A Comprehensive Alternative Transportation Plan for the City of Columbia, Illinois
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Executive Summary

This document represents the Explore Columbia Comprehensive Alternative Transportation Plan. The objective of this plan is to provide a conceptual framework guiding future on- and off-street bicycle and pedestrian facilities, with the overarching goal to transform the City of Columbia into an even more bicycle- and pedestrian-friendly community.

This planning process began in Summer 2012 and included two public open houses and a public walking workshop. Multiple surveys were completed by Columbia residents and comments were solicited and received at every juncture. The vast majority of residents who participated in the survey and open houses were in favor of helping make Columbia’s streets more friendly to people on foot, on bike, and using other forms of non-motorized transportation on trails and on streets. Existing facilities see a high rate of usage and will serve the City well as the foundation of its future connected network. While this is a long-term plan meant to take up to 20 years to implement, it provides the blueprint, in the form of phases, for constant progress. As more phases of this plan are implemented, the more positive impacts will be realized.

It is our hope that this plan, once implemented, will enable users of all skills, interests and needs to get out and Explore Columbia!
Introduction & Existing Conditions
Purpose

Columbia is located in the Metro East area of the St. Louis Metropolitan Region. Situated in the Southwestern Illinois county of Monroe, Columbia is a majority residential community, otherwise known as a “bedroom” community. Nearby towns and villages such as Waterloo, Valmeyer, Millstadt and Dupo help create a unique rural environment, rich in history and heritage.

Columbia commissioned this study to investigate and determine the most suitable and appropriate routes for residents and visitors to explore the City by bicycle or foot. The results of this citizen-driven process illustrate how the City can grow, enhance and plan for the future of its alternative transportation network.

This planning process and subsequent report were guided by two basic methods of exploration: transportation and recreation. With an increasingly sedentary and overweight population nationwide, access to recreational facilities, including trails, is becoming more important for many citizens. Additionally, the rising cost of fuel has inspired many people to search for alternative methods of transportation to their workplace and shopping destinations.

This plan builds on the many existing high-quality facilities in Columbia, as well as those currently under development. This comprehensive, long-range analysis outlines a blueprint for a connected system of both bicycle and pedestrian facilities. Also included is a phased implementation strategy based on citizen- and data-driven priorities. The piece-by-piece approach to the construction of this network will enable the City to be proactive in searching for grant funding, along with leveraging available resources.

City History

The original inhabitants of the Columbia area were Native Americans; tribes in southwestern Illinois included those of Peoria, Piankashaws, and Kaskaskias descent. Native populations were followed by English settlers and French traders. English-speakers were scattered in small settlements in Belle Fontaine (Waterloo, IL) and what would become Monroe County. The French were clustered in Cahokia, Kaskaskia, and Prairie du Rocher. Located on the Kaskaskia Trail and near the Mississippi River, Columbia became an attractive stopping-off point for pioneers and immigrants. German immigrants, in particular, were attracted to Columbia, and many took up permanent residence in Columbia. The City of Columbia was originally laid out in 1820 and incorporated in 1859.

Columbia has been able to maintain its small-town charm by encouraging responsible growth, fostering strong community participation, and embracing its German American heritage. The City maintains a ‘Sister-City’ relationship with the town of Gedern, Germany, including a student-exchange program. Columbia has grown and prospered due to the strong work ethic and community spirit of its residents. Today, it includes an educated population, strong schools and a tremendous quality of life. Family-
Main & Route 3) in order to avoid demolition due to the widening of Illinois 3. Today, the Shoemaker School is used as Welcome Center for Monroe County and an interpretive facility of the region’s heritage for schools groups, long-time residents, and visitors to the City. Additionally, Sand Bank School, the first English-speaking school in Monroe County opened in a log cabin in 1783. In 1817, a second Sand Bank School structure was constructed by the son of Revolutionary War veteran James Piggot. The current one-room school was built in 1855 and decommissioned around 1952, after which it was purchased by a local family and used as their residence until 1999. In 2009, local volunteers and generous donations from local residents restored the old school to its former glory. Today, Sand Bank School is available for small parties, wedding receptions, and other events.

Columbia’s parks and recreation facilities and activities are abundant—indeed, Columbia has been recognized as a Playful City USA. Park pavilions are popular gathering places for residents to celebrate birthdays, reunions, and other milestones and also popular venues for community events. The City’s parks contain walking trails, pavilions, picnic areas, playgrounds, horseshoe pits, and ball fields and courts. Cyclists from both sides of the Mississippi River come to Columbia to begin their ride down Bluff Road and enjoy miles of the scenic American Bottoms. Day or night, people of all ages can be found enjoying the simple recreational pleasure of a walk along Columbia’s historic Main Street.

Census Statistics
According to the 2010 Census and the American Community Survey (ACS), the population of Columbia is 9,707, which is a 22.5% increase from 2000. Columbia is approximately 9.4 square miles in size, with a gross residential density of approximately 1,031 persons per square mile. This density is well-suited to incorporating methods of alternative transportation into the city infrastructure. The population is evenly split with regards to gender, and evenly distributed across age groups: 6% under age 5, 27% under age 18, and 14.3% over age 65. Historically, bicycle and pedestrian facilities would be targeted at the under 18 and between 18-65 age groups. However, the “baby boomer” generation has shown an increased desire for exercise and recreation opportunities, with walking and cycling high on the list of desired activities. Therefore, the target audience for this planning effort is any adolescent or adult who is interested in walking or biking for play, recreation or transportation or any child who, under parental supervision, could benefit from sidewalk and trail portions of the system.

Columbia is largely a residential community and boasts a homeownership rate of 77% indicating an investment in their community. Ninety percent of residents have a high-school diploma and 29% have earned bachelor’s degrees or higher. The median household income is $65,965 and there are an average
of 2.5 people per household. **Thirty-five percent of households have children under the age of 18.** The mean travel time to work is 24 minutes, and 85% of residents drive alone. Ten percent of commuters are carpooling and less than 1% utilize public transportation. Two percent of residents work at home and only 2.6% of residents walk to work. The long average travel time to employment destinations is not conducive to a modal switch to cycling or walking as most people will not participate in alternative transportation for commuting if the trip is longer than 10 miles. However, fewer than 20% of all trips are for commuting. Education and encouragement efforts should therefore be focused on social, commercial, recreational and school trips (internal city transportation).

This data indicates an ideal audience for the implementation of a comprehensive alternative transportation network within the City of Columbia.

**“X” Marks the Spot: Popular Destinations**

Within the City limits, there are a number of destinations that will influence the planned network (see Existing Conditions Map on page X). The following is a list of these important activity centers:

**Shopping Centers**
- Market Place/Columbia Centre
- Main Street businesses
- Admiral Trost Commercial Area
- Southwoods Center
- Red Roof Liquor & Lottery
- North Main/Rte 3 Complex

**Parks/Recreation Centers**
- Bolm Schuhkraft Park
- Metter Park
- American Legion
- Stone Arch Bridge Park - Monroe County Welcome Center
- Oerter Soccer Park
- Meadowridge Park
- Admiral Trost Park
- Creekside Park - Planned
- Columbia Soccer Fields

**Education Centers**
- Eagleview Elementary School
- Parkview Elementary School
- Columbia Middle School
- Columbia High School
- Immaculate Conception

**Community Centers**
- Columbia City Hall
- Columbia Soccer Fields
- River Lakes Golf Course
- Columbia Sportsmans Club
- Columbia Golf Course
- The Bridges Golf Club
- Turner Hall
- American Legion Hall
- Columbia Public Library
- Sand Bank School
- Restaurants/Bars/Cafes/Churches
**Columbia Play Commission**
The City of Columbia staff, elected officials, and residents have worked hard to establish the existing parks system; which includes five highly-regarded and heavily-used parks, as well as a park under development and one future planned park. These green spaces offer a variety of amenities such as pavilions, playgrounds, sports fields and walking trails. The Columbia Play Commission, established in 2009, is a nine-member citizen body which advises the City Council on issues related to Parks & Recreation.

In 2010, Columbia gained national recognition as a Playful City USA and continues to push for outdoor recreation areas to improve the City. Along with maintaining Bolm-Schuhkraft, Metter, American Legion, Meadow Ridge, and School House parks, the Play Commission has worked to improve and extend the trail along the railroad corridor adjacent to American Legion Park, is working to develop the newest park – Admiral Trost Park, and continues to consider the future recreation plans, starting with the proposed Creekside Park.

**Other Motivating Factors: Community Health Needs**

The University of Wisconsin’s Population Health Institute has analyzed a series of factors to produce a ranking for counties of Illinois in two categories: health outcomes (premature death, overall morbidity, etc.) and health factors (obesity, smoking, etc.). The analysis is intended to produce a picture of overall community health based on factors like quality of health care, individual behavior, education, employment and environmental factors. The goal is to capture a picture of both physical and mental health.

The results published in the County Health Rankings: Mobilizing Action Toward Community Health – Illinois 2012 report (countyhealthrankings.org). Monroe County is ranked 13 out of 102 counties (1 being the healthiest and 102 being the least healthy county in Illinois) for Health Outcomes and 2 out of 102 for Health Factors. These rankings indicate a high demand for healthy living in Monroe County communities. Improving active transportation networks will fulfill demand for improved infrastructure and improve safety for residents already walking and biking.

**Projected Economic Impact Benefits**

In June 2009, the League of Illinois Bicyclists published “The Economic Benefits of Bicycle Infrastructure Investments”. The article highlights the benefits for state and local economies, the benefits for business districts and neighborhoods, and identifies the cost savings for the individual user. “The evidence demonstrates that investments in bicycle infrastructure make good economic sense as a cost effective way to enhance shopping districts and communities, generate tourism and support business.”

- A study commissioned by the Colorado Department of Transportation in 2000 determined that bicycling contributed **$1 billion** to the economy from manufacturing, retail, tourism and bike races.
- Maine has made a concerted effort to improve its bicycle infrastructure since 1991 by widening shoulders and creating shared-use paths, generating **$66 million a year** in bicycle tourism.
- North Carolina’s Outer Banks spent **$6.7 million** on bicycle infrastructure and have seen an annual **nine to one return on that one-time investment**. Expenditures by the 680,000 annual visiting bicyclists support **1,400 jobs** in the area.
- As a result of policies that encourage bicycling and maintain urban density, reducing auto-dependency, Portland, Oregon residents save on transportation costs and have more money to spend on things
they value. Compared to commuting patterns in the median American city, Portlanders travel 2.9 billion fewer miles and spend 100 million fewer hours, saving $2.6 billion a year.

