features, on the other hand, are additional elements that may be required due to a specific design or safety related issue associated with a particular project. Generally speaking, most projects will include elements from both lists.

Category	Description	Unit	Cost
Basic Design Elements	Multi-use Trail (12 feet, separated from roadway)	mile	\$289,565
	Bike Lane/Paved Shoulder (5 feet both sides of road)	mile	\$102,905
	Sidewalk (5 feet both sides of road)	mile	\$279,075
	Bike Route (8 signs & pavement markings per mile)	mile	\$6,437
	Bicycle Boulevard	mile	\$44,880
	Traffic Circles	each	\$30,000
	Block Retaining Wall	sq. ft.	\$21
Typical Features	Crosswalk	intersection	\$855
	Enhanced Crosswalk	each	\$2,000
	ADA Curb Ramps	each	\$1,000
	Drainage Grate	each	\$1,250
	Australian Right Turn Lane	each	\$100,000
	Refuge Island	each	\$7,750
	Blank-Out Signs	each	\$1,500
	Pedestrian Activated Signal (RRFB, Cross Alert, etc.)	intersection	\$12,400
	Pedestrian-Actuated Push Button	each	\$319
	Pedestrian Signal Countdown Timer	each	\$782
	Signal Timing Modifications	each	\$1,000
	Full Traffic Signal	intersection	\$175,000
	Retrofit Existing Traffic Signal (ped buttons & timers)	intersection	\$29,760
	Curb Extension	per corner	\$3,500
Bicycle Loop Detector	mile	\$2,000	

Concept & Design Related Costs

Concept & Design Related Costs, were developed to provide the City with a preliminary estimate of the future planning and design costs that can be expected when considering a future bike or pedestrian related project.



One of the most important tasks for these types of projects is the Initial Concept and Planning Phase. It is important that the City understand the complexity and aesthetic value of each project so the appropriate amount of money can be budgeted. Typically, stakeholders may desire more amenities than was expected. Uncovering these issues early in the process will save money in the design and construction phases.

Category	Description	Unit	Cost
Concept & Design Related Costs	Initial Concept & Planning	% CST Cost	11%
	Preliminary & Final Design	% CST Cost	13%
	Construction Engineering & Inspection	% CST Cost	12%

Example Costs

Example Costs were developed for three different facility types. Each of the facility types assumed a few typical features, as well as the appropriate level of planning and design costs. These per mile costs should be considered for typical bike and pedestrian projects that are located along level to mildly-rolling terrain. Additional unit costs should be added for items not included within the parenthesis.

Category	Description	Unit	Cost
Example Costs	Class I (Multi-Use Trail, 1 crosswalk, 4 ADA ramps, ped act signal, & design/const.)	mile	\$479,866
	Class II (Bike Lanes, 1 crosswalk, 4 ADA ramps, ped act signal, & design/const.)	mile	\$187,931
	Class III (Bike Route, 1 crosswalk, 4 ADA ramps, ped act signal, & design/const.)	mile	\$37,054

The example costs above were developed using the costs for “Basic Design Elements”, “Typical Features”, and “Concept & Design Related Costs” discussed earlier. They have been applied to planned facility segments, broken down by facility type, and are seen in the “Cost Breakdown Charts” on the following pages.



Cost Breakdown Chart Class I Facilities- Multi-Purpose

Segment #	Segment Total Length in Feet	New Multi-Purpose Facility Length		Unit Cost/mi.	Total Facility Costs	Comment(s)
		Ft.	Mi.			
1	5940	5940	1.13	\$ 479,866.00	\$ 539,849.25	
8	3810	3810	0.72	\$ 479,866.00	\$ 346,266.94	
9	2247	2247	0.43	\$ 479,866.00	\$ 204,215.70	
10	2368	2368	0.45	\$ 479,866.00	\$ 215,212.63	
11	1459	1459	0.28	\$ 479,866.00	\$ 132,599.34	
15	1256	1256	0.24	\$ 479,866.00	\$ 114,149.94	
17	1041	1041	0.20	\$ 479,866.00	\$ 94,609.94	
23	948	948	0.18	\$ 479,866.00	\$ 86,157.76	
29	227	227	0.04	\$ 479,866.00	\$ 20,630.60	
30	1750	1750	0.33	\$ 479,866.00	\$ 159,046.50	
34	2658	2658	0.50	\$ 479,866.00	\$ 241,568.91	
36	977	977	0.19	\$ 479,866.00	\$ 88,793.39	
40	595	595	0.11	\$ 479,866.00	\$ 54,075.81	
41	2375	2375	0.45	\$ 479,866.00	\$ 215,848.82	
45	239	239	0.05	\$ 479,866.00	\$ 21,721.21	
E2	1693	0	0.00	\$ 479,866.00	\$ -	existing
E3	1899	0	0.00	\$ 479,866.00	\$ -	existing
E4	3525	0	0.00	\$ 479,866.00	\$ -	existing
E5	693	0	0.00	\$ 479,866.00	\$ -	existing
E6	2957	0	0.00	\$ 479,866.00	\$ -	existing
E7	1124	0	0.00	\$ 479,866.00	\$ -	existing
E8	1002	0	0.00	\$ 479,866.00	\$ -	existing
E9	9320	0	0.00	\$ 479,866.00	\$ -	existing
E10	480	0	0.00	\$ 479,866.00	\$ -	existing
E11	1483	0	0.00	\$ 479,866.00	\$ -	existing
P1	1065	0	0.00	\$ 479,866.00	\$ -	planned



