Shepard Boulevard to Rollins Street Trail Connection Project
CPP-9999(523)

OVERVIEW OF THE PROJECT

WELCOME

Welcome to the Interested Parties meeting for the Shepard to Rollins Trail Connection. This is an open house meeting so please review all the displays. City staff and its Consultant are available to discuss the project. Before you leave, please fill out a comment card and drop it in the box. If you need assistance in any manner, just let us know. Thanks for participating!

PROJECT OVERVIEW

The study area is bounded by Stadium Boulevard, Old 63, and Hinkson Creek. The project's goal is to determine the optimal connection within this area to provide more residents the opportunity to use 'active' transportation over motorized vehicles.

PROJECT SCHEDULE

The project is in the public engagement stage of the conceptual design. After the Interested Parties meeting, staff will review all of the comments.

At an upcoming Council meeting, potentially in March, the Council will receive staff recommendations and the Interested Parties comments to determine a course of action. At the Council meeting, citizens will have the opportunity to address the Council.

If the Council decides to advance one of these concepts, a detailed design can begin. At that time, a project schedule will be prepared through construction.

CONNECTING ALIGNMENTS

The map below presents the alignments that are being considered for this connection. Learn more about these four alignments from the other displays. The alignments are numbered for reference purposes, from north to south. Please note that the numbers do not imply a ranking.

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MODE SHIFT POTENTIAL

MODE SHIFT

Mode shift potential describes the likelihood of someone riding a bicycle or walking for a trip that they might otherwise normally drive. This potential is measured by analyzing where people live, were they want to go, and if there is a facility that would make active transportation an attractive option.

Columbia has been a part of a four community Federal pilot project that has been very successful in generating mode shifts. The analysis of the pilot projects, and the 2004 National Household Travel Survey (NHTS), have determined that most people will walk one-half to three-quarters of a mile to make a single purpose trip, such as commuting to work. According to the NHTS, most Americans will ride their bicycle 3.5 miles before preferring to drive that distance. The data from the Federal pilot project indicates that Columbians will ride over 7 miles, however that figure includes recreational trips, so 5 miles will be used as the maximum mode shift distance for bicycling.

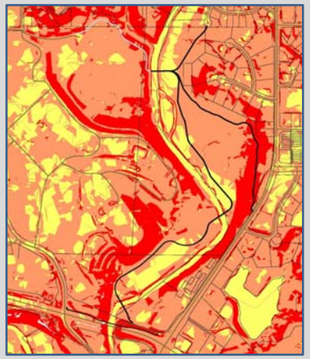
The key characteristics that influence mode shift are access to transit, facility user friendliness, and existing facilities.

TRANSIT

Transit has little effect on the mode shift for this area. COMO Connect has bus routes on Old 63, Stadium Boulevard, William Street, College Street, Rollins Street and Broadway.

COMO Connect Routes

City Bicycle Map



Existing Grades
- Up to 3%
- 3% to 4:1
- Over 4:1

FACILITY USER FRIENDLINESS

This describes the overall quality of a facility in terms of width, safety, maintenance, grades, and capacity. The key differentiator amongst these alignments is the grade. Bicyclists tend to prefer flatter grades and gentle hills to steep grades.

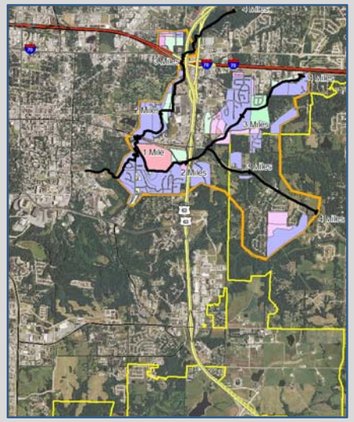
EXISTING FACILITIES

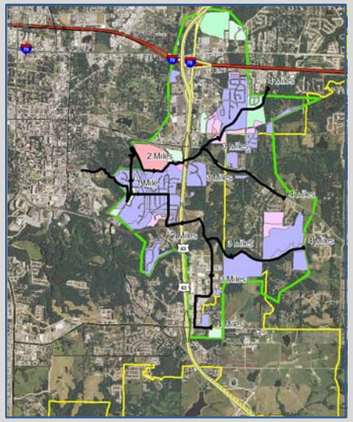
Existing facilities, such as bike lanes, pedways and trails have already affected mode shift in some areas. Alignments that offer new connections have the potential to generate a higher percentage of mode shift.