**Treasure Hunt: Explore Columbia Data Collection**

Data collection for the Explore Columbia plan began with the launch of a paper and online survey in May 2012 for residents and visitors of Columbia. Survey responses were collected through 2nd Open House and the survey was closed in September 2012, culminating with a total of 140 survey participants.

Of all the respondents, 86% thought the City of Columbia should consider non-motorized transportation (i.e. walking and biking) a priority. About 53% of the survey participants were people in their thirties, with 45% claiming they have children under the age of 10 and 26% with children ages 11 – 18, we can determine from these results the target audience for pedestrian and bicycle plans are families. The second highest participating -40%- age group is older, active adults ages 46 -60.

When it comes to walking, residents of Columbia are already very active; 75% of the survey takers currently walk three or more times a week. Additionally, 84% of the survey respondents claimed they would walk even more if new sidewalks, trails and safer streets and road crossings were provided for pedestrians.

Biking in the City is becoming more popular. Thirty-five percent of those surveyed said they bike a few times per month, while 22% bike a few times per week. Sixty-three percent of participants classified themselves as a basic cyclist. When asked if they would bike more often if there were more bicycle routes, bicycle lanes and safer streets and road crossings, 85% stated yes they would bike more. The leading purpose for walking and biking in the area proved to be for fitness and/or recreation.

So what is discouraging residents from walking and biking? Residents surveyed claimed the leading factor discouraging walking is the lack of sidewalk (60%), followed closely by pedestrian unfriendly street and land uses (56%), and automobile traffic and speeds (53%). As far as biking, it seems a general lack of cycling friendly facilities keeps residents from biking more often. 72% claim lack of bicycle lanes was the leading factor discouraging cycling, followed

**Corridors in Most Need of Improvement:**

- Main Quarry Corridor
- Palmer Bluff
- Metter Gall
- Ghent
- Valmeyer
- Old Railroad Route 3
by inadequate shoulder width (64%) and lack of off street trails (64%). In addition motorist behaviors also play a role in people deciding not to ride; 50% cited inconsiderate motorist as a discouragement and 49% are deterred by high-speed automobile traffic.

When asked to rate a list of programs and activities that had the potential to make Columbia a better place to walk and bike, the programs rated as having the greatest potential included:

- Those encouraging children to walk and bike to school (e.g. walking school buses and walk to school day)
- Programs that improve motorist awareness of cyclists, pedestrians, and other road users
- Activities which encourage residents to walk and/or bike to local business (e.g. walk/bike to work week, community bike/walk, bike racks)
- Education programs that teach children basic cycling skills

Open House #1
The first Explore Columbia Open House was held June 26, 2012 at the Centennial Pavilion at Bolm-Schuhkraft Park. The 22 people in attendance, were given the opportunity to comment on destinations they would like to travel to by bike or foot, preferred corridors for walking and biking, and potential barriers to these activities. In addition there were copies of the survey available and paper maps for commenting. Representatives from Walgreens and the local bike shop were present to visit with attendees about their products and services and give away free items and coupons.

Walking Workshop
The first Walking Workshop was rained out with the “rain date” held the following weekend. Only members of the planning team and elected officials with the City were present at the second event, so a more focused workshop was held to examine the logistics of bicycle and pedestrian transportation from the Monroe County Welcome Center to and along the abandoned rail corridor on the north side of Route 3. Potential implementation challenges were identified as well as “low hanging fruit” that could be easily and inexpensively addressed, such as pedestrian signal timing at South Main/Gall Rd and Route 3.

Stakeholder Meetings
Gedern Village Subdivision
On the evening of August 30, 2012 a
meeting with members of the Gedern Village Homeowners Association and surrounding subdivisions/residential areas was held at a conference center in Columbia. It was brought to the attention of the planning team that the HOA owns a 0.2 mile section of abandoned railroad right-of-way, formerly part of the GM&O Railroad. The City of Columbia owns the remaining sections of right-of-way through the city limits, both to the north and south of Gedern Village’s section. The City has long hoped this land would be developed into a multi-use trail and has even started the process by chip-and-sealing a one mile section near American Legion Park. The section in private ownership by Gedern Village is paved with asphalt.

The intent of the meeting was to engage the HOA and surrounding residents to see if they would be in favor of opening the trail to the public in the future as part of a greater trail system, either in a maintenance partnership with the City or through transfer of ownership. Residents were invited by letters mailed to their homes, and at the HOA’s request, residents of Briegel St. and Gedern Estates were also invited. There were nearly 60 people in attendance, which listened to a short presentation, participated in individual keypad polling, and then dived into smaller discussion groups so all could be heard. Below are the outcomes.

Concerns with Gedern Village HOA keeping the trail:
- Maintenance required is both financially and time consuming. Keeping shrubbery trimmed has been a problem in the past and, in the future, repairs to the bridges and pavement surface will prove to be costly.
- There has been a problem with crime recently. Break-ins have occurred where the culprit used the trail to gain better access to homes.
- The trail is not clearly marked as private. Many people from all over the community have used the trail.
- Residents whose houses are adjacent to the trail complained of litter and pet debris in yards.
- In the past, there have been incidents of people driving cars on the trail late at night. Currently all entrances are not protected with post bollards but, there are parking wheel stops at three trail entrances.

Concerns with opening the trail to the public:
- A greater volume of people will be using the trail. More strangers and outsiders will be using the trail.
- The trail will increase crimes including, but not limited to, burglary, vandalism, and bodily harm.
- Litter and pet debris along the trail will increase.
- People coming to use the trail will park in and crowd their neighborhood.
- Trail is considered a private amenity and is paid for by the residents of Gedern Village homeowner fees. Opening the trail to the public will depreciate the value of their homes.
Possible solutions proposed at the meeting:

- Gating entrances so only residents may use the trail.
- Developing trail in a different location.
- Ending public trail before reaching Gedern Village.
- Trail maintained by the City of Columbia.
- Security fences for all houses along right of way.
- Designated parking at trailheads away from neighborhoods for users.
- Properly signing the trail with rules, hours, and a trail name.
- Post bollard lighting for night safety.
- Starting a police bike patrol making regular rounds to Columbia parks, trails, and schools.
- Post bollards at entrances to prohibit vehicular use of the trail.

At the conclusion of the meeting it was determined many residents were not in favor of the Gedern Village Trail being made part of the greater trail system and so, from the south, the planned trail will route on the old rail road corridor until reaching the planned Creekside Park. It will wind through the park meeting Rueck Rd. Users may continue north on-street and join the Palmer/Quarry planned trail.

Civic Progress Committee

On September 12, 2012, members of the planning team presented the draft recommendations for facilities along Main Street to Columbia's Civic Progress Committee, which is comprised of current and former business owners and landowners along Main Street within the Central Business District. Facility recommendations included two major items: painted bike lanes and reverse-angle parking. Economic benefits of a “human scale” main street area were shared with committee members. Response and feedback was positive, with an urgency to develop recommended facilities. See page 39 for how these recommendations could be incorporated into the current projects for Main Street.

Chamber of Commerce

On September 19, 2012, members of the planning team presented at the monthly Columbia Chamber of Commerce meeting. The Explore Columbia plan process and goals were discussed. Business owners were briefed on what the bike plan could mean for their company, including more customers and increased profits from local shoppers as well as possible tourism. They also learned what they could do to help make progress on implementing the plan once completed and adopted. Example of ways to help included: encouraging employees to walk or bike to work, providing bike racks at their business place, and even sponsoring sections of facilities. Everyone seems receptive and excited about the plan. The most common question was, “when are we going to build this?”

Open House #2

The second Explore Columbia Open House was a great success, held September 6, 2012, with over 60 residents, city staff and elected officials in attendance. Those who participated were able
to view and comment on draft plan recommendations along with street view images of each facility type and sample case study photos. Some survey results were also presented and representatives from Walgreens and Columbia Bike Center were again present.

Aside from the primary task of presenting the draft plan to the public, a major goal of the open house was to collect opinions and feedback on potential priorities for implementation. Comments cards (see example below) were filled out by attendees and these comments assisted the planning team in the construction of the prioritization matrix (see page 38 for results).

**Explore Columbia Open House**

Help Us Identify Our Priorities!

Please indicate below which streets, sidewalks, trails or intersections you feel are most important to improve *(PLEASE SHARE YOUR TOP THREE CHOICES)*:

- Palmer/Quarry Trail
- Rail to Trail
- Bluff Road

Other comments about the DRAFT plan:

*DO IT ALL AS FAST AS POSSIBLE!*

*PLEASE RETURN THIS FORM TO A MEMBER OF THE PLANNING TEAM, CITY STAFF OR CITY HALL*
Plan Principles
Plan Principles

For all intents and purposes, the planned users of Explore Columbia facilities are what the Federal Highway Administration terms “Group B/C Bicyclists”. These are “Basic Bicyclists” and children. They are described as the following in the FHWA’s document “Selecting Roadway Design Treatments to Accommodate Bicycles” (FHWA-RD-92-073):

Group B – Basic Bicyclists: These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. They prefer:
- Comfortable access to destinations, preferably by a direct route, using either low-speed, low traffic-volume streets or designated bicycle facilities.
- Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths.

Group C – Children: These are pre-teen riders whose roadway use is initially monitored by parents. Eventually they are accorded independent access to the system. They and their parents prefer the following:
- Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas.
- Residential streets with low motor vehicle speed limits and volumes.
- Well-defined separation of bicycles and motor vehicles on arterial and collector streets or separate bike paths.

Generally, group B/C bicyclists will be best-served by a network of neighborhood streets and designated bicycle facilities, which can be provided by:
• Ensuring neighborhood streets have low speed limits through effective speed enforcement or controls and/or by implementing “traffic-calming” strategies.
• Providing a network of designated bicycle facilities (e.g. bicycle lanes, separate bike paths, or side-street bicycle routes) through the key travel corridors typically served by arterial and collector streets.
• Providing usable roadway shoulders on rural highways.

The recommendations made in this plan should be used as a framework for developing more detailed design-engineering plans during subsequent implementation. The recommended routes and trails are consistent with the bicycle facility design material and typical sections in the Illinois Department of Transportation’s (IDOT’s) Bureau of Design and Engineering Manual (See Appendix). They also reflect the guidance presented in the American Association of State & Highway Transportation Official’s (AASHTO’s) Guide for the Development of Bicycle Facilities and the Manual on Uniform Traffic Control Devices (MUTCD) (See Appendix).

These three documents are fundamental in the current acceptable reference information for developing bicycle facilities. [Note: The full documents should be consulted in the design-engineering/implementation phase of this plan.]
Complete Streets: Illinois Law

According to the American Planning Association (www.planning.org) complete streets accommodate pedestrians, bicyclists, transit, and cars, creating multi-modal transportation networks. In October of 2007, complete streets policy became law in Illinois. It mandates that the principles of complete streets must be incorporated into all new projects receiving state or federal monies and/or projects on state or federal roads and highways.