Cost Breakdown Chart Class II Facilities- Bike Lanes & Sidewalks

Segment #	Segment Total Length In Feet	New Bike Facility Length Ft.	Mi.	(Bike) Unit Cost/mi.	Total New Bike Facility Cost	New Ped. Facility Length Ft.	Mi.	(Ped) Unit Cost/mi.	Total New Ped Facility Cost	Total Facility Costs	Comment(s)
2	2827	2827	0.84	\$ 187,931.00	\$ 100,621.39	0	0	\$ 190,000.00	\$ -	\$ 100,621.39	
3	5372	5372	1.02	\$ 187,931.00	\$ 191,205.56	0	0	\$ 190,000.00	\$ -	\$ 191,205.56	
4	2470	2470	0.47	\$ 187,931.00	\$ 87,914.69	0	0	\$ 190,000.00	\$ -	\$ 87,914.69	
E12	3903	0	0.00	\$ 187,931.00	\$ -	0	0	\$ 190,000.00	\$ -	\$ -	existing

Cost Breakdown Chart Class III Facilities- Bike Routes & Sidewalks

Segment #	Segment Total Length in Feet	New Bike Facility Length Ft.	Mi.	(Bike) Unit Cost/mi.	Total New Bike Facility Cost	New Ped. Facility Length Ft.	Mi.	(Ped) Unit Cost/mi.	Total New Ped Facility Cost	Total Facility Costs	Comment(s)
5	1285	1285	0.24	\$ 37,054.00	\$ 9,017.88	0	0.00	\$ 190,000.00	\$ -	\$ 9,017.88	
6	4498	4498	0.85	\$ 37,054.00	\$ 31,566.08	0	0.00	\$ 190,000.00	\$ -	\$ 31,566.08	
7	2003	2003	0.38	\$ 37,054.00	\$ 14,056.66	0	0.00	\$ 190,000.00	\$ -	\$ 14,056.66	
12	1082	1082	0.20	\$ 37,054.00	\$ 7,593.26	0	0.00	\$ 190,000.00	\$ -	\$ 7,593.26	
13	3583	3583	0.68	\$ 37,054.00	\$ 25,144.79	621	0.12	\$ 190,000.00	\$ 22,346.59	\$ 47,491.38	Part is existing sidewalk, part is proposed
14	1866	1866	0.35	\$ 37,054.00	\$ 13,095.22	0	0.00	\$ 190,000.00	\$ -	\$ 13,095.22	
16	1357	1357	0.26	\$ 37,054.00	\$ 9,523.16	1357	0.26	\$ 190,000.00	\$ 48,831.44	\$ 58,354.60	
18	1012	1012	0.19	\$ 37,054.00	\$ 7,102.02	0	0.00	\$ 190,000.00	\$ -	\$ 7,102.02	
19	1915	1915	0.36	\$ 37,054.00	\$ 13,439.09	0	0.00	\$ 190,000.00	\$ -	\$ 13,439.09	
20	5209	5209	0.99	\$ 37,054.00	\$ 36,555.74	0	0.00	\$ 190,000.00	\$ -	\$ 36,555.74	
21	2697	2697	0.51	\$ 37,054.00	\$ 18,927.01	0	0.00	\$ 190,000.00	\$ -	\$ 18,927.01	
22	1973	1973	0.37	\$ 37,054.00	\$ 13,846.13	1656	0.31	\$ 190,000.00	\$ 59,590.91	\$ 73,437.03	Part is existing sidewalk, part is proposed
24	514	514	0.10	\$ 37,054.00	\$ 3,607.15	514	0.10	\$ 190,000.00	\$ 18,496.21	\$ 22,103.36	
25	905	905	0.17	\$ 37,054.00	\$ 6,351.11	905	0.17	\$ 190,000.00	\$ 32,566.29	\$ 38,917.40	
26	2872	2872	0.54	\$ 37,054.00	\$ 20,155.13	2501	0.47	\$ 190,000.00	\$ 89,998.11	\$ 110,153.24	Part is existing sidewalk, part is proposed
