



LEE'S SUMMIT
Katy Trail to Rock Island Trail
Connector Study
FINAL

City of Lee's Summit Parks and Recreation

Executive Summary Report

May 15, 2017



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I. INTRODUCTION

The following is an executive summary of the south trailhead planning study that Vireo conducted Spring of 2017 for the Lee's Summit Parks and Recreation Board to identify alternative bicycle/pedestrian routes to connect the Lee's Summit greenway system to the Rock Island Trail through Lee's Summit and to the Rock Island Spur of the Katy Trail State Park in Pleasant Hill, Missouri. All figures referenced in this report are included in the attachments.

II. PROCESS

The process used throughout this project was highly collaborative, building upon ideas and concepts that were vetted by the project team that included staff from the City's Parks and Recreation and Public Works Departments.

EXISTING CONDITIONS

Vireo collected data from the City including geographic information system (GIS) mapping, transportation studies, and master plans. Vireo staff conducted a windshield survey of potential alternative corridors to photograph existing conditions and evaluate opportunities and constraints.

Existing conditions are highly variable within all of the potential alignments. Each route has portions that have significant hills; vary in road width, surfacing, edge treatment, shoulder width, easement width, and land cover; traffic types, speeds, and volumes; and adjoining land uses.

PROJECT TEAM COORDINATION

Vireo staff met with City staff early in the study to review previous concepts from meetings held by the Mid-America Regional Council (MARC) with surrounding communities to determine how best to connect Kansas City to the Katy Trail. City staff expressed an interest in determining short- and long-term solutions to making the connection from Lee's Summit to Pleasant Hill.

Vireo followed up this meeting with a planning charette to review proposed alternatives. The team used site photographs and GIS mapping to present existing conditions within the alternative corridors. Cross section illustrations were developed for various locations to indicate opportunities and constraints. The end result of the charette was a prioritization of route corridors, which were then used to obtain route mileage and property/right-of-way (ROW) ownership, and develop conceptual level costs for on-road bike sharing and off-road trails. The priority routes are focused on providing bicycle over pedestrian access.

BICYCLE FACILITY STANDARDS

The American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*, 4th edition, provides guidance to communities on the physical infrastructure needed to support bicycling. According to ASHTO, shared lanes have the following characteristics:

- Very low to low traffic volumes.
- Traffic operating at low speeds.
- Rural roadways with good sight distances that carry low traffic volumes, operating at speeds of 55 miles per hour (mph) or less.
- Lane widths on major roadways:
 - Equal to or greater than 14 feet (ft) allow vehicles to pass cyclists without encroaching into the adjacent travel lane.
 - At 15 ft or greater may be appropriate on steep slopes, drainage grates, raised delineators, or on-street parking effectively reduce usable road width.
 - At less than 14 ft, streets may be designated for bicycles with bicycle guide signs and/or shared use lane markings.
- Can be marked in locations where it is desirable to provide a higher level of guidance to cyclists and motorists.

Paved shoulders provide additional opportunities for bicycles to share the road. Characteristics include:

- A minimum width of 4 ft in locations where the roadway is uncurbed with no vertical obstructions.
- A 5 ft shoulder is recommended from the face of a guard rail, curb, or other barrier
- If vehicle speeds exceed 50 mph, or there is use by heavy trucks, buses, or recreational vehicles, additional width is desirable.
- Should be provided on both sides of the road to prevent cyclists from riding opposite to the flow of traffic.
- Can be designated as bike lanes by installing bike lane symbol markings.

The City of Lee's Summit currently uses unmarked "Shared Lanes", designed/signed "Shared Roads" and bike routes, and paved shoulders for bicycle use on roads within City limits. The City's Greenway Plan (updated in 2007) and the Bicycle Transportation Plan (May 2012), provide guidance for development of off-street and on-street facilities for bicycles, respectively. The Greenway Master Plan addresses trail and greenway development geared to the recreational user, through a network of off-street facilities. The Plan connects the City to the Kansas City regional Metro Green system of trails. The Bicycle Transportation Plan addresses the development of on-street accommodations for bicycle transportation related to the Greenway Plan. According to the Bicycle Transportation Plan, recommended bike routes are those which are not only accessible, but should be accommodating in some form for cyclists and create a connected network of individual routes. Some parts of the network will be along independent corridors and shared use paths separated from the road, while other parts will require motorists and cyclists to share the same right-of-way. The Plan provides guidelines for bike route planning, bike route designation and bike route identification (marking and/or signage). The Plan defines the following accommodations that are recommended within this study:

- Wide Curb Lane – An outside through lane having a width of 13 feet or more (14-foot minimum desired). A wide curb lane should not have a width more than 16 feet. Additional pavement markings (white lane line) are not provided with a wide curb lane.
- Paved Shoulder – A paved area beyond the outside travel lane, separated by a solid white line pavement marking. A paved shoulder may exist on an urban (i.e. curb and gutter) or rural (i.e. no curb and gutter) road section. A paved shoulder should have a width of 4-8 feet.
- Share-the-Road – A roadway with no bicycle accommodation that is signed with a Share-the-Road assembly. The Share-the-Road sign assembly is used to warn motorists of potential encroachment by cyclists into the required travel space of vehicular traffic. Typically applied along designated bicycle routes that have an outside lane width less than 13 feet.
- Bicycle (Bike) Lane – An official lane space designated for bicycle travel with pavement marking and signing in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). Parking is prohibited within a bike lane. Generally, a bike lane must be at least 4 feet in width excluding any curb area.
- Shared-Use Path – A paved path available for pedestrian, bicycle and other non-motorized recreational activity. A shared-use path typically has a width of 10-12 feet, but no less than 8 feet.
- Sidepath – A Shared-Use Path that is adjacent and parallel to the roadway, often separated from the roadway by a grass buffer.

III. RECOMMENDATIONS

The goal of the planning team’s effort was to provide a functional and safe route for cyclists to make the trail connection through Lee’s Summit to Pleasant Hill than currently exists. This study focuses on making connections from the Lee’s Summit greenway system to the southern end of the Jackson County RI Trail project (current ownership ends due west of Hamblen Road), southeast to the Missouri Pacific Railroad (MOPAC) trail in the City of Pleasant Hill that ends at the southern end of Pleasant Hill City Lake (see map figure in attachments). The MOPAC trail connects to the Rock Island Spur of the Katy Trail at the southern end of the city of Pleasant Hill.

ROUTE SEGMENTS

The planning team identified six trail segments that could provide a functional and safer connection through Lee’s Summit to Pleasant Hill. In an effort to provide the opportunity for quick and cost effective implementation, cost estimates for improvements varied from very basic improvements (adding share the road signs) to more extensive improvements (road widening to accommodate a paved shoulder). See the map in Figure 1 and the descriptions below for details.