Both requirements relate to projects in urbanized areas. On June 1, 2010, IDOT formally adopted a series of design policy changes to their Bureau of Design and Environment manual, Chapters 5 and 17, in response to the 2007 “Complete Streets” state law.

The planned separated bike path along Route 3 in Waterloo is one of the first implemented results of this policy. IDOT also has jurisdiction on Route 158. However, the principles of complete streets have been applied to all plan recommendations, creating seamless integration of both pedestrian and bicycle accommodations in the implementation guidelines herein.

There are five categories of complete streets facility types recommended for the City of Columbia. They are as follows (see pages 23-27 for illustrations of these facilities):

1. Share-The-Road (STR) Signs
2. Share-The-Road Signs & Shared Lane Markings (Sharrows)
3. Share-The-Road Signs, Shared Lane Markings & Sidewalks
4. Improved Shoulders & Sidewalks
5. Multi-Use Trails

Definitions of Facility Types:

- **Share-The-Road Signs**: The use of signs designates these facilities as recommended on-street bicycle routes for advanced cyclists. The purpose of these signed routes is simply to increase awareness of both the automobile operator and the cyclist to the presence of the other and a reminder of their rights to the roadway. Many of these routes are/will be used by Advanced Cyclists - the recommended signs are strictly to improve safety conditions.

- **Marked Shared Lane**: Otherwise known as “sharrows”, this facility recommends the use of on-street pavement markings that designate Bicycle Routes along with the area of the Shared Lane that is recommended for use by cyclists choosing to ride on the roadway with automobile traffic. Sharrows are most appropriate, according to the AASHTO Guide for roadways with posted speed limits of 35 mph or less. Signs, for awareness, safety and wayfinding, are also used in this facility. The combination of signs and pavement markings (including through intersections) designates these roadways as the City’s “preferred” locations for on-street cycling. They are especially useful in locations where on-street parallel parking is allowed. These facilities are recommended for both Advanced and Basic Cyclists, but not for Children.

- **Improved Shoulders**: While the width of the shoulders on the roadways recommended for this facility are more than adequate, their surface materials are not. This recommendation includes replacing the current oil and chip surface with a standard asphalt surface - an extension of
the surface used in the roadway. Pavement markings (sharrows) on the repaved shoulders are recommended, as are wayfinding/route signs. The use of this facility eliminates the need for road-widening and related expenses to accommodate bicycle lanes. Due to the high speed and volume of traffic on these roadways, Children are not recommended users.

- **Multi-Purpose Trail:** Multi-Use Trails are 10-12 feet wide (or greater) with a continuous smooth paved surface such as asphalt or concrete, and accommodate bi-directional flow on their own right-of-way. Recommended for only one side of a roadway, these facilities accommodate all levels of users.

- **Sidewalk:** A minimum five feet wide of hard surface, these facilities are primarily recommended for pedestrian use. Recommended for extensive implementation, properly constructed and well-maintained sidewalks are the main component of a successful alternative transportation network. In areas where certain bicycle facilities are not recommended for Children, sidewalks can and should be used. Keeping the sidewalk clear of low-hanging branches, shrubbery and debris, along with maintaining the pavement surface, will encourage novice and advanced children alike to exercise or commute to school.

Two examples of types of safety and wayfinding signs for bicycle facilities.

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**Connectivity & Accessibility**

Street Connectivity is directly related to pedestrian accessibility: the more connected your streets, the easier it is for pedestrians to reach their destination(s). The connectively of any neighborhood or community can be analyzed using the “link-to-node” ratio. Street segments, or blocks, between intersection are “links.” Intersections, or opportunities for connection between links, are “nodes”. The higher the ratio, the more connected the area is. And here is the kicker: the more connected an area is, the **SAFER** and **HEALTHIER** it is, contributing to a more **LIVABLE** environment. [See page 22 for more information about the link-to-node ratio]
However, there is a market preference for un-connected streets, such as cul-de-sacs: the lack of through traffic creates a quiet neighborhood and a perceived safer environment for children. But such transportation facilities are inefficient and discourages pedestrian/bicycle travel.

**Safety**
A review of fatalities in 24 cities shows that safety grows as street networks become denser. Twenty-four medium-sized cities in California were analyzed (Urban Design International Journal, Vol. 15, Issue 3, 2010), producing the following conclusion: The most unsafe cities in terms of traffic fatalities are those developed primarily after 1950. The cities with the fewest fatalities are those built before 1950.

Newer cities tend to have more branching street networks that include many cul-de-sacs, limiting the movement of traffic through residential areas. They also don’t have as many intersections. The pre-1950 cities, on the other hand, tend to be more grid-like, giving motorists many more routes to choose from. Columbia includes a combination of these street grid designs: the historic core is on a modified grid system with topography being a barrier to a traditional grid system; the newer subdivisions outside the historic core illustrate the branching pattern.

More-connected street networks tend to reduce travel speeds. Even a small reduction in speed can boost safety by reducing the severity of accidents. When average vehicle speeds drop just 5%, injuries drop 10% and fatalities fall 20%. Connected street networks may not have fewer crashes over all, but the crashes that occur are less likely to leave someone dead. What matters most is how many intersections fall in a given land area. The more dangerous cities had 41 percent fewer intersections per square mile.

**Health**
Increasing opportunities and options for active transportation creates healthier communities. According to the Centers for Disease Control, “People who are physically active live longer and have a lower risk for heart disease, stroke, type 2 diabetes, depression, and some cancers. Improving spaces and having safe places to walk can help more people become physically active.” Less than half of all adults get the recommended amount of physical activity, and walking requires no special equipment or training.

**Columbia scores a 71 out of 100!**
WalkScore.com is a website communities and residents can use to see the walkability of their community or a travel destination. Results are based on a scale of 1-100. The goal is to fall into the 90-100 point range, where your community is considered a “paradise”. Columbia is “very walkable” and only 19 points away from “paradise”. This should be promoted to encourage higher rates of usership. This type of information is being used more frequently by realtors and home buyers to assess the livability of a potential community.

People in walkable places weigh 6-10 lbs less.
**The Link-to-Node Ratio**

A connected transportation system provides more choices through connectivity. This can be achieved a number of ways:

- **traditional “grid” system**
  - provide increased connections (more nodes and shorter links)
- **“creative cul-de-sacs”**
  - include open space and pedestrian/bicycle facilities built into their design which remove the “roadblocks” to alternative transportation methods
- **“hybrid” cul-de-sacs**
  - intentionally connect to a system of multi-use trails

All the above are methods of creating more livable neighborhoods. A perfect grid has a ratio of 2.5. A link-node ratio of 1.2 to 1.4, about halfway between extremes, is a good target for planning purposes.

So how do you improve your link-node ratio? When planning for new additions to your community, set a target ratio as a standard for developers. To retrofit older parts of your community consider “as the crow flies” connections that have the biggest impact (such as the recommended pedestrian bridge connecting Valmeyer Rd and Meadowridge Park). Easements can be a good solution when crossing private property, as is ensuring the new facilities are maintained and patrolled by law enforcement. **Safe facilities equal high traffic facilities.**

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**Plan Principles**

A one-mile walk in Seattle’s Phinney Ridge takes you through a grid-like street network with a mix of residences and businesses.

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Red lines show potential trail connections that create “hybrid” cul-de-sacs

A one-mile walk in Bellevue, WA with cul-de-sacs and winding streets has few shops and services within walking distance.
**Recommended Facility Types**

**Improved Shoulders & Sidewalks**

**Typical Existing Condition Cross-Section**

Illinois Route 3 - Existing Conditions

<table>
<thead>
<tr>
<th>Street Name/Label</th>
<th>Planned Facility 1</th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Planned Facility 2</th>
<th>Cost</th>
<th>Sharrow</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois Route 3</td>
<td>Sidewalks</td>
<td>12,362</td>
<td>2.3</td>
<td>$ 951,860</td>
<td>Impr. Shoulders</td>
<td>$ 1,705,931</td>
<td>Y</td>
<td>$ 9,889</td>
<td>$ 2,667,681</td>
</tr>
<tr>
<td>North Main Street</td>
<td>Sidewalks</td>
<td>2,232</td>
<td>0.4</td>
<td>$ 171,886</td>
<td>Impr. Shoulders</td>
<td>$ 308,055</td>
<td>Y</td>
<td>$ 1,786</td>
<td>$ 481,727</td>
</tr>
</tbody>
</table>