27	1642	1642	0.31	\$ 37,054.00	\$ 11,523.23	1642	0.31	\$ 190,000.00	\$ 59,087.12	\$ 70,610.35	
28	3037	3037	0.58	\$ 37,054.00	\$ 21,313.07	3037	0.58	\$ 190,000.00	\$ 109,285.98	\$ 130,599.05	
31	7600	7600	1.44	\$ 37,054.00	\$ 53,335.30	2371	0.45	\$ 190,000.00	\$ 85,320.08	\$ 138,655.38	Part is existing sidewalk, part is proposed
32	1336	1336	0.25	\$ 37,054.00	\$ 9,375.78	457	0.09	\$ 190,000.00	\$ 16,445.08	\$ 25,820.86	Part is existing sidewalk, part is proposed
33	1097	1097	0.21	\$ 37,054.00	\$ 7,698.53	0	0.00	\$ 190,000.00	\$ -	\$ 7,698.53	
35	1288	1288	0.24	\$ 37,054.00	\$ 9,038.93	0	0.00	\$ 190,000.00	\$ -	\$ 9,038.93	
37	2682	2682	0.51	\$ 37,054.00	\$ 18,821.75	584	0.11	\$ 190,000.00	\$ 21,015.15	\$ 39,836.90	
38	217	217	0.04	\$ 37,054.00	\$ 1,522.86	0	0.00	\$ 190,000.00	\$ -	\$ 1,522.86	
39	1656	1656	0.31	\$ 37,054.00	\$ 11,621.48	1656	0.31	\$ 190,000.00	\$ 71,212.39	\$ 82,833.87	Portion of facility located in Ballwin is NOT included
42	1180	1180	0.22	\$ 37,054.00	\$ 8,281.01	955	0.18	\$ 190,000.00	\$ 34,365.53	\$ 42,646.54	Portion of facility located in Ballwin is NOT included
43	3367	3367	0.64	\$ 37,054.00	\$ 23,628.94	0	0.00	\$ 190,000.00	\$ -	\$ 23,628.94	
44	1026	1026	0.19	\$ 37,054.00	\$ 7,200.27	1026	0.19	\$ 190,000.00	\$ 36,920.45	\$ 44,120.72	
46	1790	1790	0.34	\$ 37,054.00	\$ 12,561.87	0	0.00	\$ 190,000.00	\$ -	\$ 12,561.87	
47	756	756	0.14	\$ 37,054.00	\$ 5,305.46	0	0.00	\$ 190,000.00	\$ -	\$ 5,305.46	
48	2075	2075	0.39	\$ 37,054.00	\$ 14,561.94	2075	0.39	\$ 190,000.00	\$ 74,668.56	\$ 89,230.50	
E1	5497	5497	1.04	\$ 37,054.00	\$ 38,576.86	0	0.00	\$ 190,000.00	\$ -	\$ 38,576.86	



Seed Project

One of the most important aspects for the development of a successful bikeable walkable plan is creating enthusiasm and momentum within the City for the plan. Two projects were identified to develop further and push closer to implementation in the hopes of gaining public support for the bikeable walkable plan.

The projects identified for development as seed projects are Segment 32 (Ridge Road by Ridge Meadow Elementary School) and Segment 37 (Froesel Road at Ellisville Elementary School). Because these projects are near elementary schools they will be highly visible and make a great impact on many residents and varied types of users.