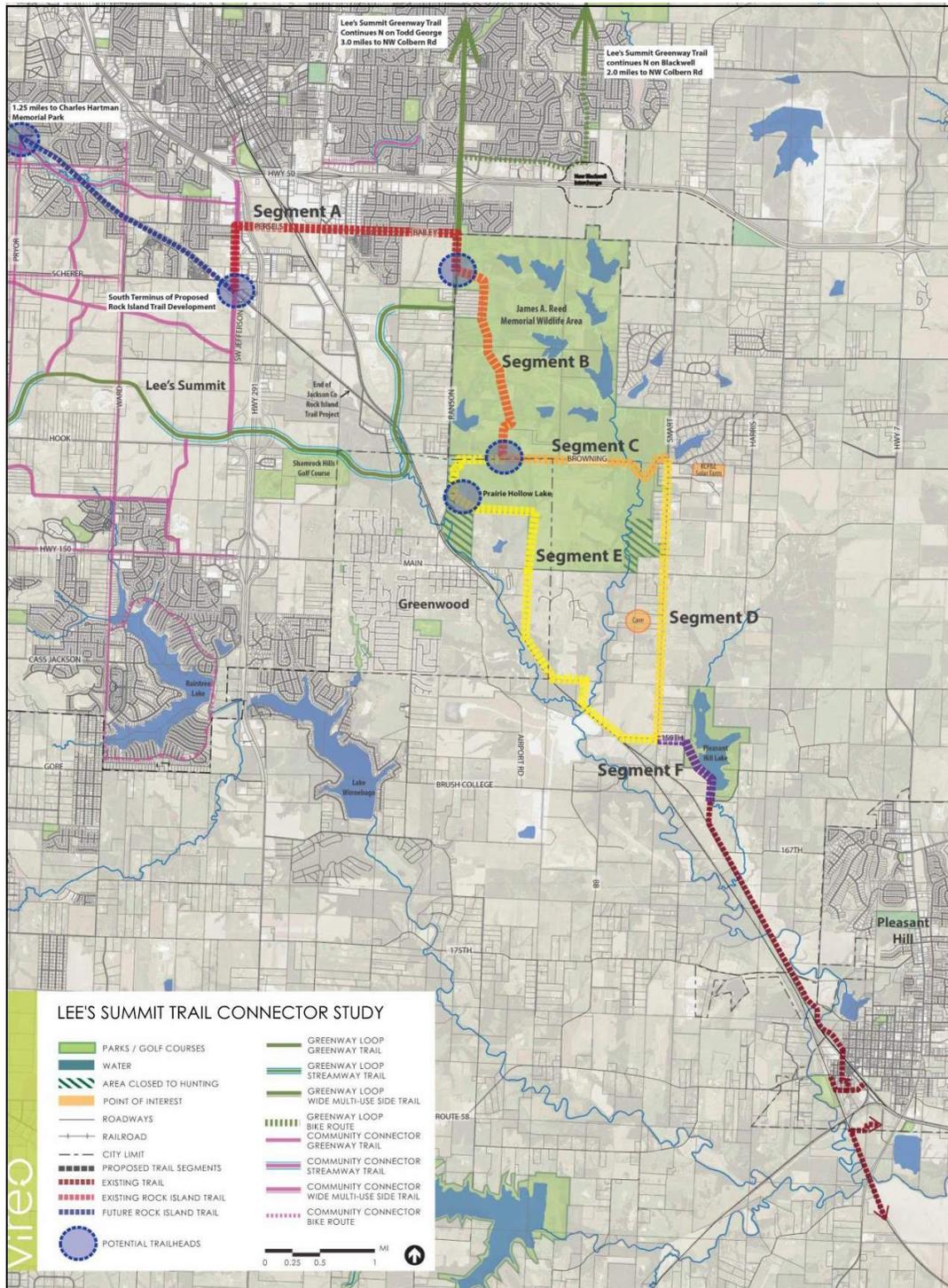


Figure 1. Map illustrating the various trail segments for the connection through Lee's Summit.

Segment A Estimated cost \$94,753 / Estimated cost with additional upgrade \$143,524

Segment A is 2.91 miles in length and is the westernmost segment (Figure 2). It starts at the intersection of the RI Trail and SW Jefferson where it heads north to SE Persels then goes east to SE Bailey and ends at the northern entrance to the Missouri Department of Conservation's

(MDC) James A. Reed Memorial Wildlife Area (JAR) and the MDC's Kansas City Regional Office. A majority of this on-road segment (2.60 miles) may be shared use signing, paved shoulder, and possible bike lanes (Figure 3). The eastern end of this segment along Ranson Road (0.31 miles) would be an off-road sidepath with limestone screenings for the surface. Off-road bike accommodations currently exist between Jefferson Street and Hamblen Road. An alternate connection on the western side may be from the community connector greenway trail on SW Jefferson Street due east of Hwy 291.

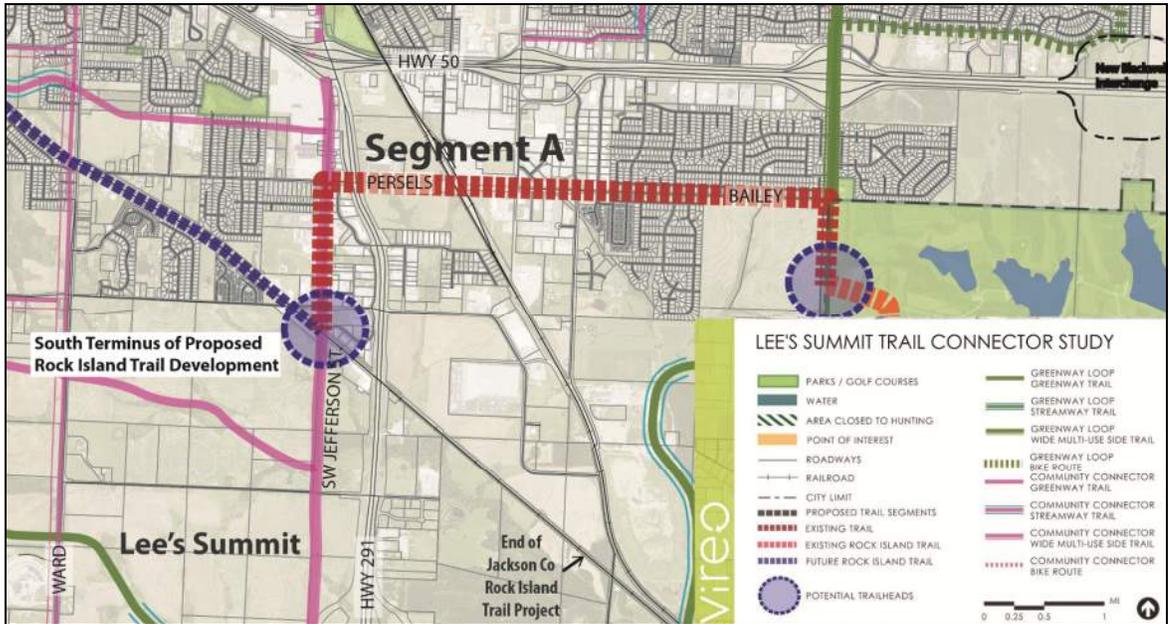


Figure 2. Map of Segment A of the trail route.