**Proposed Facility Cross-Section**
## Recommended Facility Types

**Shared Lane Markings & Sidewalks**

**Typical Existing Condition Cross-Section**

<table>
<thead>
<tr>
<th>Street Name/Label</th>
<th>Planned Facility 1</th>
<th>Planned Facility 2</th>
<th>Sharrow</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admiral Trost</td>
<td>Sidewalks 2,075</td>
<td>Shared Lane 1,369</td>
<td>Y</td>
<td>162,793</td>
</tr>
<tr>
<td>Admiral Weinel</td>
<td>Sidewalks 297</td>
<td>Shared Lane 196</td>
<td>Y</td>
<td>23,332</td>
</tr>
<tr>
<td>Bottom Ave</td>
<td>Sidewalks 3,094</td>
<td>Shared Lane 2,042</td>
<td>Y</td>
<td>242,730</td>
</tr>
<tr>
<td>Burroughs</td>
<td>Sidewalks 3,732</td>
<td>Shared Lane 2,463</td>
<td>Y</td>
<td>292,840</td>
</tr>
<tr>
<td>Carl St.</td>
<td>Sidewalks 692</td>
<td>Shared Lane 457</td>
<td>Y</td>
<td>54,288</td>
</tr>
<tr>
<td>Cherry St</td>
<td>Sidewalks 7,736</td>
<td>Shared Lane 1,664</td>
<td>Y</td>
<td>599,364</td>
</tr>
<tr>
<td>Gall Rd</td>
<td>Sidewalks 6,454</td>
<td>Shared Lane 5,183</td>
<td>Y</td>
<td>508,452</td>
</tr>
<tr>
<td>Ghent</td>
<td>Sidewalks 5,798</td>
<td>Shared Lane 3,827</td>
<td>Y</td>
<td>454,908</td>
</tr>
<tr>
<td>Gilmore Lakes</td>
<td>Sidewalks 6,684</td>
<td>Shared Lane 4,411</td>
<td>Y</td>
<td>524,393</td>
</tr>
<tr>
<td>Lakeview Dr.</td>
<td>Sidewalks 2,742</td>
<td>Shared Lane 1,810</td>
<td>Y</td>
<td>215,140</td>
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<tr>
<td>Legion</td>
<td>Sidewalks 1,120</td>
<td>Shared Lane 739</td>
<td>Y</td>
<td>87,865</td>
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<tr>
<td>Metter</td>
<td>Sidewalks 4,222</td>
<td>Shared Lane 2,786</td>
<td>Y</td>
<td>331,254</td>
</tr>
<tr>
<td>Monroe</td>
<td>Sidewalks 853</td>
<td>Shared Lane 563</td>
<td>Y</td>
<td>66,890</td>
</tr>
<tr>
<td>Old Route 3</td>
<td>Sidewalks 8,797</td>
<td>Shared Lane 5,806</td>
<td>Y</td>
<td>690,212</td>
</tr>
<tr>
<td>Parkway</td>
<td>Sidewalks 457</td>
<td>Shared Lane 302</td>
<td>Y</td>
<td>35,874</td>
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<tr>
<td>Sand Bank</td>
<td>Sidewalks 1,860</td>
<td>Shared Lane 1,228</td>
<td>Y</td>
<td>145,943</td>
</tr>
<tr>
<td>Temple</td>
<td>Sidewalks 976</td>
<td>Shared Lane 644</td>
<td>Y</td>
<td>76,539</td>
</tr>
<tr>
<td>Valmeyer Rd</td>
<td>Sidewalks 5,313</td>
<td>Shared Lane 3,507</td>
<td>Y</td>
<td>416,854</td>
</tr>
<tr>
<td>Veterans Parkway</td>
<td>Sidewalks 2,654</td>
<td>Shared Lane 2,981</td>
<td>Y</td>
<td>210,961</td>
</tr>
<tr>
<td>Westpark</td>
<td>Sidewalks 3,581</td>
<td>Shared Lane 2,364</td>
<td>Y</td>
<td>280,971</td>
</tr>
</tbody>
</table>
Proposed Facility Cross-Section

Sidewalk  Bicycle Shared Lanes  Sidewalk

Ghent Rd.
Right-of-Way
### Recommended Facility Types

**Multi-Use Trail**

#### Typical Existing Condition Cross-Section

#### Proposed Facility Cross-Section

<table>
<thead>
<tr>
<th>Street Name/Label</th>
<th>Planned Facility</th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluff/Old Bluff Rd</td>
<td>Trail</td>
<td>7,469</td>
<td>1.4</td>
<td>$507,875</td>
<td>$507,875</td>
</tr>
<tr>
<td>Carr Creek Trail</td>
<td>Trail</td>
<td>2,246</td>
<td>0.4</td>
<td>$152,710</td>
<td>$152,710</td>
</tr>
<tr>
<td>Centerville Ave</td>
<td>Trail</td>
<td>3,957</td>
<td>0.7</td>
<td>$269,069</td>
<td>$269,069</td>
</tr>
<tr>
<td>Creekside Park Trail</td>
<td>Trail</td>
<td>2,481</td>
<td>0.5</td>
<td>$168,725</td>
<td>$168,725</td>
</tr>
<tr>
<td>Palmer/Quarry</td>
<td>Trail</td>
<td>8,004</td>
<td>1.5</td>
<td>$544,283</td>
<td>$544,283</td>
</tr>
<tr>
<td>Potential Rail-to-Trail Phase III</td>
<td>Trail</td>
<td>3,109</td>
<td>0.6</td>
<td>$211,381</td>
<td>$211,381</td>
</tr>
<tr>
<td>Potential Rail-to-Trail Phase I</td>
<td>Trail</td>
<td>2,236</td>
<td>0.4</td>
<td>$152,031</td>
<td>$152,031</td>
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<tr>
<td>Potential Rail-to-Trail Phase II</td>
<td>Trail</td>
<td>2,534</td>
<td>0.5</td>
<td>$172,319</td>
<td>$172,319</td>
</tr>
<tr>
<td>School Connector</td>
<td>Trail</td>
<td>3,208</td>
<td>0.6</td>
<td>$218,110</td>
<td>$218,110</td>
</tr>
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</table>
## Recommended Facility Types

**Shared Lane Markings & Signs (no sidewalks)**

### Typical Existing Condition Cross-Section

<table>
<thead>
<tr>
<th>Street Name/Label</th>
<th>Planned Facility</th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Sharrow</th>
<th>Sharrow Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rueck</td>
<td>Shared Lane</td>
<td>9,318</td>
<td>1.8</td>
<td>$6,150</td>
<td>Y</td>
<td>$7,454</td>
<td>$13,604</td>
</tr>
<tr>
<td>C Road</td>
<td>Shared Lane</td>
<td>2,106</td>
<td>0.4</td>
<td>$1,390</td>
<td>Y</td>
<td>$1,685</td>
<td>$3,075</td>
</tr>
<tr>
<td>DD Road</td>
<td>Shared Lane</td>
<td>13,798</td>
<td>2.6</td>
<td>$9,107</td>
<td>Y</td>
<td>$11,039</td>
<td>$20,146</td>
</tr>
<tr>
<td>Levee Road</td>
<td>Shared Lane</td>
<td>12,733</td>
<td>2.4</td>
<td>$8,404</td>
<td>Y</td>
<td>$10,186</td>
<td>$18,590</td>
</tr>
<tr>
<td>Ramsey Rd</td>
<td>Shared Lane</td>
<td>10,595</td>
<td>2.0</td>
<td>$6,992</td>
<td>Y</td>
<td>$8,476</td>
<td>$15,468</td>
</tr>
</tbody>
</table>
**Plan Principles**

Multi-Use Trail
- Bluff/Old Bluff Rd
- Carr Creek Trail
- Centerville Ave
- Creekside Park Trail
- Palmer/Quarry Trail
- Rail-to-Trail Phase III
- Rail-to-Trail Phase I
- Rail-to-Trail Phase II
- School Connector

Bike Lanes & Sidewalks
- Main Street
- Illinois Route 3
- North Main Street
- Columbia Centre
- D Road

Improved Shoulders & Sidewalks
- Illinois Route 3
- North Main Street

**Shared Lane Markings & Signs**

<table>
<thead>
<tr>
<th>Street Name/Label</th>
<th>Planned Facility</th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Planned Facility 2</th>
<th>Cost</th>
<th>Sharrow</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rueck</td>
<td>Shared Lane</td>
<td>9,318</td>
<td>1.8</td>
<td>$ 6,150</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 7,454</td>
<td>$ 13,604</td>
</tr>
<tr>
<td>C Road *</td>
<td>Shared Lane</td>
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<td>0.4</td>
<td>$ 1,390</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 1,685</td>
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<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 11,039</td>
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<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 10,186</td>
<td>$ 18,590</td>
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<td>Shared Lane</td>
<td>10,595</td>
<td>2.0</td>
<td>$ 6,992</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 8,476</td>
<td>$ 15,468</td>
</tr>
</tbody>
</table>

**Bicycle & Pedestrian Pre-Fab Bridge**

**Explore Columbia Complete Streets Plan (20-year implementation timeline)**

**Estimated Preliminary Expenses**

<table>
<thead>
<tr>
<th>Street Name/Label</th>
<th>Planned Facility</th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Planned Facility 2</th>
<th>Cost</th>
<th>Sharrow</th>
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<tbody>
<tr>
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<td>n/a</td>
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<td>Y</td>
<td>$ 11,039</td>
<td>$ 20,146</td>
</tr>
<tr>
<td>Levee Road *</td>
<td>Shared Lane</td>
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<td>2.4</td>
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<td>$ -</td>
<td>Y</td>
<td>$ 10,186</td>
<td>$ 18,590</td>
</tr>
<tr>
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<td>Shared Lane</td>
<td>10,595</td>
<td>2.0</td>
<td>$ 6,992</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 8,476</td>
<td>$ 15,468</td>
</tr>
</tbody>
</table>

**Supporting Infrastructure**

<table>
<thead>
<tr>
<th>Street Name/Label</th>
<th>Planned Facility</th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Planned Facility 2</th>
<th>Cost</th>
<th>Sharrow</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rueck</td>
<td>Shared Lane</td>
<td>9,318</td>
<td>1.8</td>
<td>$ 6,150</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 7,454</td>
<td>$ 13,604</td>
</tr>
<tr>
<td>C Road *</td>
<td>Shared Lane</td>
<td>2,106</td>
<td>0.4</td>
<td>$ 1,390</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 1,685</td>
<td>$ 3,075</td>
</tr>
<tr>
<td>DD Road *</td>
<td>Shared Lane</td>
<td>13,798</td>
<td>2.6</td>
<td>$ 9,107</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 11,039</td>
<td>$ 20,146</td>
</tr>
<tr>
<td>Levee Road *</td>
<td>Shared Lane</td>
<td>12,733</td>
<td>2.4</td>
<td>$ 8,404</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 10,186</td>
<td>$ 18,590</td>
</tr>
<tr>
<td>Ramsey Rd</td>
<td>Shared Lane</td>
<td>10,595</td>
<td>2.0</td>
<td>$ 6,992</td>
<td>n/a</td>
<td>$ -</td>
<td>Y</td>
<td>$ 8,476</td>
<td>$ 15,468</td>
</tr>
</tbody>
</table>

**Grand Totals**

<table>
<thead>
<tr>
<th></th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Planned Facility</th>
<th>Feet</th>
<th>Miles</th>
<th>Cost</th>
<th>Sharrow</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>183,951</td>
<td>34.9</td>
<td>$ 12,369,521</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Please note that these roadways are outside of Columbia’s current City Limits. Some cooperative agreements will need to be made with the Road Districts and/or Monroe County for successful implementation.
Plan Principles

Facility Type Construction Estimates* (2012)

Page 28 shows the grand totals for estimated implementation of the Explore Columbia Plan. Below are general estimates for the construction of each type of facility. These categories were incorporated into the Geographic Information Systems (GIS) map of Columbia's planned facilities. These estimates confirm the long-range nature of the Explore Columbia Plan, providing City officials and staff with a 20-year implementation timeframe.

*Preliminary construction estimates provided courtesy of Horner & Shifrin, Inc. Engineers and Bernardin, Lochmueller & Associates, Inc.