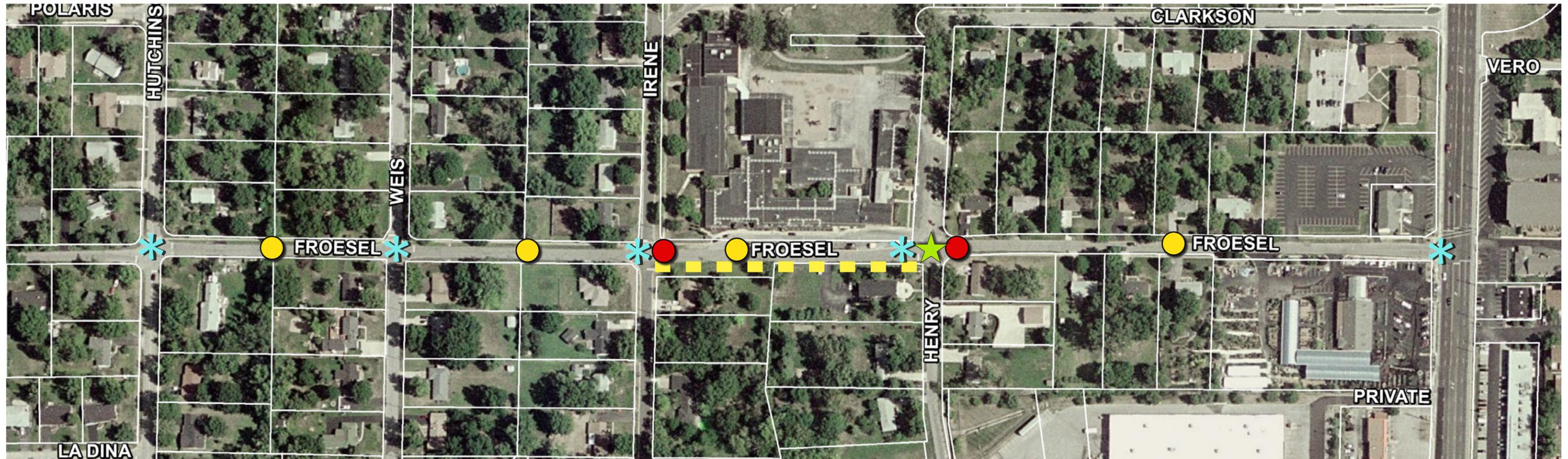
The following page contains a rendering of the Segment 37 seed project. This rendering was created to help promote the bikeable walkable plan and to be used as an aid in public outreach and education.

In addition to the rendering, detailed cost break downs and concept site plans were completed for both seed projects in order to provide the City with a better understanding of implementation costs.

The segment 37 rendering and cost opinion breakdowns and plans for Segment 32 and Segment 37 can be found on the following pages.



Seed Project - Site Rendering of the Intersection at Froesel and Irene
Segment 37 - Froesel Road Improvements



Legend

-  Sidewalk
-  Bike Route Signage / Markings
-  Enhanced Crosswalks with ADA Ramps
-  Rectangular Flashing Beacon
-  Curb Extensions



Curb Extension with Enhanced Crosswalk and ADA Ramp



Rectangular Flashing Beacon



Typical Bike Route Signage

Seed Project - Site Plan

Segment 37 - Froesel Road Improvements



Segment 37 - Froesel Road Pre-Engineered Cost Opinions

Hutchinson & Froesel

Item	Quantity	Unit	Unit Cost	Subtotal
Enhanced Cross Walks	2	each	\$2,000.00	\$4,000.00
ADA Ramps	4	each	\$1,000.00	\$4,000.00
			Subtotal	\$8,000.00

Weis & Froesel

Item	Quantity	Unit	Unit Cost	Subtotal
Enhanced Cross Walks	1	each	\$2,000.00	\$2,000.00
ADA Ramps	2	each	\$1,000.00	\$2,000.00
			Subtotal	\$4,000.00

Irene & Froesel

Item	Quantity	Unit	Unit Cost	Subtotal
Enhanced Cross Walks	4	each	\$2,000.00	\$8,000.00
ADA Ramps	8	each	\$1,000.00	\$8,000.00
Rectangular Flashing Beacon (2 Per Unit)	2	each	\$3,200.00	\$6,400.00
			Subtotal	\$22,400.00

Henry & Froesel

Item	Quantity	Unit	Unit Cost	Subtotal
Curb Extension (North Side of Intersection)	2	each	\$5,000.00	\$10,000.00
Enhanced Cross Walks	4	each	\$2,000.00	\$8,000.00
ADA Ramps	8	each	\$1,000.00	\$8,000.00
Rectangular Flashing Beacon (2 Per Unit)	2	each	\$3,200.00	\$6,400.00
			Subtotal	\$32,400.00

Clarkson & Froesel

Item	Quantity	Unit	Unit Cost	Subtotal
Enhanced Cross Walks	4	each	\$2,000.00	\$8,000.00
ADA Ramps	8	each	\$1,000.00	\$8,000.00
			Subtotal	\$16,000.00