Figure 3. Cross section illustrating shared use signing of SE Bailey Rd for cyclists.

Segment B Estimated cost \$533,881 / Estimated cost with additional upgrade \$1,163,164

Segment B is 2.02 miles in length starting at the northern entrance to the JAR area and going south to Browning Road (Figure 4). A little more than half of the segment (1.16 miles) would be on-road (Figure 5), and the remainder would be an off-road sidepath with limestone screenings utilizing an existing multi-use trail alignment.

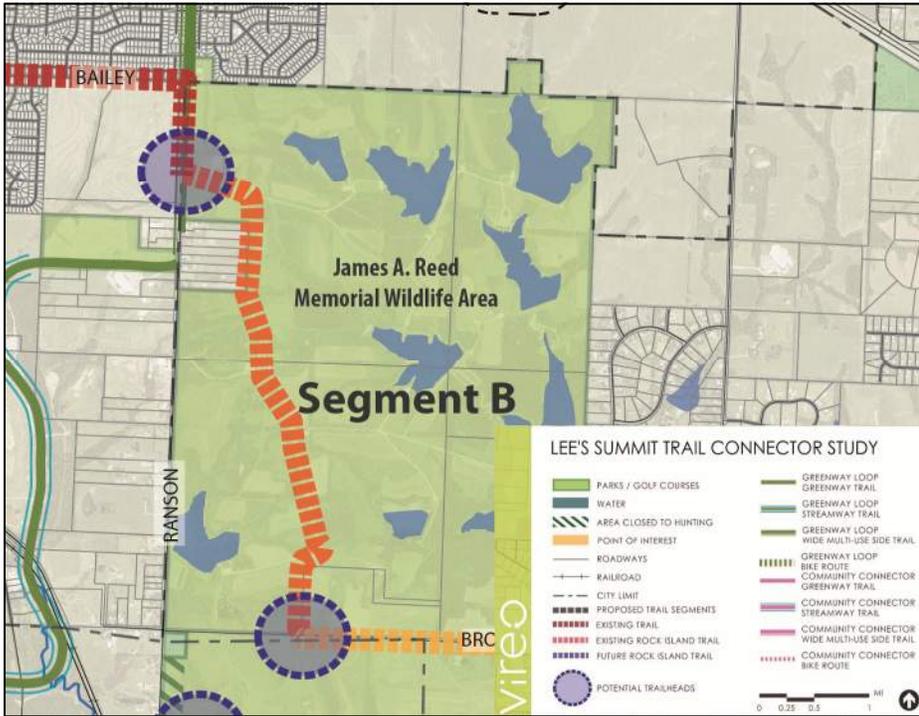


Figure 4. Map of Segment B of the trail route.

The JAR area has support facilities (restrooms, parking, and shelters) at multiple locations throughout including the Regional and Area offices (some facilities are only accessible during business hours).



Figure 5. Main road in the JAR area that would be also used for cyclists.

Segment C Estimated cost \$323,775

Segment C is 2.15 miles in length and would entail at a minimum, signing the roadway for shared use (Figure 6). Another option would include mill and overlay of the existing roadway along with signing for shared use. The County is currently replacing the low water crossing at the eastern end of Browning Road with a bridge structure. Figure 7 illustrates existing conditions on Browning Road.



Figure 6. Map of Segment C of the trail route.



Figure 7. Browning Road looking east at the entrance to the south parking area on the JAR area.

Segment D Estimated cost \$1,035,768 / Estimated cost with additional upgrade \$1,157,421

Segment D is 2.55 miles in length encompassing Smart Road from Browning Road on the north to 159th Street on the south (Figure 8). The northern half of the road would be widened from Browning to Highway 150 due to the high traffic volume and the number of driveways and street crossings.

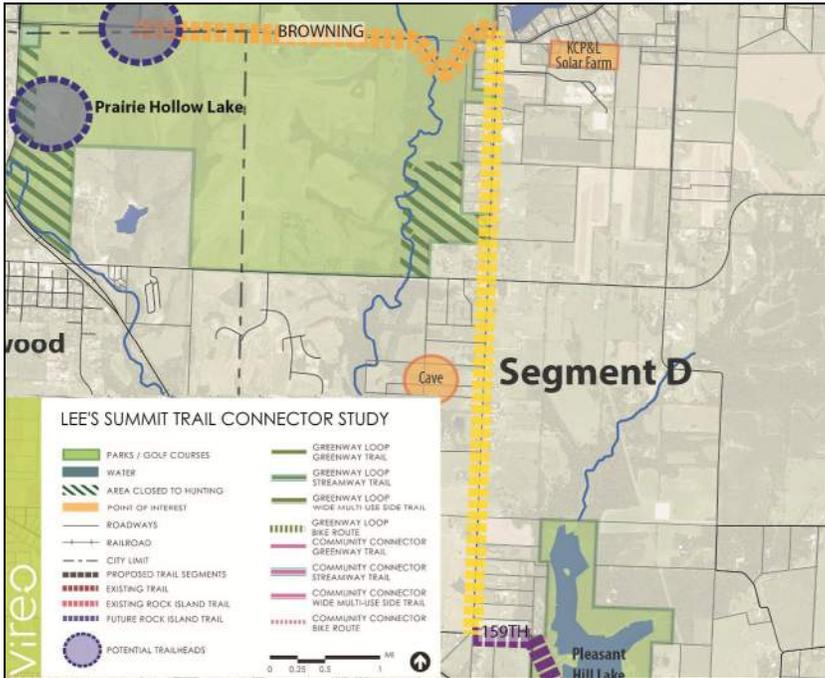


Figure 8. Map of Segments D of the trail route.

Figure 9 illustrates a widened road to accommodate cyclists. The southern one-third of the road is currently a gravel road from the Jackson/Cass County line south to Pleasant Hill. Two options were estimated for cost to improve the gravel portion of the roadway, limestone screenings and asphalt pavement. All of Segment C would be signed for shared use.