<table>
<thead>
<tr>
<th>Share-The-Road Sign:</th>
<th>$0.66 / lf</th>
<th>Sharrow:</th>
<th>$0.80 / lf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk:</td>
<td>$77 / lf</td>
<td>Improved Shoulder:</td>
<td>$138 / lf</td>
</tr>
<tr>
<td>Pedestrian Path:</td>
<td>$96 / lf</td>
<td>Multi-Use Trail:</td>
<td>$68 / lf</td>
</tr>
</tbody>
</table>

---

### Preliminary Cost Estimate (All costs shown in per foot of roadway)

#### Multi-Use Trail

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost/FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separated from Roadway, 10' width, 3&quot; HMA Surface, 6' Aggregate Base</td>
<td></td>
</tr>
<tr>
<td>Earth Excavation</td>
<td>$4.50</td>
</tr>
<tr>
<td>Aggregate Base Course</td>
<td>$11.90</td>
</tr>
<tr>
<td>Hot-Mix Asphalt Surface</td>
<td>$28.12</td>
</tr>
<tr>
<td>Misc. Items (Signs, Swales, Culverts, Seeding, Prime Coat, ETC)</td>
<td>$15.00</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$59.52</td>
</tr>
<tr>
<td>+15% Contingency</td>
<td>$8.93</td>
</tr>
<tr>
<td><strong>Total - Per Roadway Centerline</strong></td>
<td>$68.45</td>
</tr>
</tbody>
</table>

**Rounded Total** $68

#### Pedestrian Path

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost/FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separated from Roadway, 6' width, 3&quot; HMA Surface, 6' Aggregate Base</td>
<td></td>
</tr>
<tr>
<td>Earth Excavation</td>
<td>$2.70</td>
</tr>
<tr>
<td>Aggregate Base Course</td>
<td>$7.14</td>
</tr>
<tr>
<td>Hot-Mix Asphalt Surface</td>
<td>$16.87</td>
</tr>
<tr>
<td>Misc. Items (Signs, Swales, Culverts, Seeding, Prime Coat, ETC)</td>
<td>$15.00</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$41.71</td>
</tr>
<tr>
<td>+15% Contingency</td>
<td>$6.26</td>
</tr>
<tr>
<td><strong>Total - Per Roadway Side</strong></td>
<td>$47.97</td>
</tr>
<tr>
<td><strong>Total - Per Roadway Centerline x 2</strong></td>
<td>$95.93</td>
</tr>
</tbody>
</table>

**Rounded Total** $96

#### Sidewalk

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost/FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separated from Roadway, 5' width, 4&quot; Concrete</td>
<td></td>
</tr>
<tr>
<td>Earth Excavation</td>
<td>$2.00</td>
</tr>
<tr>
<td>Concrete Sidewalk</td>
<td>$27.50</td>
</tr>
<tr>
<td>Misc. Items (Swales, Seeding, ETC)</td>
<td>$5.00</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$34.50</td>
</tr>
<tr>
<td>+15% Contingency</td>
<td>$5.18</td>
</tr>
<tr>
<td><strong>Total - Per Roadway Side</strong></td>
<td>$39.68</td>
</tr>
<tr>
<td><strong>Total - Per Roadway Centerline x 2</strong></td>
<td>$79.35</td>
</tr>
</tbody>
</table>

**Rounded Total** $77

Notes: Estimates assume embankment in place to construct accommodations.
Estimates do not include any ROW or easements costs.
Estimates are in 2012 dollars
## Improved Shoulder

<table>
<thead>
<tr>
<th>Replace Existing Shoulders, 10' width, 8&quot; HMA full depth Shoulders</th>
<th>Cost/FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth Excavation</td>
<td>$3.17</td>
</tr>
<tr>
<td>Hot-Mix Asphalt Shoulders</td>
<td>$48.69</td>
</tr>
<tr>
<td>Rumble Strip 16”</td>
<td>$1.00</td>
</tr>
<tr>
<td>Painting (Sharrows, Buffer Hatching, Bike Symbols)</td>
<td>$2.26</td>
</tr>
<tr>
<td>Misc. Items (Signs, Swales, Seeding, ETC)</td>
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</tr>
<tr>
<td><strong>Subtotal</strong></td>
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</tr>
<tr>
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</tr>
<tr>
<td><strong>Total - Per Roadway Side</strong></td>
<td><strong>$69.14</strong></td>
</tr>
<tr>
<td><strong>Total - Per Roadway Centerline</strong></td>
<td><strong>x 2 $138.28</strong></td>
</tr>
</tbody>
</table>

| **Rounded Total**                                            | **$138** |

## Potential Funding Sources

Below is a listing of funding sources recommended to aid the City in the implementation of this plan.

<table>
<thead>
<tr>
<th>Grant Program</th>
<th>Type</th>
<th>Match</th>
<th>$ Amount</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois Transportation Enhancements Program (ITEP)</td>
<td>Constr.</td>
<td>20%</td>
<td>$15-25M Avg</td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Congestion Mitigation &amp; Air Quality (CMAQ)</td>
<td>Constr.</td>
<td>20%</td>
<td>$5-7M Avg</td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Illinois State Bike Paths Grant</td>
<td>Constr.</td>
<td>50%</td>
<td>$200K-$1M</td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Highway Safety Improvement Program (HSIP)</td>
<td>Constr.</td>
<td></td>
<td></td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Safe Routes to School</td>
<td>Constr./Ed</td>
<td>None</td>
<td>$5-7M Avg</td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Pedestrian &amp; Bicycle Safety Program (PBS)</td>
<td>Ed &amp; Enfor.</td>
<td></td>
<td></td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Injury Prevention Program</td>
<td>Ed Only</td>
<td></td>
<td></td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Surface Transportation Program (STP)</td>
<td>Constr.</td>
<td>20%</td>
<td></td>
<td><a href="http://www.dot.state.il.us/">www.dot.state.il.us/</a></td>
</tr>
<tr>
<td>Open Space Lands Acquisition &amp; Development (OSLAD)</td>
<td>Constr.</td>
<td>min. 51%</td>
<td>up to $400K</td>
<td>dnr.state.il.us/</td>
</tr>
<tr>
<td>Recreational Trails Program</td>
<td>Constr.</td>
<td>20%</td>
<td>$1 M Avg</td>
<td>dnr.state.il.us/</td>
</tr>
<tr>
<td>Tourism Attraction Development Grant (TAP)</td>
<td>Constr.</td>
<td>min. 51%</td>
<td>up to $1M</td>
<td><a href="http://www.commerce.state.il.us/">www.commerce.state.il.us/</a></td>
</tr>
<tr>
<td>Community Development Assistance Program</td>
<td>Constr.</td>
<td></td>
<td></td>
<td><a href="http://www.commerce.state.il.us/">www.commerce.state.il.us/</a></td>
</tr>
<tr>
<td>National Scenic Byways Grant--must be along byway</td>
<td>Constr.</td>
<td>20%</td>
<td></td>
<td>bywaysonline.org/grants</td>
</tr>
<tr>
<td>Land &amp; Water Conservation Fund (LWCF)</td>
<td>Constr.</td>
<td>min. 51%</td>
<td></td>
<td><a href="http://www.nps.gov/">www.nps.gov/</a></td>
</tr>
<tr>
<td>Preserve America Grant</td>
<td>Constr.</td>
<td></td>
<td></td>
<td><a href="http://www.nps.gov/">www.nps.gov/</a></td>
</tr>
<tr>
<td>Bikes Belong Coalition Grant</td>
<td>Constr./Ed</td>
<td>min. 51%</td>
<td>up to $10K</td>
<td><a href="http://www.bikesbelong.org/">http://www.bikesbelong.org/</a></td>
</tr>
</tbody>
</table>

*Please Note: The sources in blue are now part of a single supply of funding that IDOT can participate/allocate on an optional basis due to the federal transportation bill MAP-21. Availability will be determined annually by the state.*
From a regional planning perspective, it is of interest to note the presence of an abandoned rail line from Dupo to Baldwin, Illinois. This line was originally chartered in 1865 as the Cairo – St. Louis Railway. This was the first railway to serve Monroe County. In 1886 the line was purchased by the Mobile & Ohio RR extending the M&O’s service from Mobile, Alabama to St. Louis. The M&O merged with Gulf, Mobile & Northern Railroad in 1940 to become the Gulf, Mobile & Ohio RR. This created a rail system of almost 2000 miles which connected St. Louis with the ports of Mobile and New Orleans. Seven years later the GM&O acquired ownership of the Alton Railroad. The consolidation of these two railroads expanded the line to a 3000 mile North-South rail system serving America’s Middle States and offered a direct line between the great gateways of commerce and industry of this region.

In August of 1972, the Interstate Commerce Commission (ICC) approved a merger of the GM&O and rival Illinois Central railroads forming the Illinois Central Gulf Railroad (ICG). Not long after the merger, the ICG began to abandon or sell redundant trackage and in 1984 the ICG successfully petitioned the ICC to abandon the old GM&O mainline south of St. Louis through southern IL. The last train made its way through Monroe County in the summer of 1985, ending over one hundred years of rail service in Columbia.

As it pertains to this planning effort, the rail line has already been converted to a multi-use trail in the Rails-to-Trails method of trail network generation. The current portion of converted alignment is located to the west of the American Legion property. The trail is approximately one mile long and the surface is oil and chip. Other than a short section of the rail alignment that runs through the Gedern Village subdivision, the remainder of the alignment within the City limits is still under City ownership.

Extension of this trail and improvement of its surface will provide an almost 5-mile round-trip facility from Creekside Park to the Monroe County Welcome Center. As both a recreational and historical asset to the City, the GM&O Trail will become the backbone and focal point for Columbia’s bicycle and pedestrian network.

*Special Thanks to Bill Seibel of the Columbia Play Commission for his exhaustive research on this topic.*
Light Bollards for Security Lighting

View at Night: Bollards would be 3-4’ [ft] and cast a downward light along the trail. Spacing to be determined, but could be even spaced or located at key spots.

Potential Police Bike Patrols

Dog Waste Receptacle

Trail Sign with Open/Closed Trail Times

Trash Receptacle

Bollards to Prevent Vehicular Access (Removable for Maintenance or Emergency Access)

GM&O Trail Recommendations
Connections To The Past

Cultural Heritage Tourism is a wonderful way to engage citizens and visitors alike and increase time spent within your city limits. Identifying bicycle and pedestrian connections to cultural heritage sites both regionally and locally is a unique way to integrate active transportation and recreation into your community fabric. One regional opportunity and one local opportunity are highlighted below.

Mounds Heritage Trail

Connecting the World Heritage Site of Cahokia Mounds State Historic Site in Illinois with St. Louis, Missouri, the trail provides a unique blend of historical, cultural and natural features. Along the 15-mile route, one can visit not only mound sites, but museums, historic buildings, cultural landmarks and more. Along the way, there are shops, delicious eateries, the majestic Mississippi River, the iconic Gateway Arch, and other ways to enjoy your time.