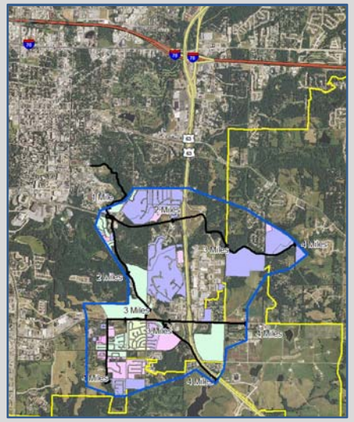
ANALYSIS

The lengths of Alignments 1, 2, and 3 exceed the maximum pedestrian mode shift distance, so only bicycle mode shift will be analyzed. Alignment 4 provides mode shift potential, however with only a few potential destinations within the 0.5 mile limit, the effect will be negligible. For instance, College Avenue is 0.8 miles from Old 63 along Ashland Drive.

The maps to the right show the areas that benefit from each alignment. Each map details multiple 4 mile trips along existing and proposed bicycle routes from the Rollins Street and Williams Street intersection. This provides at least an additional mile for bicyclists to reach destinations like the MU main campus and downtown.







Note that Alignment 4 is located on an existing bicycle facility. Even though some mode shift could be gained through improving the facility's user friendliness, the net increase would be negligible.

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ENVIRONMENTAL CONSIDERATIONS

Environmental Stewardship

This trail connection is an identified element of the 2013 Trail and Park Master plan and the Getabout Columbia plan. The goal is to provide a trail that prudently addresses and mitigates any environmental concerns. These include:

Hinkson Creek – The creek has an active, ongoing watershed restoration effort, and City codes have established a 100' stream bank buffer to protect the creek. Federal guidelines with FEMA regulate the creek's flood elevations and the US Army Corps of Engineers regulate the waterways. Trails and bridges are allowed in these areas, but must be engineered to meet regulations.

Parks – There are two public parks within the study limits, Wilson Park, and Wyatt Park. Although trail access is a great park amenity, it will be important to address any disruption to these parks.

Forested Land – The Hinkson Creek valley is forested, with some areas designated as Urban Climax forest. City Code requires minimal clearing and targeted landscaping to restore cleared areas. Where tree removal can't be avoided, the contractor will be given very specific guidelines for removal, protection of adjacent trees and planting.

Protected Species – The Indiana bat and the Gray bat are both endangered species and are found in forested areas such as these across Missouri. Both bats hibernate in caves, and will roost in certain trees during the non-winter months. Trees suitable for bat habitat may only be cleared between October and March.

Flood Waters and Bridge Design

The Federal Emergency Management Agency (FEMA) has flood maps and studies for creeks, including Hinkson Creek. These maps determine if homes and properties have potential to be flooded. Since flood waters are very destructive and potentially life threatening, it is important that any new infrastructure within mapped creeks meet the strict criteria set forth by FEMA and adopted and enforced by the City.

Columbia administers the FEMA flood regulations on Hinkson Creek. Most minor changes to the creek can be reviewed and approved solely by the City, but all significant changes needed to be reviewed and approved by FEMA.

Typically FEMA flood studies have a computerized model that provides a uniform, scientific method to determine what effects a new crossing will have upon flood levels. Hinkson Creek's official FEMA model needs to be significantly updated before it can be used. While minor encroachments into the floodplain could be assessed using a model of a localized section of the creek, a significant encroachment could trigger the need to create a new hydraulic model of the entire creek. Such procedures require extensive studies and can take a year or more to complete to arrive at a FEMA approved model.