Figure 9. Cross section illustrating road widening of Smart Road to accommodate cyclists.

Segment E Estimated cost \$1,312,630 / Estimated cost with additional upgrade \$1,930,802

Segment E is 4.37 miles in length and is almost completely an off-road, limestone screenings trail (Figure 10). The segment starts at the JAR area parking lots on Browning Road then heads east where it connects to an off-road, limestone screenings trail on the JAR area that goes south to Prairie Hollow Lake, which has amenities including restrooms and shelter and is ADA accessible. The trail then heads southeast along the property line to Highway 150 where it continues south through the Woodland Trails development and eventually connects to Smart Road at 159th Street. The segment along Browning Road (0.42 miles) would be signed for shared use. This is the only segment that would require a bicycle/pedestrian bridge over Big Creek south of the Woodland Trails property.

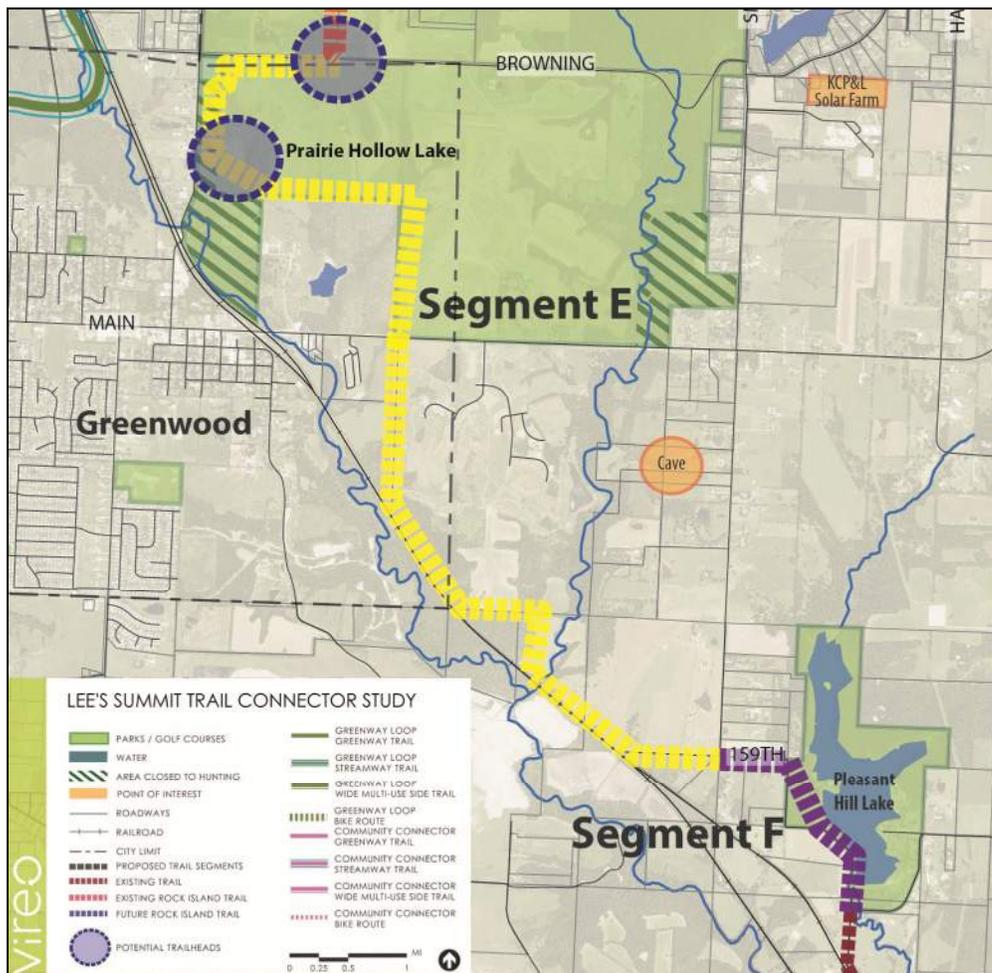


Figure 10. Map of Segments E and F of the trail route.

Segment F Estimated cost \$838,290 / Estimated cost with additional upgrade \$1,076,660

Segment F is 0.96 miles in length and presents the greatest access challenge due to the narrow winding road width and the close proximity to Pleasant Hill City Lake (Figure 10). Improvements considered in the cost estimate include limestone screenings or asphalt pavement and signs for shared use.

The City of Pleasant Hill has a maintenance road along the northwestern side of the lake (Figure 11) that in addition to off-road bike trails currently proposed for the park could facilitate making an off-road connection from 159th to 164th rather than using Smart Road.



Figure 11. Existing maintenance road along the northwestern side of Pleasant Hill City Lake.

PRIORITY ROUTES

The planning team identified two priority routes utilizing the segments previously described. Cost estimates were developed for the prioritized routes to provide a total project and a per mile cost for each of the routes. For comparison purposes, two options for each route were estimated, one with limestone screenings for trails and/or roads, the other with asphalt for the trails and/or roads. See the attached map and cost estimate for details.

Priority Route I

The preferred route for the connection through Lee's Summit includes Segments A, B, C, D, and F for a total of 11.01 miles (Figure 12). A majority (70%) of this route would be on-road, shared use with the remainder being off-road, limestone screenings trail. The greatest cost for this route is associated with improvements to Smart Road from Browning Road to Highway 150.