The presence of additional Mound Sites outside the traditional corridor has prompted a second phase of trail planning to begin. The Pulcher mounds in Dupo, Illinois and the alignment of the original Kaskaskia Trace (one of the oldest roads in the nation and the oldest road in Illinois) through Columbia make this an excellent opportunity for regional trail connection as well as additional cultural heritage tourism opportunities for the City.
Connections To The Past (cont.)

Columbia Heritage & Preservation Commission
The Heritage & Preservation Commission (CHPC) is a nine-member citizen body that advises the City Council on issues related to historic preservation. They have worked tirelessly to document, preserve and promote Columbia's rich history. This wealth of knowledge provides a framework for bicycle and pedestrian activity and tourism around these cultural heritage locations. The CHPC hosts an annual trolley tour through Columbia's downtown that includes 43 sites, one of which is pictured below.

There are three major ways we recommend incorporation of the CHPC’s work into Explore Columbia:
1. Identification of a “Historic Loop” that visits as many sites as possible throughout the City that residents and visitors alike can visit on their own by bike or by foot.
2. Promotion of this loop through a printed Pocket Map that identifies the route along with providing interesting facts and historic tidbits about each major site. This will allow for an enriching experience for cyclists and pedestrians without the need for a guided tour.
3. Combination way-finding signs: the CHPC is working on creating kiosks and/or interpretive signs at many of the major historic sites along Main Street in Columbia’s Central Business District. By combining these information placards with “Explore Columbia” wayfinding and other safety signs, the connection will be further solidified and the user experience enhanced. An example of one such sign is illustrated below.

Buck’s Tavern

Buck’s Tavern, so named because the sign was adorned with deer antlers, was started circa 1840 by Ernst Grose on land previously occupied by an early oen-powered grist mill. The tavern served as a stage coach stop on the Kasaskia Road from Cahokia. During that period, cheap whiskey cost $1.25 a gallon and the “good stuff” cost $1.85 - both prices included a free lunch! Horses were watered from a deep well under the front porch.

In 1868 A.F. Wirzelt bought the establishment and in 1871 Charles Juergling purchased the tavern. The stagecoach gave way to the railroad during this time period. The Juergling family operated the tavern until 1934. In 1958 it was razed to make way for a playground for the Immaculate Conception School. The tavern had been built so well it could not be torn down using normal methods...so it had to be burned down!
Implementation
**Prioritization**

There are 38 recommended facilities in the Explore Columbia plan. A combination of sources was utilized to create a “prioritization matrix” including the on-line and paper survey responses, comments provided at the second open house, and proximity to important destinations such as schools, parks and existing trails. The completed matrix was then analyzed for construction efficiency, and below is a summary of the results. This is the “order” recommended for implementation.

The table is also further categorized into “phases”. There are 12 phases based on project expense and geographic efficiency for construction. We expect annual or semi-annual review for possible implementation and/or application of funds every fiscal year, with the understanding that most phases will take more than one fiscal cycle to implement. By maintaining consistent implementation where and when possible, Columbia will achieve the 20-year implementation timeline. The phases are shown on four maps on the following pages.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Street Name/Label</th>
<th>Facility Type</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Potential Rail-to-Trail Phase I</td>
<td>Trail</td>
<td>$152,031</td>
</tr>
<tr>
<td></td>
<td>Potential Rail-to-Trail Phase II</td>
<td>Trail</td>
<td>$172,319</td>
</tr>
<tr>
<td>2</td>
<td>School Connector</td>
<td>Trail</td>
<td>$218,110</td>
</tr>
<tr>
<td></td>
<td>Rapp</td>
<td>STR* &amp; Sidewalks</td>
<td>$599,364</td>
</tr>
<tr>
<td>3</td>
<td>Palmer/Quarry</td>
<td>Trail</td>
<td>$544,283</td>
</tr>
<tr>
<td></td>
<td>Ghent</td>
<td>STR &amp; Sidewalks</td>
<td>$454,908</td>
</tr>
<tr>
<td>4</td>
<td>Rueck</td>
<td>STR</td>
<td>$13,604</td>
</tr>
<tr>
<td></td>
<td>Metter</td>
<td>STR &amp; Sidewalks</td>
<td>$331,254</td>
</tr>
<tr>
<td></td>
<td>Creekside Park Trail</td>
<td>Trail</td>
<td>$168,725</td>
</tr>
<tr>
<td></td>
<td>Potential Rail-to-Trail Phase III</td>
<td>Trail</td>
<td>$211,381</td>
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<tr>
<td>5</td>
<td>Valmeyer Rd</td>
<td>STR &amp; Sidewalks</td>
<td>$416,854</td>
</tr>
<tr>
<td></td>
<td>Meadowridge Ped Bridge</td>
<td>Bridge</td>
<td>$162,000</td>
</tr>
<tr>
<td></td>
<td>D Road</td>
<td>Sidewalks</td>
<td>$215,571</td>
</tr>
<tr>
<td>6</td>
<td>Bluff/Old Bluff Rd</td>
<td>Trail</td>
<td>$507,875</td>
</tr>
<tr>
<td></td>
<td>Old Bluff Road Bridge</td>
<td>Bridge</td>
<td>$108,000</td>
</tr>
<tr>
<td></td>
<td>Sand Bank</td>
<td>STR &amp; Sidewalks</td>
<td>$145,943</td>
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<tr>
<td>7</td>
<td>Veterans Parkway</td>
<td>STR &amp; Sidewalks</td>
<td>$210,961</td>
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<tr>
<td></td>
<td>Veterans Parkway/Rt 3 Intersection</td>
<td>Intersection</td>
<td>$42,355</td>
</tr>
<tr>
<td></td>
<td>Columbia Centre</td>
<td>Sidewalks</td>
<td>$300,481</td>
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<tr>
<td>8</td>
<td>Old Route 3</td>
<td>STR &amp; Sidewalks</td>
<td>$690,212</td>
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<td></td>
<td>Lakeview Dr.</td>
<td>STR &amp; Sidewalks</td>
<td>$215,140</td>
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<tr>
<td>9</td>
<td>Gall Rd</td>
<td>STR &amp; Sidewalks</td>
<td>$508,452</td>
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<td>Burroughs</td>
<td>STR &amp; Sidewalks</td>
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<td>Monroe</td>
<td>STR &amp; Sidewalks</td>
<td>$66,890</td>
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<td>10</td>
<td>Bottom Ave</td>
<td>STR &amp; Sidewalks</td>
<td>$242,730</td>
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<td>Carl St.</td>
<td>STR &amp; Sidewalks</td>
<td>$54,288</td>
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<td>Carl Street/Rt 3 Intersection</td>
<td>Intersection</td>
<td>$31,352.50</td>
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<tr>
<td></td>
<td>Admiral Trost</td>
<td>STR &amp; Sidewalks</td>
<td>$221,998</td>
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*STR=Share-The-Road*
<table>
<thead>
<tr>
<th>Page</th>
<th>Roadway</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>DD Road</td>
<td>STR Signs</td>
<td>$9,107</td>
</tr>
<tr>
<td></td>
<td>C Road</td>
<td>STR Signs</td>
<td>$1,390</td>
</tr>
<tr>
<td></td>
<td>Levee Road</td>
<td>STR Signs</td>
<td>$8,404</td>
</tr>
<tr>
<td></td>
<td>Ramsey Rd</td>
<td>STR Signs</td>
<td>$6,992</td>
</tr>
<tr>
<td>11</td>
<td>Westpark</td>
<td>STR &amp; Sidewalks</td>
<td>$280,971</td>
</tr>
<tr>
<td></td>
<td>Carr Creek Trail</td>
<td>Trail</td>
<td>$152,710</td>
</tr>
<tr>
<td></td>
<td>Gilmore Lakes</td>
<td>STR &amp; Sidewalks</td>
<td>$524,393</td>
</tr>
<tr>
<td>12</td>
<td>Centerville Ave</td>
<td>Trail</td>
<td>$269,069</td>
</tr>
<tr>
<td></td>
<td>Temple</td>
<td>STR &amp; Sidewalks</td>
<td>$76,539</td>
</tr>
<tr>
<td></td>
<td>Legion</td>
<td>STR &amp; Sidewalks</td>
<td>$87,865</td>
</tr>
</tbody>
</table>

Three key roadway alignments have been left out of this table, but still warrant mention: Main Street, Cherry Street and Route 3. Each of these roadways are key arterials and connectors for a robust and successful bicycle and pedestrian network. These three roadways are displayed on all phase maps as green dashed alignments.

Main Street is slated for a streetscape construction project to begin in 2013. Once complete, bicycle and pedestrian accommodations and needs should be assessed and reevaluated for any additional uses. Two such recommendations this plan encourages are the use of green bike lanes and reverse-angle parking - both used throughout the Central Business District (Rueck to Centerville) [see photos below]. Both recommendations would utilize existing ROW and pavement and would only require paint, signs and citizen/visitor education. There are extensive benefits to the local economy from designing your main street to the “human scale”. See Appendix for resources and references. Columbia’s Civic Progress Committee should partner with the Play Commission for this future assessment and potential implementation.

Cherry Street has sidewalks on the south side and some bicycle, pedestrian and intersection improvements will be included in the upcoming Main Street streetscape project. Additional needs should be assessed post-construction. Potential future facilities could be shared lane pavement markings and signs and sidewalks on the north side.

Illinois Route 3 is under the jurisdiction of the Illinois Department of Transportation (IDOT). All bicycle and pedestrian improvements would need to be initiated, coordinated and cost-estimated through this agency. The recommendations are to improve the pavement of the shoulders to the same as the roadway surface and paint them green with shared lane pavement markings and add sidewalks along the corridor from North Main to South Main. This will be accomplished through the state’s Complete Streets Policy.
Phases 4, 5 & 6

Implementation

CREEKSIDE PARK TRAIL
BLUFF/OLD BLUFF
POTENTIAL RAIL-TO-TRAIL III
Implementation

Phases 10, 11 & 12
**Intersections & Design Guidelines**

The planned bicycle and pedestrian facilities recommended in this plan will need to be given special design considerations where they intersect roadways and even other bicycle and pedestrian facilities. In addition to design and construction, there are safety issues to consider when encouraging cycling and walking across lanes of traffic.

Four major intersection types and potential costs associated are covered in the following pages:

1. Main Street
2. Trail Crossing
3. Route 3 Crossings Near Schools
4. Route 3 & Carl Street
5. Route 3 & South Main

Each illustration contains design guidelines, sign recommendations and safety precautions. The implementation of both bicycle and pedestrian facilities is shown, as well as how those facilities should interact with each other and with automobile traffic. One “best practice” example is to adjust the timing of pedestrian signals as it relates to traffic signals. Giving pedestrians a few seconds of advanced time (white walking light) before the traffic light turns green can improve safety conditions. Additionally, providing “countdown” signals assists all parties: pedestrians/sidewalk users, cyclists in the roadway, and drivers and increases informed decisions.