To avoid additional costs and time to update the FEMA model, the crossings of the creek are assumed to be bridges that span the entire floodway. A low-water crossing on Hinkson Creek might eventually be approved by FEMA, but it would take substantial time and effort to support that approach.

Permitting

The US Army Corps of Engineers have jurisdiction over Hinkson Creek and the associated wetlands. Consequently, Section 401 and 404 permits are required prior to construction. In this role the Corps are protecting the environment from pollutants and sediment transport. All construction activities that disturb the creek within the normal channel, or disturb certain low-lying areas defined as a "wetland," must meet the Corps procedures.

The Corps have issued "nationwide" general permits that cover most minor construction. If there is significant work in the streambed, channel realignments, or significant wetland degradation, then the City will submit a "individual" permit request.

In 2012, the Corps revised their requirements on pipe culverts and low-water crossings in streams in an effort to improve the safe passage of fish and other aquatic organisms. While this does not prevent the use of low-water crossings, it just increases the requirements to obtain Corps approval.

The trail, and the bridges, will be engineered to provide a low-maintenance facility. Large flood events will scour the streambed around objects such a bridge abutments. The trail designers will engineer the bridges and their foundations to resist the force of the flood waters, and to provide a foundation that will greatly reduce or even eliminate the need for rock rip rap bank armoring. These are methods considered "best practices" by the Corps of Engineers.

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CONSTRUCTION COSTS

COST BREAKDOWN

There are numerous design details yet to be determined in order to provide an accurate estimate of construction cost. At this conceptual stage of design, a range of costs has been developed for each alignment. Costs are shown for major construction items such as bridges, pavement and structures including drainage and retaining walls.

When the GetAbout Phase 2 projects were approved in 2013, the construction estimate for this project was $1.74M, not including easement acquisition, and included the area west of the creek to be studied by the City.