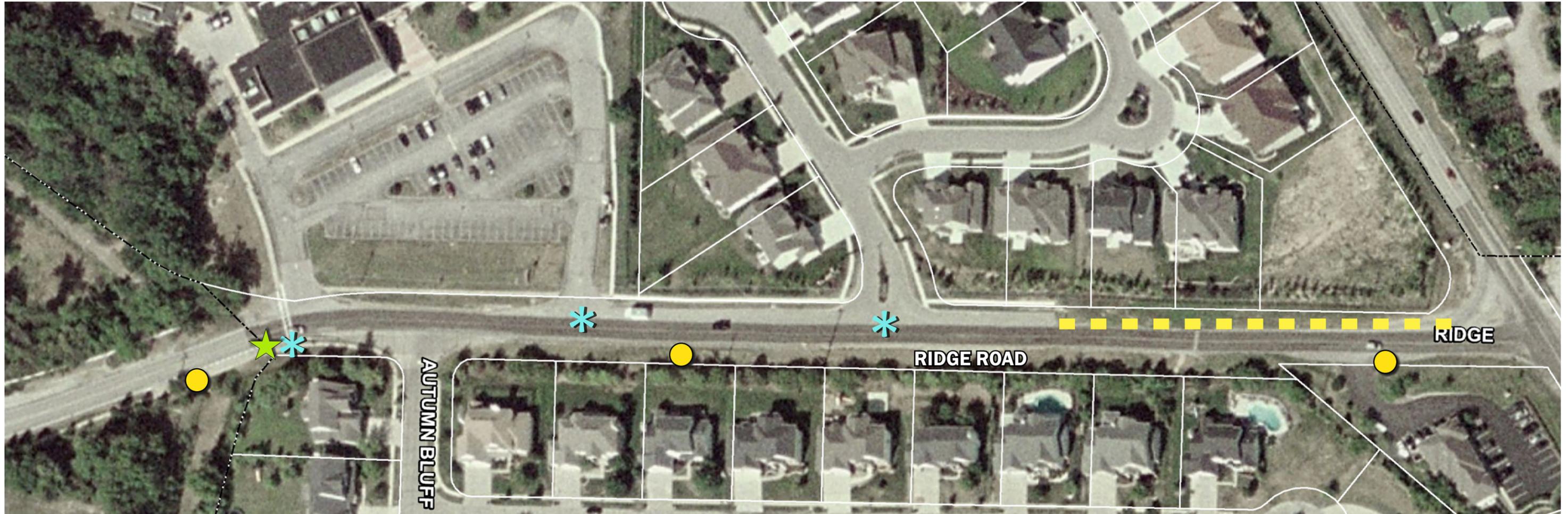
Segment Wide

Item	Quantity	Unit	Unit Cost	Subtotal
5' Wide Concrete Sidewalk (Across From Elementary School)	460	linear feet	\$30.00	\$13,800.00
Bike Route Signs and Markings (4 Per Side of Street)	8	each	\$810.00	\$6,480.00
			Subtotal	\$20,280.00

Note:

- 1) Opinions of costs are pre-engineered and do not include engineering design work or utility work.
- 2) Design fees below the "Subtotal" are not assessed on Trail Wide Costs as design fees are already included in those unit cost numbers.

Subtotal:	\$103,080.00
12% Design Fees	\$9,936.00
10% General Conditions	\$10,308.00
15% Construction Contingency	\$15,462.00
Total:	\$138,786.00



Legend

-  Sidewalk
-  Bike Route Signage / Markings
-  Enhanced Crosswalks with ADA Ramps
-  Curb Extensions



Curb Extension with Enhanced Crosswalk and ADA Ramp



Bike Route Signage



Seed Project - Site Plan

Segment 32 - Ridge Road Improvements



Segment 32 - Ridge Road Pre-Engineered Cost Opinions

Intersection at Elementary School on Ridge Road

Item	Quantity	Unit	Unit Cost	Subtotal
Enhanced Cross Walks	3	each	\$2,000.00	\$6,000.00
ADA Ramps	6	each	\$1,000.00	\$6,000.00
Curb Extension/Restructuring at Trail Head & Crosswalk Intersection	2	each	\$5,000.00	\$10,000.00
Subtotal				\$22,000.00

Segment Wide

Item	Quantity	Unit	Unit Cost	Subtotal
5' Wide Concrete Sidewalk (North of Elementary School)	500	linear feet	\$30.00	\$15,000.00
Bike Route Signs and Markings (4 Per Side of Street)	8	each	\$810.00	\$6,480.00
Subtotal				\$21,480.00

Note:

- 1) Opinions of costs are pre-engineered and do not include engineering design work or utility work.
- 2) Design fees below the "Subtotal" are not assessed on Segment Wide Costs, as design fees are already

Subtotal:	\$43,480.00
12% Design Fees	\$2,640.00
10% General Conditions	\$4,348.00
15% Construction Contingency	\$6,522.00
Total:	\$56,990.00



Pedestrian Node Improvement Costs

These opinions of probable cost provide the City with conceptual design, pre-engineered, costs to help plan budgets for pedestrian node facility improvements. General costs are developed for all recommended nodes and are divided into two categories: Minimum Improvements and Long Term Improvements.

Minimum Improvement Costs reflect the addition of design elements that create minimally safe pedestrian environments. These improvements should be implemented by the City when adjacent trail segments are constructed.

Long Term Improvement Costs reflect the addition of design elements that create ideal pedestrian environments. These types of improvements should be evaluated by the City when adjacent facility segments are constructed. If funding sources are available these improvement elements should be added during initial construction. However, the Long Term Improvements could be phased in at individual nodes as when schedule and funding allow.