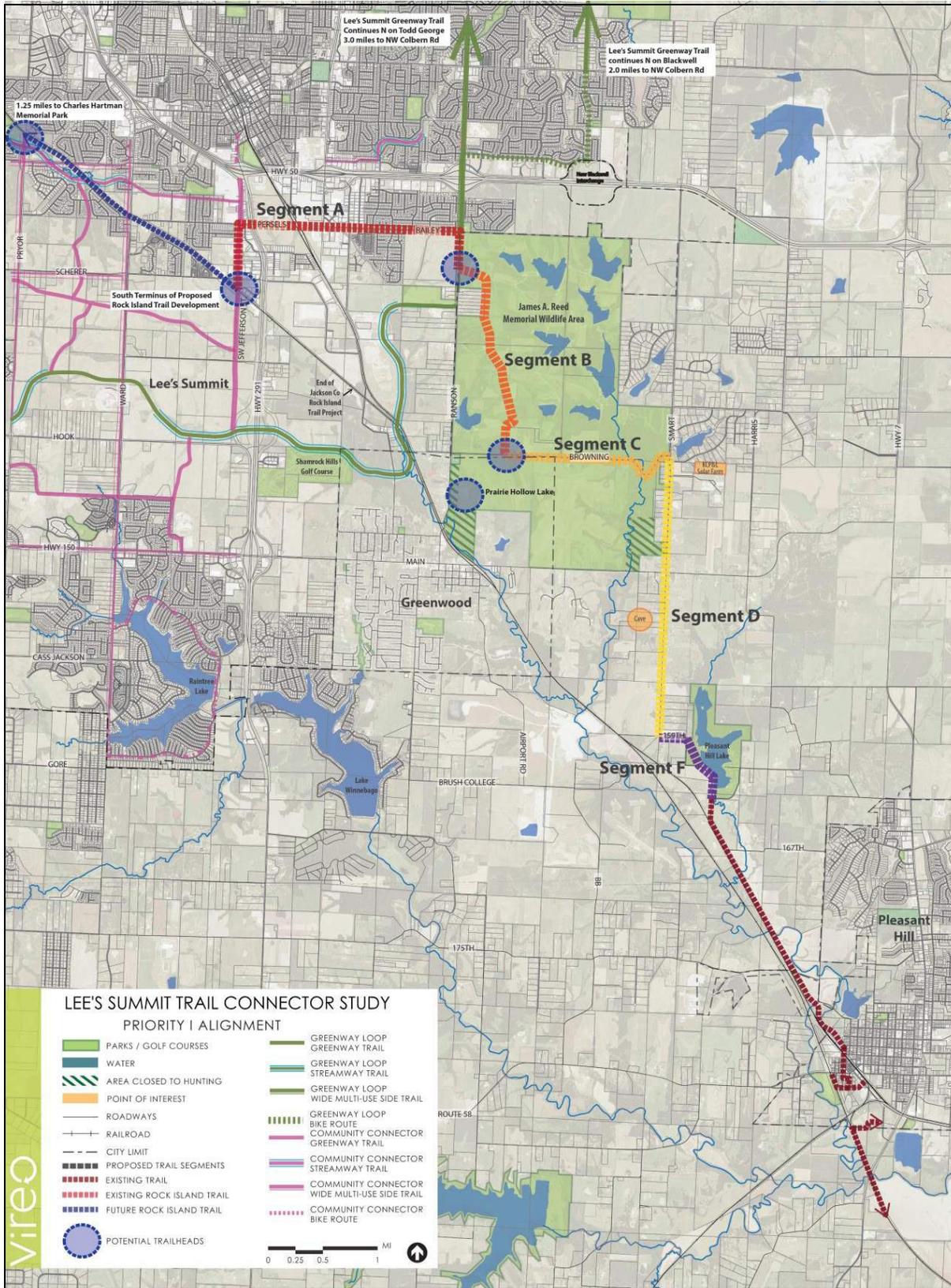


Figure 12. Priority I route for making the trail connection between Lee's Summit and Pleasant Hill.

Priority Route II

The secondary route for the connection through Lee's Summit includes Segments A, B, E, and F for a total of 10.68 miles (Figure 13). A majority (59%) of this route would be off-road, limestone screenings trail with the remainder being on-road, shared use. The greatest cost for this route is associated with the need for a bicycle/pedestrian bridge across Big Creek in Segment E.

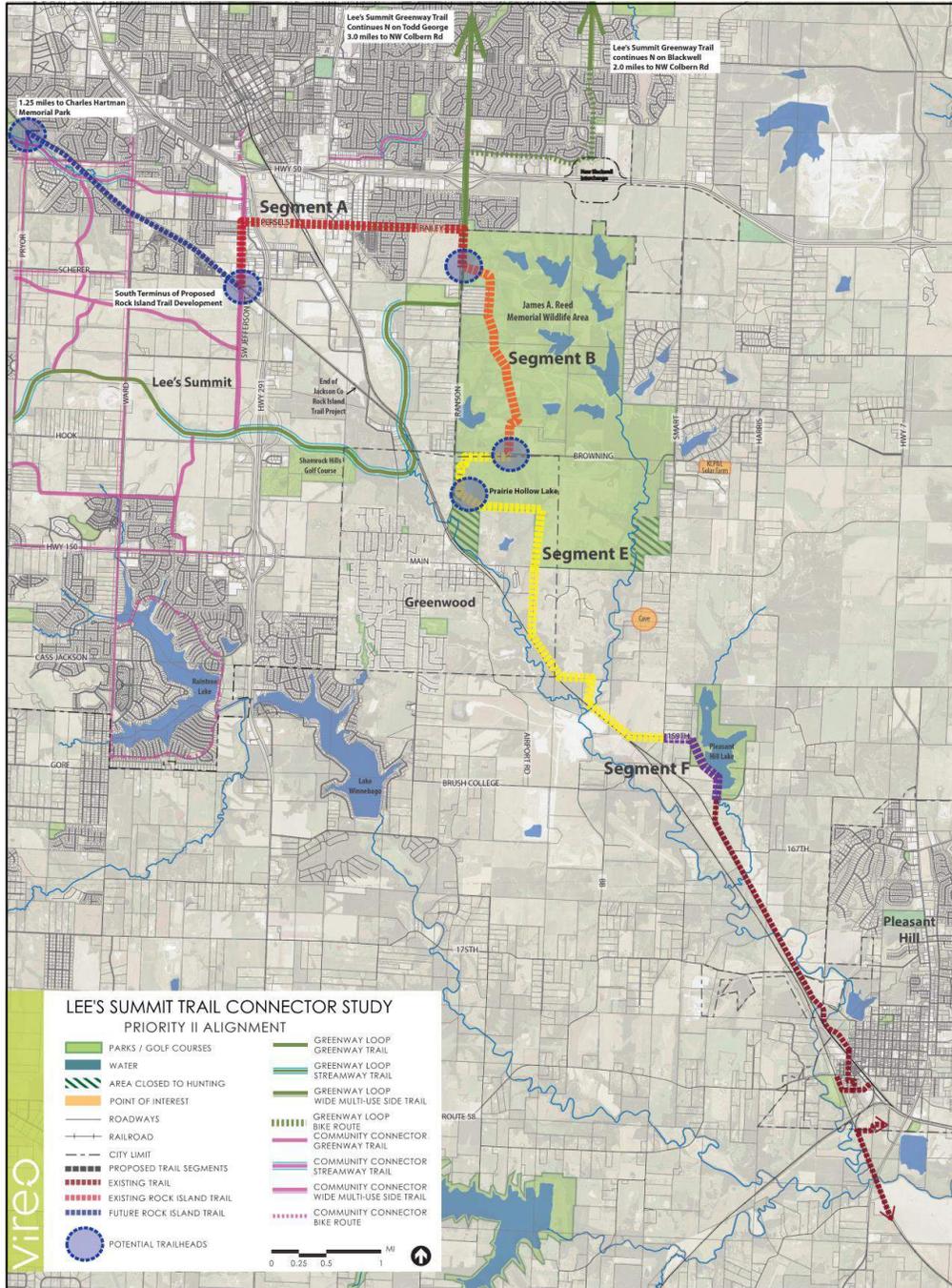


Figure 13. Priority II route for making the trail connection between Lee's Summit and Pleasant Hill.