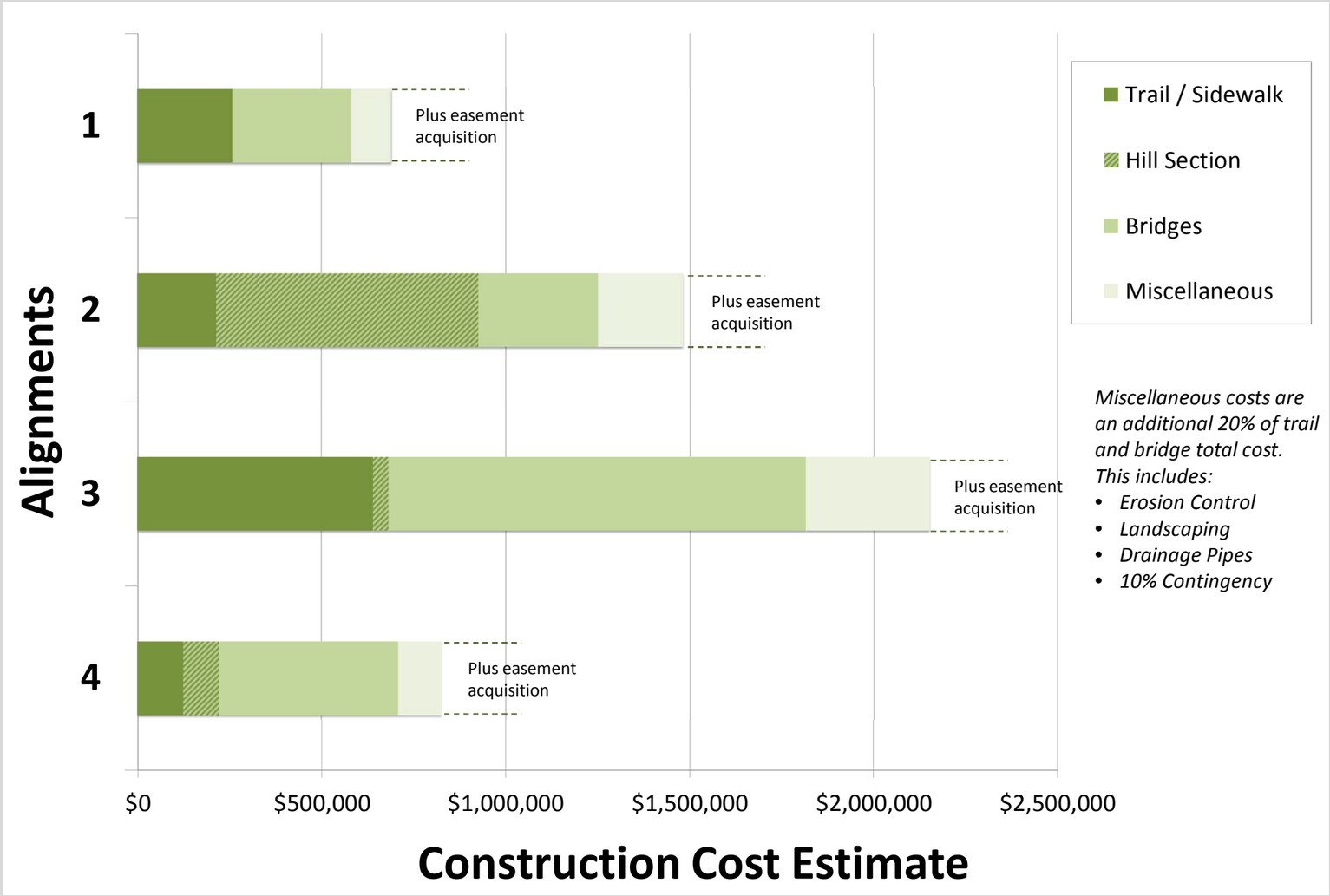
COST CONSIDERATIONS

Bridges are often the single highest cost for any trail. Prefabricated bridges have been included in this analysis due to their minimal floodplain encroachments and low maintenance costs.

All alignments will require some degree of construction or permanent easements from private land owners. The number of affected properties and the approximate clearing areas are shown in the Evaluation Summary though easement acquisition costs have not been assigned.

Alignment 1 includes a proposed sidewalk along Bluff Dale Drive up to Southwood Drive and then along Southwood Drive to the pedway. This is to provide a separate ADA accessible route for pedestrians to connect to the pedway on Old 63.

The "Hill Section" is a trail built in very steep terrain. This is typically accomplished with a retained earth wall on one side of the trail, or with a boardwalk section. Alignments 2, 3, and 4 have Hill Sections.



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EVALUATION SUMMARY

ALIGNMENT ASSESSMENT

Each of the alignments and corresponding facility types will be reviewed for mode shift potential, environmental considerations, and construction costs. The following table summarizes those assessments to date. Note that at this time, no decision has been made as to a preferred alignment. This information is provided for review and comment.

Construction cost evaluations are based upon the programmed budget and availability of funds.

The mode shift summary will be completed after comments from the Interested Parties meeting are reviewed.

The objective is to provide a summary evaluation of each alignment. There are limitations and opportunities with each alignment.

Expressing your opinions on the merits of the alignments is encouraged and written comments are welcomed. Your feedback and input will be documented and provided to the City Council for consideration. Ultimately, the City Council will decide which alignment to proceed with.