Innovations in signaling, signs and safety precautions are ever-changing, therefore it is recommended that resources be sought at the time of facility implementation to ensure the most recent practices are utilized, as well as their compliance with local and state regulations and guidelines.

**Resources:**
- Manual on Uniform Traffic Control Devices
- Illinois Department of Transportation’s Bureau of Design and Engineering Manual Ch. 17
- Pedestrian and Bicycle Information Center (bicyclinginfo.org & walkinginfo.org)
- Accommodating Bicycle and Pedestrian Travel: A Recommended Approach (FHWA)
- Best Practices for Complete Streets (completestreets.org)
- Institute of Transportation Engineers (ite.org)
- NACTO Urban Bikeway Design Guide (National Association of City Transportation Officials)
- Bicycle Friendly America - The Blueprint (http://issuu.com/bikeleague/docs/bfa_blueprint)
Recommended Facilities - Main Street
A complete sidewalk network with bike lanes (except Veterans Pkwy to Illinois Rt. 3, where paved, mark shoulders and sidewalks are acceptable). The central business district will have crosswalks at every cross street and alternating block, back-in angle parking to accommodate for highly visible bike lanes. Higher volume street crossings will have button triggered warning lights. Additionally, crossings near schools should have crossing guards on duty before and after school hours.

Visible green bike lanes with directional markings provide a designated place for riders where lane width allows.

Highly visible pedestrian crossing signs at high traffic crossings. Flashing lights around sign, activated by push button, signal when pedestrian is in the crosswalk.

Standard crosswalks at all streets crossing or ending at Main St.

Crossing guard on duty before and after school hours at crossings near schools, for example: Washington, Liberty, Legion, Temple.

Signaled Crossings:
- Centerville Ave
- Washington
- Cherry
- Legion
- Locust
- Monroe
- Rueck
- Temple
- Veterans Pkwy

Regular Crossings:
- Jefferson
- Madison
- Market
- Liberty
- Plum
- Cedar
- Oak
- Kunz
- Mulberry
- Walnut
- Whiteside
- Koch
- Weilbacher
- Vogt
- Petri
- McKee
- Gundlach
- Voges
- Burns
- Lepp
- Ghent
- Westpark
Recommended Facilities

Rueck Road: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

Multi-Use Trail
Paved trail, 10-12 feet wide, on former GM&O Railroad right-of-way now owned by the City.

Sharrow lane markings with “May Use Full Lane” signs let motorists and cyclists know the law and assist cyclists with lane positioning.

Trail crossing signs placed where trail crosses the street to remind motorists to look for bikes and pedestrians before proceeding.

Post bollards will clearly define the entrance of the trail and prohibit vehicular access.

Where the multi-use trail crosses streets, high visibility crosswalks should be implemented allowing users to cross and alerting drivers that pedestrians and cyclist may be present. Stop signs (either full size or smaller scale) should be placed where the trail meets the road notifying trail users to stop and look for yielding vehicles before proceeding.

The City may want to consider planting a vegetated buffer between the trail and existing homes for privacy and clear delineation of public and private property.
Reflective border around all stoplights for better visibility.

'Take it to make it' flags and buckets at each pedestrian crossing.

Push buttons with indicator light, crossing countdown signal, and audible signal to indicate the WALK interval for those with vision impairments at each pedestrian crossing. A leading pedestrian interval (LPI) will allow pedestrians several seconds to start in the crosswalk where there is a concurrent signal, making them more visible to motorist.

Veterans Pkwy & Eagle Drive: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

Illinois Route 3: Sidewalks on both sides of the roadway. Paved & painted shoulders, properly marked and signed for bike use.

Flashing Beacons on north- and south-bound Route 3 to notify drivers of pedestrian crossings.

Crossing guard on duty before and after school.

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Recommended Facilities - Route 3 Crossings Near Schools (Veterans Pkwy & Eagle Dr.)

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Recommended Facilities - Route 3 Crossings Near Schools (Veterans Pkwy & Eagle Dr.)

Flashing Beacons on north- and south-bound Route 3 to notify drivers of pedestrian crossings.

Crossing guard on duty before and after school.

Push buttons with indicator light, crossing countdown signal, and audible signal to indicate the WALK interval for those with vision impairments at each pedestrian crossing. A leading pedestrian interval (LPI) will allow pedestrians several seconds to start in the crosswalk where there is a concurrent signal, making them more visible to motorist.

Veterans Pkwy & Eagle Drive: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

Illinois Route 3: Sidewalks on both sides of the roadway. Paved & painted shoulders, properly marked and signed for bike use.

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Push buttons with indicator light, crossing countdown signal, and audible signal to indicate the WALK interval for those with vision impairments at each pedestrian crossing. A leading pedestrian interval (LPI) will allow pedestrians several seconds to start in the crosswalk where there is a concurrent signal, making them more visible to motorist.

Veterans Pkwy & Eagle Drive: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

Illinois Route 3: Sidewalks on both sides of the roadway. Paved & painted shoulders, properly marked and signed for bike use.

Recommended Facilities - Route 3 Crossings Near Schools (Veterans Pkwy & Eagle Dr.)

Flashing Beacons on north- and south-bound Route 3 to notify drivers of pedestrian crossings.

Crossing guard on duty before and after school.

Push buttons with indicator light, crossing countdown signal, and audible signal to indicate the WALK interval for those with vision impairments at each pedestrian crossing. A leading pedestrian interval (LPI) will allow pedestrians several seconds to start in the crosswalk where there is a concurrent signal, making them more visible to motorist.

Veterans Pkwy & Eagle Drive: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

Illinois Route 3: Sidewalks on both sides of the roadway. Paved & painted shoulders, properly marked and signed for bike use.

Recommended Facilities - Route 3 Crossings Near Schools (Veterans Pkwy & Eagle Dr.)

Flashing Beacons on north- and south-bound Route 3 to notify drivers of pedestrian crossings.

Crossing guard on duty before and after school.

Push buttons with indicator light, crossing countdown signal, and audible signal to indicate the WALK interval for those with vision impairments at each pedestrian crossing. A leading pedestrian interval (LPI) will allow pedestrians several seconds to start in the crosswalk where there is a concurrent signal, making them more visible to motorist.

Veterans Pkwy & Eagle Drive: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

Illinois Route 3: Sidewalks on both sides of the roadway. Paved & painted shoulders, properly marked and signed for bike use.
Illinois Route 3
Sidewalks on both sides of the roadway. Paved & painted shoulders, properly marked and signed for bike use. Carl Street: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

At busy intersections where there is no light and cross traffic does not stop, a single highly visible crosswalk is recommended. Push buttons at crosswalks allow pedestrians to activate a flashing yield signs overhead making them more visible to cars while crossing the street.

Sharrow lane markings with May Use Full Lane signs to let motorists and cyclists know the law and assist cyclists with lane positioning.

Flashing Beacons on north- and south-bound Route 3 to notify drivers of pedestrian crossings.
Wide, paved lanes with appropriate bike lane pavement markings provide a safe place for cyclist to ride along side traffic. Signs or pavement markings informing cyclist of what is up ahead and where to ride.

At intersections with traffic signals push buttons with indicator light, crossing countdown signal, and audible signal to indicate the WALK interval for those with vision impairments are recommended at each pedestrian crossing. A leading pedestrian interval (LPI) will allow pedestrians to cross the street before the signal turns green, making them more visible to motorists.

**Recommended Facilities**

- **Main St.**: Sidewalks on both sides of the street. Bike lanes, complete with proper pavement markings and signs, transition to bicycle shared travel lanes at the top of the hill.

- **Gall Road**: Bicycle shared lanes with sharrow pavement markings and proper signs. Sidewalks along both sides of street.

- **Illinois Route 3**: Sidewalks on both sides of roadway. Paved shoulders, properly marked and signed for bike use.

- **Sharrow lane markings with “May Use Full Lane” signs let motorists and cyclists know the law and assist cyclists with lane positioning.**

- **Flashing Beacons on north- and south-bound Route 3 to notify drivers of pedestrian crossings.**
The table at right shows the general estimates for implementation of the recommended intersection improvements. These estimates conform to the long-range nature of the Explore Columbia Plan, providing City officials and staff with a 20-year implementation timeframe.

*Preliminary construction estimates provided courtesy of Bernardin, Lochmueller & Associates, Inc.