TRAILHEADS

Trailhead locations and facilities are an important feature to orienting trail users to the route and to potential destinations. The planning team identified five locations for trailheads of which three of them have existing facilities including parking, restrooms, and shelters that will greatly enhance implementation of the trail connection without the need for additional funding. The trailhead locations within the JAR area would make the area a destination for trail users, providing them with the opportunity to explore this urban conservation area. The locations include:

- Charles Hartman Memorial Park – parking lot, restrooms, shelters, trail
- SW Jefferson and RI Corridor – this is the proposed terminus of the RI Trail Development, no facilities present at the time of this study
- MDC KC Regional Office – parking lot, restrooms (during office hours)
- JAR Prairie Hollow Lake – parking lot, restrooms, shelter
- JAR Parking Lots on Browning Road – gravel parking lot

IV. OPINION OF CONCEPTUAL COSTS

The following opinion of conceptual costs is provided as a basis for planning purposes only. Refined cost estimates should be developed as plans are developed for specific locations. Cost estimates were developed from similar projects Vireo has completed within the region.

The total cost for the Priority I route is estimated at:

Priority I Route (limestone screenings trail/road)	\$2,502,690 (\$236,326/mile)
Priority I Route (asphalt trail/road)	\$3,864,544 (\$364,924/mile)
Priority II Route (limestone screenings trail/road)	\$2,779,553 (\$270,912/mile)
Priority II Route (asphalt trail/road)	\$4,314,149 (\$420,482/mile)

The following assumptions were made to provide this planning level estimate:

- Estimate includes:
 - Linear grading
 - Limestone screenings
 - Asphalt pavement
 - Clearing and grubbing
 - Seeding
 - Contingency (%)
 - Design & permitting (% separate)

- Estimate does not include:
 - Utility relocates
 - Demolition of trees or structural elements
 - Driveway or street connection replacement
 - Field surveying & staking
 - Erosion & sediment control
 - Storm drainage
 - Mobilization
 - Contractor O&P

V. POTENTIAL FUNDING

There are a number of existing state and federal programs that could be used to assist in the implementation of this final connector piece to the Rock Island State Trail Spur. Some existing federal programs which provide for

TRANSPORTATION ALTERNATIVES PROGRAM

The Transportation Alternatives Program (TAP) is administered by the Missouri Department of Transportation (MODOT) and projects are selected by a local agency committee through the Metropolitan Planning Organization (MARC serves this role for the Kansas City region). TAP redefines the former Transportation Enhancements activities and consolidates these eligibilities with the Safe Routes to School and Recreational Trails Programs. It provides funding for alternative modes of transportation such as on-street bike routes and multi-use trails.

Projects eligible for TAP funds include:

- Construction, planning, and design of on-road and off-road trail facilities
- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs.
- Conversion and use of abandoned railroad corridors for trails
- Construction of turnouts, overlooks, and viewing areas.
- Community improvement activities, including:
 - Inventory, control, or removal of outdoor advertising;
 - Historic preservation and rehabilitation of historic transportation facilities;
 - Vegetation management practices in transportation rights-of-way
 - Archaeological activities relating to impacts from transportation projects
- Environmental mitigation activities

In addition to defined Transportation Alternatives (as described above), eligible activities also include:

- The recreational trails program under 23 USC 206.
- The safe routes to school program under §1404 of SAFETEA-LU

SURFACE TRANSPORTATION PROGRAM

The Surface Transportation Block Grant Program (STP) provides flexible funding that may be used to reimburse states, localities and other eligible project sponsors for projects on any federal-aid highway functionally classified as an urban collector or higher as documented on the MARC website. STP helps increase transportation choices and access, enhance the built and natural environment and the transportation experience, and provide a sense of place.

Projects eligible for STP funds include, but are not limited, to capital investments projects for:

- Active transportation modes including bicycling and walking
- Bridge replacement and rehabilitation
- Public transportation
- Roadway capacity
- Transportation operations and management
- Transportation safety infrastructure, and
- Other eligible uses (see the STP Guidance in “Resources” below for a full list)

CONGESTION MITIGATION AIR QUALITY

Congestion Mitigation Air Quality (CMAQ) is a reimbursement program. Funding recipients must have the capacity to cover project costs at the outset of the project or program implementation. Eligible expenses will be reimbursed by the administering state department of transportation or the Federal Transit Administration once the applicant has submitted a reimbursement request and supporting documentation.

Jurisdictions and transportation agencies located within the Kansas City air quality maintenance area boundary may submit projects for consideration. This includes the entirety of Johnson and Wyandotte counties in Kansas; and Clay, Jackson and Platte counties in Missouri.

Non-governmental applicants must secure a public agency sponsor pursuant to federal requirements and must submit a written letter of sponsorship from the public agency.

Projects to be considered fall into one of six general categories. These categories include the following:

- Alternative Fuel: Projects that replace conventionally fueled vehicles with alternatively fueled vehicles, or which provide fueling stations for alternative fuels.

- Bicycle/Pedestrian: Projects that construct or improve facilities that promote bicycle or pedestrian usage as a form of transportation.
- Diesel Retrofit and Conventional Fuel Strategies: Diesel retrofit includes a number of technology-based strategies to improve diesel emissions, including after-market devices, repowering, or early replacement of vehicles. Conventional fuel strategies include delivery and use of conventional fuels in a manner that reduces emissions, such as advanced vapor recovery.
- Outreach: Educational or promotional activities that reduce vehicle trips and increase emissions-reducing behavior.
- Traffic Flow: Projects that improve traffic flow by reducing delay or reducing congestion. Projects that build capacity are ineligible.
- Transit: Projects that remove vehicle trips through increased use of transit.

All projects are evaluated for adherence with the MARC Complete Streets Policy that was updated in December 2015 and must indicate how applications meet the threshold criteria. Failure to meet any of the following criteria will result in the automatic disqualification of the proposal. Projects must meet the following threshold criteria to be eligible for funding consideration:

- Proposals must reduce volatile organic compounds and/or nitrogen oxides.
- Proposals must not be used for the purposes of routine program implementation, meeting any legal mandate, or completion of work that should have been completed under a prior grant or cooperative agreement.
- The total cost of projects (CMAQ funds plus required match) must exceed \$50,000 for capital or operating projects; \$25,000 for programs.
- Proposals must include a detailed budget which includes matching amount and the source of matching funds (e.g., capital improvement sales tax, general fund, etc.).
- Applications must demonstrate that federal match requirements will be met. Most projects require a minimum 20 percent match.
- All other federal eligibility requirements must be met. Federal eligibility is based on the November 2013 federal guidance. A link to the guidance document is available in the resources section of this document.