A detailed cost breakdown for Pedestrian Node Improvements can be found on the following pages.



Cost Breakdown Chart Recommended Pedestrian Nodes

Node	Intersection		Existing Traffic Control	Minimum Improvements					Total Estimated Cost	Long-Term Improvements						Total Estimated Cost
	Main Street	Cross Street		Crosswalk	ADA Curb Ramps	Push Buttons	Ped Heads	Ped Activated Signals		Enhanced Crosswalk	Blank-Out Signs	Ped Activated Signal	Curb Extensions	Traffic Circles	Australian Right Turn Lanes	
A	Clayton	Valley/Wolff	Signal	0	0	0	0	0	\$ -	3	0	0	0	0	0	\$ 6,000.00
B	Clarkson	Clayton	Signal	0	0	0	0	0	\$ -	4	0	0	0	0	0	\$ 8,000.00
C	Hutchinson	Marsh	Four-Way Stop	3	0	0	0	0	\$ 3,645.00	3	0	0	0	0	0	\$ 6,000.00
D	Clarkson	Marsh	Signal	2	0	2	0	0	\$ 1,068.00	3	0	0	0	0	0	\$ 6,000.00
E	Hutchinson	Froesel	Four-Way Stop	2	4	0	0	0	\$ 4,430.00	2	0	3	0	0	0	\$ 41,200.00
F	Froesel	Irene	Four-Way Stop	4	8	0	0	0	\$ 8,860.00	4	0	4	0	0	0	\$ 57,600.00
G	Froesel	Henry	Four-Way Stop	4	8	0	0	0	\$ 8,860.00	4	0	4	2	0	0	\$ 64,600.00
H	Clarkson	Froesel	Signal	2	8	0	0	0	\$ 8,430.00	4	0	0	0	0	0	\$ 8,000.00
I	Manchester	Old State	Signal	0	0	0	0	0	\$ -	Refer to Manchester Great Streets (MGS)	2	Refer to MGS	2	2	2	\$ 200,000.00
J	Clarkson	Manchester	Signal	0	0	4	0	0	\$ 1,276.00	Refer to MGS	2	Refer to MGS	2	2	2	\$ 200,000.00
K	Manchester	Best Buy	Signal	2	0	2	3	0	\$ 3,468.00	0	2	Refer to MGS	0	Refer to MGS	0	\$ 3,000.00
L	Manchester	Shop 'n Save	Signal	2	0	2	2	0	\$ 2,668.00	0	4	Refer to MGS	0	Refer to MGS	0	\$ 6,000.00
M	Old State	Macklin	One-Way Stop	0	0	0	0	0	\$ -	0	0	0	0	0	0	\$ -
N	Kiefer Creek	Whipoorwill Trail	Unsignalized Crosswalk	0	0	0	0	1	\$ 12,400.00	0	0	1	0	0	0	\$ 12,400.00
O	Old State	Pierside Ln.	Signal	0	0	0	0	0	\$ -	3	0	0	0	0	0	\$ 6,000.00
P	Kiefer Creek	Polo Lake Dr.	Unsignalized Crosswalk	1	1	0	0	0	\$ 1,215.00	0	0	1	0	0	0	\$ 12,400.00
Q	Kiefer Creek	Crossing	Unsignalized Crosswalk	0	0	0	0	0	\$ -	0	0	0	0	0	0	\$ 12,400.00
R	Ridge Rd.	Elementary School	Unsignalized Crosswalk	3	6	0	0	0	\$ 6,645.00	3	0	2	2	0	0	\$ 37,800.00



6.3 Funding Sources

The City of Ellisville can draw from a variety of federal, local, and private-sector funding sources to fund bicycle and pedestrian infrastructure improvements and programs. Where possible, local funds should be leveraged as match to secure external funding, maximizing the impact of local investment. In addition, the City should consider partnering with local agencies such as Great Rivers Greenway, neighboring municipalities, St. Louis County Highways and Traffic, and MoDOT to identify cost-sharing opportunities. The following list of funding sources is by no means exhaustive, but instead aims to provide a broad sampling of funding sources with which to implement components of the plan.

Federal Funding Sources

- **Surface Transportation Program (STP)**

The Surface Transportation Program provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intra-city and intercity bus terminals and facilities. The STP is administered by MoDOT through the East West Gateway Council of Governments on an annual basis.

More information:

<http://www.ewgateway.org/>

<http://www.fhwa.dot.gov/safetealu/factsheets/stp.htm>

- **Highway Safety Improvement Program (HSIP)**

Developed to reduce traffic fatalities and serious injuries on all public roads, the HSIP provides a funding source for local entities to develop countermeasures to improve bicyclist and pedestrian safety. Eligible projects include safety improvements for cyclists and pedestrians both on-road and on publicly owned bicycle and pedestrian pathways or trails.