<table>
<thead>
<tr>
<th>Location</th>
<th>Item</th>
<th>Quan.</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crossing Signs (2)</td>
<td>18 sq ft</td>
<td>$25.00</td>
</tr>
<tr>
<td>Trail Crossing</td>
<td>signs</td>
<td>6 sq ft</td>
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<tr>
<td></td>
<td>Trail Stop Signs (2)</td>
<td>12.5 sq ft</td>
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<tr>
<td></td>
<td>Post bollards</td>
<td>6 each</td>
<td>$1,200.00</td>
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<td><strong>TOTAL:</strong></td>
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<tr>
<td>Car Route 3</td>
<td>Flashing Pedestrian Signals that extend over traffic lanes</td>
<td>1 each</td>
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<tr>
<td></td>
<td>cabinet/controller/power supply</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2 1 face flashing signal heads</td>
<td>2 each</td>
<td>$1,000.00</td>
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<tr>
<td></td>
<td>1 pole with 2 15 ft mast arms</td>
<td>1 each</td>
<td>$6,000.00</td>
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<tr>
<td></td>
<td>1 foundations</td>
<td>15 feet</td>
<td>$130.00</td>
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<tr>
<td></td>
<td>wiring</td>
<td>400 feet</td>
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<tr>
<td></td>
<td>conduit</td>
<td>300 feet</td>
<td>$17.50</td>
</tr>
<tr>
<td></td>
<td>handhole</td>
<td>3 each</td>
<td>$650.00</td>
</tr>
<tr>
<td></td>
<td>Pedestrian push buttons (2)</td>
<td>2 each</td>
<td>$650.00</td>
</tr>
<tr>
<td></td>
<td>ped pushbutton signs</td>
<td>1.5 sq ft</td>
<td>$25.00</td>
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<tr>
<td></td>
<td>ped pushbutton post</td>
<td>2 each</td>
<td>$1,250.00</td>
</tr>
<tr>
<td></td>
<td>ped signal faces (2)</td>
<td>2 each</td>
<td>$650.00</td>
</tr>
<tr>
<td></td>
<td>foundation</td>
<td>9 feet</td>
<td>$175.00</td>
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<tr>
<td></td>
<td>Crosswalk Painted (3)</td>
<td>500 feet</td>
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<td></td>
<td>Pedestrian crossing signs (4 min)</td>
<td>36 sq ft</td>
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<td></td>
<td>Traffic lane striping/marking</td>
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<td>Pedestrian Crossing Signs w/ flashing lights around border</td>
<td>36 sq ft</td>
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<td>Pedestrian push button</td>
<td>8 each</td>
<td>$250.00</td>
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<tr>
<td></td>
<td>ped pushbutton post</td>
<td>4 each</td>
<td>$1,250.00</td>
</tr>
<tr>
<td></td>
<td>ped signal faces</td>
<td>8 each</td>
<td>$650.00</td>
</tr>
<tr>
<td></td>
<td>foundation</td>
<td>12 feet</td>
<td>$175.00</td>
</tr>
<tr>
<td></td>
<td>handhole</td>
<td>4 each</td>
<td>$650.00</td>
</tr>
<tr>
<td></td>
<td>wiring</td>
<td>450 feet</td>
<td>$1.00</td>
</tr>
<tr>
<td></td>
<td>conduit</td>
<td>350 feet</td>
<td>$17.50</td>
</tr>
<tr>
<td></td>
<td>cabinet/controller/power supply</td>
<td>1 each</td>
<td>$3,500.00</td>
</tr>
<tr>
<td></td>
<td>signs</td>
<td>6 sq ft</td>
<td>$25.00</td>
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<td>Small Route 3</td>
<td>Painted Crosswalks (4)</td>
<td>850 feet</td>
<td>$4.00</td>
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<td></td>
<td>Pedestrian Signal with push buttons &amp; countdown timer</td>
<td>8 each</td>
<td>$250.00</td>
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<tr>
<td></td>
<td>ped pushbutton post</td>
<td>4 each</td>
<td>$1,250.00</td>
</tr>
<tr>
<td></td>
<td>ped signal faces (with countdown)</td>
<td>8 each</td>
<td>$800.00</td>
</tr>
<tr>
<td></td>
<td>foundation</td>
<td>12 each</td>
<td>$175.00</td>
</tr>
<tr>
<td></td>
<td>handhole</td>
<td>4 each</td>
<td>$650.00</td>
</tr>
<tr>
<td></td>
<td>wiring</td>
<td>650 feet</td>
<td>$1.00</td>
</tr>
<tr>
<td></td>
<td>conduit</td>
<td>500 feet</td>
<td>$17.50</td>
</tr>
<tr>
<td></td>
<td>cabinet/controller/power supply</td>
<td>1 each</td>
<td>$3,500.00</td>
</tr>
<tr>
<td></td>
<td>signs</td>
<td>3 sq ft</td>
<td>$25.00</td>
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<td></td>
<td><strong>TOTAL:</strong></td>
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<td><strong>$34,475.00</strong></td>
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<td>Route 3 Veterans</td>
<td>Reflective border for traffic signals (10+)</td>
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<td>No turn on red signs (4)</td>
<td>48 sq ft</td>
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<td></td>
<td>Painted Crosswalks (4)</td>
<td>750 feet</td>
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<td></td>
<td>Crossing Islands (2)</td>
<td>200 sq ft</td>
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<tr>
<td></td>
<td>Pedestrian Signal with push buttons &amp; countdown timer</td>
<td>8 each</td>
<td>$250.00</td>
</tr>
<tr>
<td></td>
<td>ped pushbutton post</td>
<td>4 each</td>
<td>$1,250.00</td>
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<td>8 each</td>
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<td></td>
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<td>600 feet</td>
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<td>450 feet</td>
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<td>cabinet/controller/power supply</td>
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<tr>
<td></td>
<td>signs</td>
<td>6 sq ft</td>
<td>$25.00</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL:</strong></td>
<td></td>
<td><strong>$42,355.00</strong></td>
</tr>
</tbody>
</table>

"Take it to make it" flags and buckets (4) | 4 each | $250.00 | $1,000.00 |

Traffic lane stripes and markings | 92 sq ft | $7.50 | $690.00 |
**Education**

Education is a major component of successful integration of pedestrians and cyclists into daily traffic. There are a number of resources that can aid the City in creating a welcome environment for walkers and bikers:

- League of American Bicyclists (bikeleague.org)
- League of Illinois Bicyclists (bikelib.org)
- CyclingSavvy (cyclingsavvy.org)
- Trailnet (trailnet.org)
- National Center for Bicycling & Walking (bikewalk.org)
- National Center for Safe Routes to Schools (saferoutesinfo.org)
- International Walk to School Day (iwalktolistday.org)
- National Bike to School Day (walkbiketoschool.org)
- Yield to Life Driver’s Education Program (yieldtolife.org)
- Commute By Bike: Commuting 101 (http://www.commutebybike.com/cats/commuting-101/)

*Utilize education campaigns like the League of American Bicyclists’ National Bike Month*

**Bike Smart**

Trailnet offers a 5-hour hands-on class on how to ride as visibly, predictably, and safely as possible. The class also includes some basic bike maintenance such as changing a flat tire, adjusting derailleur brackets, and adjusting brakes. The class is led by a League of American Bicyclists certified cycling instructor (www.bikeleague.org) and covers what to check on your bike before a ride, riding safely in traffic, common avoidance maneuvers, and much more.

**CyclingSavvy**

Listed above in the tools for education, CyclingSavvy is a tailored program to YOUR community offering a three-part class for residents and visitors teaching and demonstrating “best practices” for on-road cycling. Graduates of the class become predictable and cooperative users of the roadway, encouraging both rider and drivers to truly share the road.

**Healthy, Active & Vibrant Communities**

This initiative focuses at the policy level to produce the farthest-reaching and longest-term solutions to the obesity epidemic. Trailnet works with organizations and institutions throughout the St. Louis region to develop and implement policies promoting a healthy community and healthy active lifestyle in low-income communities most vulnerable to developing obesity. Trailnet works with community leaders and stakeholders to develop a holistic approach to support healthy and active lifestyles.
TravelGreen
The TravelGreen program promotes commuter cycling and increases awareness of cycling safety in the St. Louis region. Trailnet will work with your business, community, or university to address the built environment, policies, and social networks in order to promote bicycle commuting among individuals. The TravelGreen program will identify and engage a strong cycling contingent—those who are ready to change old behaviors and shift gears toward a new and healthier commute on a daily basis.

Safe Routes To School
Safe Routes to School (SRTS) is a national and international movement to create safe, convenient and fun opportunities for children to bicycle and walk to and from schools. The program has been designed to reverse the decline in children walking and bicycling to schools. Safe Routes to School can also play a critical role in reversing the alarming nationwide trend toward childhood obesity and inactivity.

SRTS resources & activities help communities:
- Build sidewalks, bicycle paths & pedestrian-friendly infrastructure
- Reduce speeds in school zones & neighborhoods
- Address distracted driving among drivers of all ages
- Educate generations on pedestrian & bicycle safety

Hand Signals
Be sure to educate and inform area cyclists about proper communication techniques for riding in the roadway, such as these universal hand signals.
Route Signs & Wayfinding
Branding the facilities implemented within Columbia will produce multiple benefits: recognition, awareness, wayfinding, and community identity are just a few. When signing the routes, personalized “Explore Columbia” signs should be used both on the roadside signs and on the pavement markings. Pocket-sized maps should be produced showing the recommended routes along with popular destinations or stops along the way to increase ridership and time spent in the City. Both Madison County Transit and Bike St. Louis utilize these techniques to great success. Pictured here are examples of their wayfinding strategies and their map products.
Based on existing ridership, demand, and popular City destinations, potential loops have been identified. The publication and encouragement of these loops will accomplish two major goals:

1. To reduce any potential negative interactions between cars and cyclists/walkers, the City should encourage those using facilities for recreation/exercise to do so in predictable and appropriate locations.

2. Provide residents and visitors with identified locations and distances of “sanctioned” loops: if routes are outlined, signed and well-maintained, residents and visitors will be much less likely to travel outside the City for their recreation/exercise needs. The economic benefits of this eco-industry will stay in the City!

The saying “If you build it, they will come” is most certainly true in the case of bicycle and pedestrian facilities - route loops enable your citizens to get the most out of these investments!
Marketing & Recognition

Once implementation is underway, recognition should be sought from regional and national organizations to raise awareness of Columbia’s efforts to become more bicycle and pedestrian friendly. Specifically, the League of American Bicyclists has a recognition program with levels: platinum, gold, silver and bronze, that once awarded will offer Columbia with an excellent opportunity for recognition and a structure for future efforts.

What is a Bicycle Friendly Community?
A Bicycle Friendly Community welcomes cyclists by providing well-engineered bicycle facilities, creating new places to ride, educating motorists and cyclists on the rules of the road, and encouraging people to bike for transportation and recreation.

Why should my community apply?
Bicycle Friendly Communities have a high quality of life that translates into sustainable development, tourism, business growth and even increased property values. Encouraging bicycling is an effective way to increase physical activity, improve air quality, reduce traffic congestion and foreign oil dependence, and tackle climate change and obesity. Benefits for the 360 communities that have applied for BFC status include:
- Inspiration to do more
- Technical assistance and training
- Grants and funding notification
- Recognition and promotion

What are the requirements?
The Bicycle Friendly Community application is an audit of a community’s efforts to create a bicycling culture. The audit reviews engineering, education, encouragement, enforcement, and evaluation and planning efforts for bicycling.

How will my community be recognized?
The League will recognize deserving communities at one of four award levels: bronze, silver, gold, or platinum. The League will issue a press release, and will present an award and two highway-quality road signs at a local ceremony or celebration.

What if my community isn’t designated bicycle friendly?
Get involved with your local bike club or advocacy organization, join your community’s bicycle advisory committee and work with your city staff. Use the BFC application and feedback as a task list to improve the state of cycling in your community — then apply again! Every applicant gets in-depth feedback, so applying is well worth your time.

Where can I get an application?
The BFC application is available at www.bicyclefriendlycommunity.org. The site also provides resources and technical assistance to help you with the on-line application. Contact the League of American Bicyclists at 202-822-1333 or info@bicyclefriendlycommunity.org to receive more information.

for more info, visit www.bicyclefriendlycommunity.org or call 202-822-1333
Appendix

All related documents are included on the attached CD along with electronic copies of this plan, plan map images and plan map data. Please reference this material for all future planning and implementation efforts.
Our Mission is to provide leadership and solutions to sustain and enrich the diverse environmental resources of Southwestern Illinois.

Our Vision is communities with healthy and sustainable air, land and water resources for current and future generations.

406 East Main Street
Mascoutah, Illinois 62258
www.HeartLandsConservancy.org