RECREATION TRAIL PROGRAM

The Recreational Trails Program (RTP) provides funds to the States to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. The RTP is an assistance program of the Department of Transportation's Federal Highway Administration (FHWA). **Federal transportation funds benefit recreation** including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles.

LOCAL AGENCY FUNDING OPPORTUNITIES

In addition to the above federal programs, there are local funds that can be set aside through Capital Improvements Programs (CIP).

Due to the nature of this project corridor being a regional and state-wide destination utilizing several different resources would provide the quickest and most efficient to deliver the project to the City and Region.

VI. PARTNERSHIPS AND IMPLEMENTATION

PARTNERSHIPS

Partnerships are often the key to the success of any project. Developing partnerships with State and local agencies would be an approach that could quickly implement this section of the trail finalizing the connection to Kansas City.

Opportunities for funding and partnerships can be broken down by segment as follows:

Segment A - Lee's Summit and Jackson County.

Segment B - Partnership of State Conservation Department and Local agencies and federal grant opportunities.

Segment C - Partnership of Jackson County Public Works and City of Lee's Summit with local and Federal funds.

Segment D - Partnership of City of Lee's Summit and Jackson County Public Works.

Segment E - Partnership of State Conservation Department and Local agencies, and federal grant opportunities.

Segment F - Partnership of Local agencies and federal grant opportunities.

The planning team identified the following people and organizations that could be involved in a Lee's Summit South Trailhead Coalition to assist with both short- and long-term aspects of this project. These include, but are not limited to:

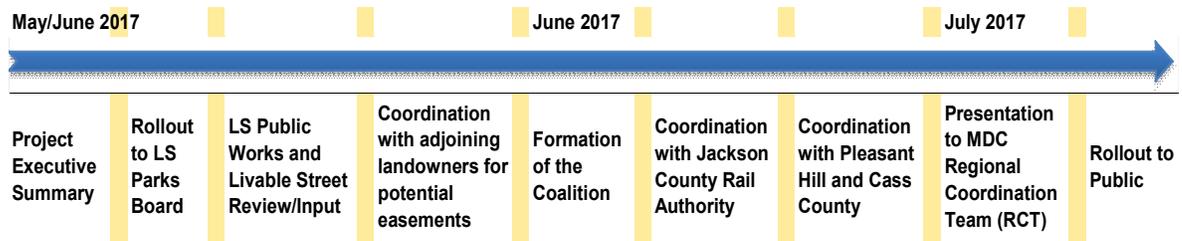
- City of Lee's Summit (LS) Parks and Recreation
- Michael Park, LS Public Works
- Dena Mezger, LS Public Works
- City of Pleasant Hill
- Jackson County Rail Authority
- Jackson County Parks and Recreation
- Jackson County Public Works
- Cass County
- Mid-America Regional Council (MARC)

- Missouri Department of Transportation (MODoT)
- Missouri Department of Conservation (MDC)
- Tom Lovell, retired LS Parks and Recreation Administrator

IMPLEMENTATION

Implementation of the trail connection through the City of Lee’s Summit begins with coordination with the various stakeholders, potential coalition members, and landowners to identify partnering and cost share opportunities and to explore landowner willingness to provide easements.

The initial timeline is illustrated below:

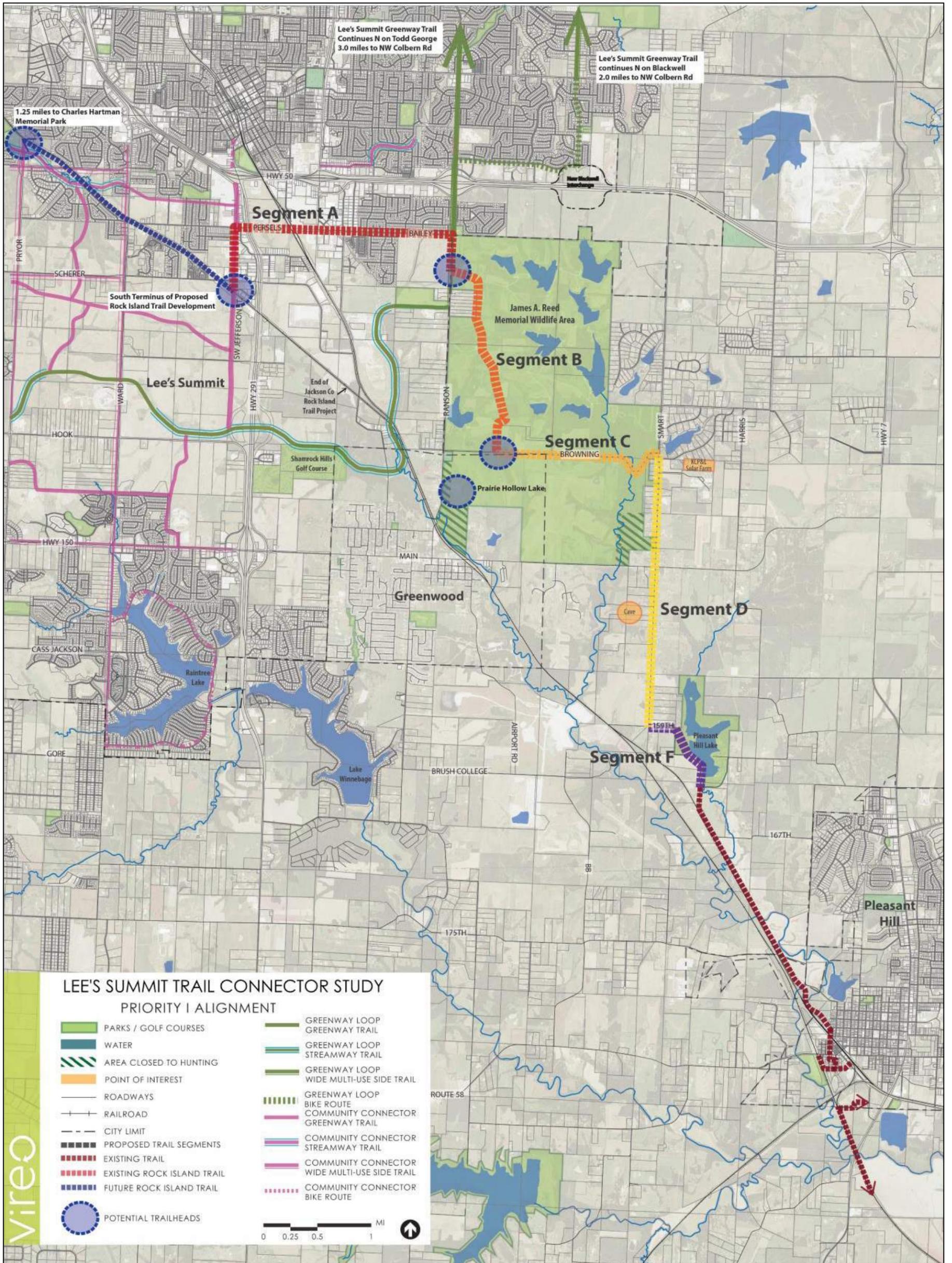


The Priority I alignment provides the opportunity to develop the trail connection through Lee’s Summit with minimal road and trail improvements. This should facilitate creating this trail connection within a relatively short time frame.