More information:

<http://safety.fhwa.dot.gov/hsip/>

<http://www.fhwa.dot.gov/safetealu/factsheets/hsip.htm>

- **Transportation Enhancements Program**

Ten percent of Missouri's Surface Transportation Program funds are required to be set aside for applicants to develop infrastructure in



10 non-motorized and tourist-related categories such as trails and greenways. Approximately 80:20 match. The program is administered by Missouri Department of Transportation (MoDOT) in cooperation with East West Gateway Council of Governments.

More information:

<http://www.ewgateway.org/>

<http://www.enhancements.org/>

<http://www.fhwa.dot.gov/environment/te/>

- **Congestion Mitigation and Air Quality Program (CMAQ)**

The CMAQ Program funds projects and programs that improve air quality by reducing automobile emissions. Potential projects include bicycle and pedestrian facilities, traffic flow improvements, diesel engine retrofits, and shared ride services.

More information:

http://www.fhwa.dot.gov/environment/air_quality/cmaq/

- **State and Community Highway Safety Grant Program (Section 402)**

Section 402 Highway Safety Funds can be used to develop and support programs that aim to reduce traffic crashes and increase pedestrian safety. While these funds are more commonly used to increase law enforcement activities and develop statewide data systems, they can be utilized to develop safety education programs and community-wide pedestrian safety campaigns.

More information:

<http://safety.fhwa.dot.gov/policy/section402/>

- **Safe Routes to School (SR2S)**

Funding is available annually through the Missouri Department of Transportation through federal highway safety funds to provide for safe biking and walking infrastructure and behavior programs for children in grades K-8, including children with disabilities.

More information:

<http://www.modot.mo.gov/safety/SafeRoutesToSchool.htm>

<http://safety.fhwa.dot.gov/saferoutes/>

<http://www.saferoutesinfo.org/>



- **Transportation, Community and System Preservation Program (TCSP)**

The Federal Highway Administration's TCSP program provides funding for planning grants, implementation grants, and research that investigates the links between transportation, community, and system preservation. The implementation grants have been used to fund pedestrian improvements, bike paths, multi-use paths, complete streets implementation, and other non-motorized transportation initiatives.

More information:

<http://www.fhwa.dot.gov/tcsp/projects.html>

- **Recreational Trails Program**

Grants are available for motorized and non-motorized trail development, renovation, and preservation for cities, counties, schools, and all business types. Projects require a 20% minimum match. The grant application period ends in August and is administered by the Missouri Department of Natural Resources-Division of State Parks. The funding is provided through the Federal Highway Administration.

More information:

<http://www.mostateparks.com/grantinfo.htm>

<http://www.fhwa.dot.gov/environment/rectrails/>

- **Rivers, Trails and Conservation Assistance Program (RTCA)**

Administered by the National Parks Service, the RTCA works throughout the country to assist community-led natural resource conservation and outdoor recreation projects. While the RTCA does not provide direct funding for projects, they do provide valuable technical assistance for conceptual planning, capacity building, and organizational development.

More information:

<http://www.nps.gov/ncrc/programs/rtca/>

- **Land & Water Conservation Fund**

Grants are available to cities, counties and school districts for outdoor recreation facilities, including trails. Projects require a 55% match. Funded facilities must remain for the purpose of public outdoor recreation in perpetuity. LWCF grants are funded by the US Department of Interior, National Park Service and administered by the Missouri Department of Natural Resources-Division of State Parks.



More information:

<http://www.mostateparks.com/grantinfo.htm>

<http://www.nps.gov/lwcf/>

Private Sector Funding Sources

- **The Kodak American Greenways Program**

Funded by The Conservation Fund, Eastman Kodak Company, and the National Geographic Society, the program provides “seed” grants for the planning and design of greenways and other open space systems. Since 1989, the program has granted over \$800,000 to nearly 700 organizations across the country.

More information:

http://www.conservationfund.org/kodak_awards

- **Bikes Belong Grant Program**

Bikes Belong, a national organization dedicated to putting more people on bikes more often. The organization funds multi-use trail projects, BMX facilities, mountain bike trails, and advocacy efforts, with a strong desire to leverage federal funding in the process. Bikes Belong has awarded over 200 grants since 1999, investing \$1.7 million and leveraging close to \$650 million in federal, state, and private sector funding.

More information:

<http://www.bikesbelong.org/grants/>

- **Adopt a Bikeway/Sidewalk/Trail Program**

Local organizations, businesses and community groups often engage in civic projects, including Adopt-A-Highway programs and other landscaping and beautification projects. The City could develop an “Adopt-A-Trail” or “Adopt-A-Sidewalk” program to assist in the routine maintenance or landscaping of the City’s bicycle and pedestrian network.

