

**RESOLUTION NO. 20-1035**

**A RESOLUTION APPROVING A DOWNTOWN ACTIVE TRANSPORTATION  
MASTER PLAN FOR THE CITY OF OLATHE, KANSAS.**

**BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF OLATHE,  
KANSAS:**

**SECTION ONE:** The Downtown Active Transportation Master Plan, (attached hereto as Exhibit 1), prepared by the Public Works Department and dated February 2020, is hereby approved and adopted for use by the City of Olathe.

**SECTION TWO:** The Downtown Active Transportation Master Plan shall be used to guide multi-modal transportation opportunities in Downtown Olathe.

**SECTION THREE:** This Resolution shall take effect immediately.

**ADOPTED** by the Governing Body this 19th day of May, 2020.

**SIGNED** by the Mayor this 19th day of May, 2020.

\_\_\_\_\_  
Mayor

**ATTEST:**

\_\_\_\_\_  
City Clerk

(SEAL)

**APPROVED AS TO FORM:**

\_\_\_\_\_  
City Attorney

# **EXHIBIT 1**

## **ACTIVE TRANSPORTATION PLAN**



# The Downtown Olathe Active Transportation Plan

RDG PLANNING & DESIGN/BHC RHODES/VENICE COMMUNICATIONS  
February 2020





# TABLE OF CONTENTS

|   |                             |    |
|---|-----------------------------|----|
| 0 | Introduction and Background | 5  |
| 1 | The Network Overview        | 14 |
| 2 | Network Components          | 22 |
| 3 | Complete Streets Guide      | 52 |
| 4 | Implementation              | 64 |

# ACKNOWLEDGMENTS

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## Funding Partner

A special thanks to the Mid-America Regional Council for the funding that helped make this project possible.

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# INTRODUCTION

## What is an Active Transportation Plan?

Active transportation, including walking, bicycling, and increasingly other “micro-mobility” devices like electric scooters, is particularly well-suited to growing cities like Olathe. These modes use little or no fuel, do not emit greenhouse gases or other pollutants, are very quiet and space-efficient, and make us healthier. New technologies and innovative products, such as pedal-assisted e-bikes and recumbent tricycles, bring pedal-powered transportation within the capabilities of more people. Other low-impact means of travel, such as scooters and power-assisted wheelchairs, bring greater mobility to those of us with disabilities.

Because of these multiple benefits, Olathe, in common with other regional cities, hopes to increase the number of people using active modes for routine mobility. However, many people cite lack of adequate infrastructure as their principal reason for avoiding walking or bicycling for specific purposes. This Active Transportation Plan seeks to address this concern, building on the work of the Envision Olathe Downtown Master Plan to create a network of on and off-street paths for low impact travel that 1) promotes active transportation within Olathe's central district and 2) strengthens Downtown Olathe by connecting the district to the Kansas City metropolitan area's extensive network of regional shared use paths.

## Why an Active Transportation Plan?

The Envision Olathe downtown plan ties connectivity, housing, development, and public space together to guide downtown's evolution from a daytime government center to a true multi-use destination. This Active Transportation Plan addresses internal functional issues and uses physical opportunities and to create a district that is both connected internally and leads to other features in Olathe and other parts of the metropolitan region. Major regional trails, notably the Mahaffie, Rolling Ridge, Gary Haller, and Indian Creek trails converge in Olathe, but stop short of the downtown core. A downtown active network can be the “knot” that ties these trails together, as well as connecting residents of Olathe to downtown and the major community destinations like Stagecoach Park. This in turn greatly increases the potential of Downtown to attract new residential development. The plan also shows the way to capitalize on and connect other important local initiatives, including the new Johnson County Courthouse, a downtown central open space on the old courthouse site, the previously programmed Kansas Avenue streetscape project, a new library and mixed use project on the north side of Civic Center Park, the Mill Creek stormwater management project, and previous conceptual work on a Mill Creek Path.

# BACKGROUND

The concept for the Downtown Olathe Active Transportation Plan began with the Envision Olathe Downtown Plan adopted in April 2018. High level concepts were developed for a connected network of bicycle and pedestrian infrastructure which are refined within this plan to set the stage for implementation.

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## Public Engagement

Public engagement was a key part of the plan development. This process began in May, 2019 with a site tour and meeting of technical and steering committees, and included the following components:

### Steering and Technical Committees

A 12 member Steering Committee was tasked with providing direction and feedback during the planning process. Bi-monthly meetings took place from May through October. The committee reviewed the Envision Olathe Downtown Plan to set priorities at the start of the process, reviewing preliminary and refined concepts at subsequent meetings. Committee members also participated in the preliminary concept and final open houses.

A Technical Committee, representing various city divisions met several times to review the details of the emerging plan. Guidance from these meetings led to more refined design concepts and actionable implementation strategies.

### Stakeholder Group Discussions

Two small-group sessions were held to discuss the potential and options for walking, biking, and other active modes in downtown. These groups included city and county staff, engineers, businesses, and downtown neighborhood residents. Themes that emerged through the discussions include:

- Both residents and city staff support the concept of an active mobility plan and are

committed to its implementation.

- Connections across Santa Fe Street are especially important for residents on the north side visiting businesses or the library on the south. (Note: Incorporating a new public library on the north side of Civic Center Park east of City Hall, not on the table during the stakeholder discussions, will increase the importance of safe crossing of the Santa Fe corridor.)
- Central Olathe neighborhoods have long supported a Mill Creek Trail and have developed plan concepts for the path.
- Opportunities exist to use existing city projects and plans to complete many of the proposed transportation improvements.
- Consistent with the downtown master plan, a safe crossing of the BNSF mainline was viewed as both an important priority and a difficult challenge.