The Priority II alignment will require acquisition of easements and greater improvements to accomplish. However, this route is more aligned with the rail to trail corridor and therefore, this should be considered a long-term goal for connecting the Rock Island Trail to the Katy Trail.

ATTACHMENTS

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vireo

1.25 miles to Charles Hartman Memorial Park

Lee's Summit Greenway Trail Continues N on Todd George 3.0 miles to NW Colbern Rd

Lee's Summit Greenway Trail continues N on Blackwell 2.0 miles to NW Colbern Rd

South Terminus of Proposed Rock Island Trail Development

Lee's Summit

Greenwood

Segment F

Pleasant Hill

Segment A

Segment B

Segment C

Segment D

James A. Reed Memorial Wildlife Area

Prairie Hollow Lake

Pleasant Hill Lake

Shamrock Hills Golf Course

Raintree Lake

Lake Winnebago

Cave

KCP&L Solar Farm

ROUTE 58

175TH

167TH

BRUSH COLLEGE

MAIN

End of Jackson Co Rock Island Trail Project

HWY 50

HWY 791

HWY 791

HWY 150

HWY 7

HWY 7

SMART

HARRIS

RAMSON

BAILEY

PERSELS

PRYOR

SCHERER

WARD

HOOK

CASS JACKSON

GOBE

AIRPORT RD

BB

159TH

NEAR NICHOLS INTERCHANGE

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Lee's Summit trailhead planning

Opinion of Probable Costs

	Segment A	Segment B	Segment C	Segment D	Segment E	Segment F
Share the Road Signs						
mileage	3.02		2.15	2.55	0.42	0.96
Total Project Cost	\$ 2,054.00		\$ 1,236.00	\$ 2,072.00	\$ 618.00	\$ 618.00
Limestone Screening Trail						
mileage	0.31	0.86			3.95	
Total Construction Cost	\$ 81,314.19	\$ 185,387.69			\$ 1,151,429.75	
Design & Permitting	\$ 11,383.99	\$ 25,954.28			\$ 161,200.17	
Total Project Cost	\$ 92,698.17	\$ 211,341.96			\$ 1,312,629.92	
Asphalt Trail						
mileage	0.31	0.86			3.95	
Total Construction Cost	\$ 124,096.69	\$ 737,390.50			\$ 1,693,685.75	
Design & Permitting	\$ 17,373.54	\$ 103,234.67			\$ 237,116.01	
Total Project Cost	\$ 141,470.22	\$ 840,625.17			\$ 1,930,801.76	
Road Widening (10 feet: 22-32')						
				Smart Rd		
mileage				1.06		
Total Construction Cost				\$ 532,547.81		
Design & Permitting				\$ 74,556.69		
Total Project Cost				\$ 607,104.51		
Gravel to Limestone Screenings (32 foot width) southern end of Smart Rd from Cass County line to 159th St						
mileage				0.49		
Total Construction Cost				\$ 374,202.81		
Design & Permitting				\$ 52,388.39		
Total Project Cost				\$ 426,591.21		
Gravel to Asphalt (32 feet width) southern end of Smart Rd from Cass County line to 164th St						
mileage				0.49		
Total Construction Cost				\$ 480,916.56		
Design & Permitting				\$ 67,328.32		
Total Project Cost				\$ 548,244.88		
Gravel to Limestone Screenings (22 foot width) 159th to 164th St						
mileage						0.96
Total Construction Cost						\$ 735,342.03
Design & Permitting						\$ 102,947.88
Total Project Cost						\$ 838,289.91
Gravel to Asphalt (22 feet width) 159th to 164th St						
mileage						0.96
Total Construction Cost						\$ 944,438.28
Design & Permitting						\$ 132,221.36
Total Project Cost						\$ 1,076,659.63
Mill and Overlay of Browning Rd						
mileage			2.15			
Total Project Cost			\$ 322,538.70			
Route Totals						
Existing Paved Road		1.16		1		
Route Length	2.91	2.02	2.15	2.55	4.37	0.96
Total Project Cost (Lime)	\$ 94,752.17	\$ 533,880.66	\$ -	\$ 1,035,767.71	\$ 1,312,629.92	\$ 838,289.91
Cost Per Mile	\$ 32,560.88	\$ 264,297.36	\$ -	\$ 406,183.42	\$ 300,372.98	\$ 873,218.65
Total Project Cost (Asphalt)	\$ 143,524.22	\$ 1,163,163.87	\$ 323,774.70	\$ 1,157,421.39	\$ 1,930,801.76	\$ 1,076,659.63
Cost Per Mile	\$ 49,321.04	\$ 575,823.70	\$ 150,592.88	\$ 453,890.74	\$ 441,831.07	\$ 1,121,520.45

Segment A - SW Jefferson-SE PEersels - SE Bailey Rd from Ward Rd east to MDC Entrance on Ranson Rd

Segment B - Ranson Rd/MDC Entrance through JAR to Browning Rd

Segment C - off-road limestone screening trail or Mill/Overlay of Browning Rd

Segment D - Smart Road - widen Browning to Hwy 150, share the road only Hwy 150 to 159th

Segment E - Off-road trail Browning/JAR to 159th

Segment F - 159th/Smart Rd to 164th St within existing Rd ROW

Trail Routes	Construction Cost	Project Miles	Cost Per Mile
Priority I			
A+B+C+D+F (Limestone)	\$ 2,502,690.46	10.59	\$ 236,325.82
A+B+C+D+F (Asphalt)	\$ 3,864,543.81	10.59	\$ 364,923.87
Priority II			
A+B+E+F (Limestone)	\$ 2,779,552.66	10.26	\$ 270,911.57
A+B+E+F (Asphalt)	\$ 4,314,149.48	10.26	\$ 420,482.41