LEGEND
●○○○○ Very Poor
●●○○○ Poor
●●●○○ Fair
●●●●○ Good
●●●●● Very Good

	Alignments				
	West of Hinkson Creek (City study)	1	2	3	4
Mode Shift Potential					●○○○○
Travel Demand					
Potential Trips	TBD				N/A (Existing Facility)
Transit					
Transit Route/Stop Connection	Gold	Pink	Pink	Black	Pink/Black
Facility Friendliness					
Average / Steepest Gradient	TBD	3.3% / 5%	4.8% / 7.5%	1.6% / 5%	5.6% / 7.5%
Existing Facilities					
Improves Connections	(Included)	Hominy Branch Trail, Campuses	Campuses	Grindstone Creek Trail, Campuses	Grindstone Creek Trail, Campuses
Bicycle Trip Length Reduction (Miles)	(Included)	0.7	0.9	0.1	0.0
Walking Trip Length Reduction (Miles)	(Included)	0.7	1.4	0.5	0.3
Environmental Consideration		●●●●○	●●●○○	●●●○○	●●●●●
Clearing Open Ground for Construction (Acres)	TBD	0.3	0.3	2.4	0.2
Clearing Forested Ground for Construction (Acres)	TBD	0.4	1.8	1.0	0.0
Potential Wetland Disruption	TBD	Minor	Limited	Significant	None
Floodplain and Stream Bank Buffer Encroachments	TBD	Limited	Limited	Significant	None
Endangered Species Habitat Disruption	TBD	Minor	Limited	Limited	Minor
Construction Cost Estimate		●●●●●	●●●○○	●○○○○	●●●●○
Construction Cost	TBD	$700,000	$1,500,000	$2,200,000	$900,000
Overall Trail Length	TBD	950' + 1,200' Sidewalk	2,500'	4,300'	1,200'
Trail Bridge Length	TBD	180'	180'	630' (180'+220'+230')	-
Roadway Bridge Modification Length	TBD	-	-	-	270'
Hill Section Length	TBD	-	1,100'	80'	150'**
Properties with Construction and Permanent Easements	TBD	16*	2	2	1
		*14 due to sidewalk			**east of creek

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EXAMPLES

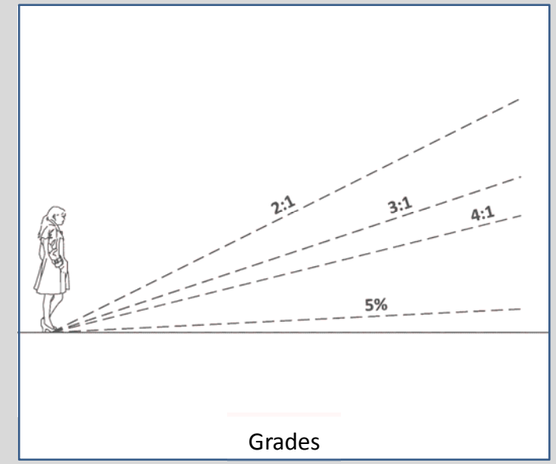
EXAMPLES

These images/graphics are to help you visualize some of the concepts presented tonight.

Typical Trail Section

Retained Earth Section

Boardwalk Section



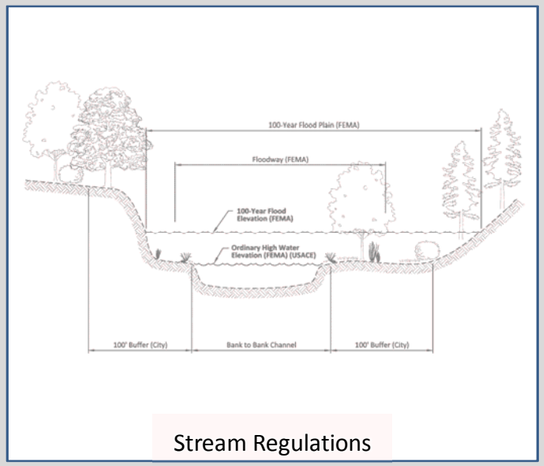
Grades

Bike Lane

Pedway

Potential Sidewalk Location

Wyatt Park



Stream Regulations

Pedestrian Bridge

Low-water Crossing

Hinkson Creek