- **Missouri Foundation for Health’s Healthy and Active Communities Program**

MFH, the state’s largest healthcare foundation, works to improve health in the communities it serves. Through the H&AC program,



MFH funds organizations to combat obesity through changes in policy, environment, and social networks. Funded projects include community-wide intervention strategies, bike-to-school programs, increasing multi-use trail accessibility, efforts to adopt complete streets policies, bike check-out programs, and other innovative programs and infrastructure improvements to increase physical activity.

More information:

<http://www.mffh.org/>

- **St. Louis County Municipal Park Grant**

This program provides roughly \$3 million annually for the 91 municipalities throughout St. Louis County to fund regional and local parks initiatives. The Funds are administered through the St. Louis County Municipal League.

More information:

<http://www.muniparkgrants.org/>

- **Robert Wood Johnson Foundation**

The Robert Wood Johnson Foundation (RWJF) offers a wide range of funding opportunities dealing with healthy and active living. Anyone is eligible to apply, but check the website to make sure that you meet requirements per grant. For more information, check the website periodically for new calls for proposals.

More information:

<http://www.rwjf.org/applications/solicited/cfplist.jsp>

Local Funding Sources

- **Local Option Sales Taxes**

Since 2006, the City of Ellisville has utilized a ¼ cent sales tax to fund Parks and Recreation Department maintenance, operations, construction, and programs. Revenue from this sales tax can be leveraged as a local match for external funds, extending the value of local dollars even further.

The City also has a ½ Cent Sales Tax Stormwater Improvement Program, passed by general vote in 1995, to rebuild residential streets with



inadequate or non-existent stormwater systems. This program has incorporated new sidewalks into a number of projects. When possible, this funding source should be utilized to provide sidewalks into existing residential neighborhoods where sidewalks do not exist.

- **System Development Charges/Developer Impact Fees**

As new development occurs, the municipality may charge developers to fund the additional service capacity required by the development. These development charges, or impact fees, can be used to construct transportation infrastructure, including roads, transit stations or stops, and bicycle and pedestrian facilities.

More information:

<http://www.impactfees.com/index.php>

<http://www.mdt.mt.gov/research/toolkit/ml/ftools/dei/if.shtml>

- **Community Improvement Districts (CIDs)**

A CID is a defined area in which property owners pay an additional tax or fee to finance capital improvements, additional security, or marketing the district as a commercial destination. Potential capital improvements include sidewalks, street lighting, benches, trash receptacles, information kiosks, public art projects, and other pedestrian-oriented features.

More information:

<http://www.moga.mo.gov/const/a03038c.htm>

http://www.stlrcga.org/Documents/Incentives/MO_CID%20Detail.pdf

<http://www.missouridevelopment.org/community%20services/Local%20Finance%20Initiatives/Community%20Improvement%20District.html>

- **Neighborhood Improvement Districts (NIDs)**

Similar to Community Improvement Districts, NID's are created to finance public-use improvements through special tax assessments to property owners in which the improvements are made. Typical improvements in NID's include sidewalk and crosswalk improvements, street lighting systems, parks and recreational facilities, pedestrian bridges, overpasses or tunnels, and landscaping enhancements.

More information:

<http://www.moga.mo.gov/statutes/C000-099/0670000453.HTM>

<http://www.missouridevelopment.org/community%20services/Local%20Finance%20Initiatives/Neighborhood%20Improvement%20>



SECTION 7.

Appendix Contents

The Appendix documents are enclosed digitally on a disc attached to the inside back cover of the report. Included here is a contents list of the items that may be found on the disc.

May 4, 2010, Public Meeting

- Flyer
- Agenda
- Sign-In Sheet
- Presentation
- Comment Form- Blank
- Comment Forms- Completed
- Group Brainstorm- Notes
- Maps used at Meeting
- Maps with notes from Small Group Activity
- Maps-Revised after Meeting

July 10, 2010, Walkability Audit

- Flyer
- Walkability Checklist- Form
- Walkability Checklist- Completed
- Newspaper Article

July 24, 2010, Pedal to the Parks Event

- Flyer

August 5, 2010, Public Meeting

- Sign-In Sheet
- Handout-Welcome and Presentation Components
- Handout-Survey and Comment Form
- Boards with Maps and Additional Information
- Maps with notes from Group Feedback

Public Survey

- Survey Questions
- Survey Results Summary
-

Stakeholder Interviews

- Stakeholder Interviews

Traffic Accident Data

- Ellisville 2009 Annual Report of Police Services- Traffic Accident Section
- Ellisville Accident Reports 2006-2010