## Online Engagement

The engagement program included a project website for residents to learn about the process and share their perceptions and ideas to improve the plan. The website also provided information about upcoming meetings and the overall project schedule. The website was promoted through posters, news outlets, e-blasts and social media.

A visual preference survey was launched to

measure public reactions and preferences for various types of active transportation infrastructure. Nearly 100 respondents completed the survey in Summer 2019. Survey results are reviewed on the following pages.

## Events

During the July Concept Open House, preliminary concepts were developed and displayed at City Hall for the public to view, ask questions, and provide feedback. Over 40 people attended the event and generally exhibited strong support for the direction of initial ideas.

To help spread the word about the project and gather additional feedback, the project team set up exhibits at two major community events – Olathe Live! on July 26th and Old Settlers Day the first weekend of September.

In coordination with National Community Planning Month, the City held a public open house displaying refined concepts on Tuesday, October 15<sup>th</sup>. Nearly 40 participants attended to view and comment on these proposals. Reactions to these more developed ideas were both helpful and generally very positive.

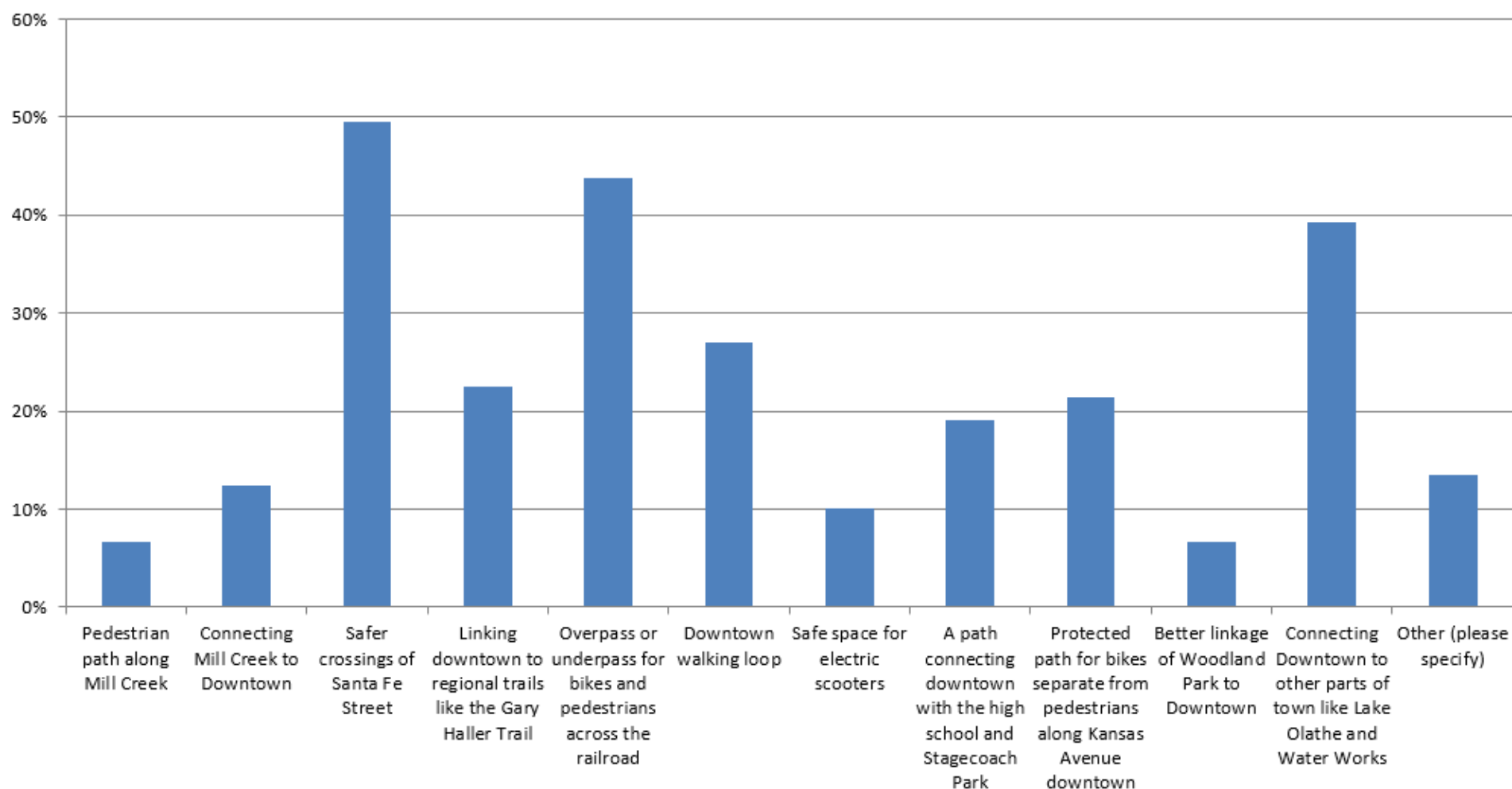
## Media Coverage

Each public event received extensive media coverage. The first open house was featured in three televised interviews and articles in the Kansas City Star. The final open house included three televised interviews, one radio interview, and it appeared in the Kansas City Star and Olathe Daily News.



# SURVEY RESULTS

## Downtown Priority Projects



## Comfort Level with Various Facilities



35% Moderately Comfortable (bicyclists)  
30% Moderately Comfortable (pedestrian)

**Woonerf:** Quiet shared street with joint use of street space by pedestrians, bicyclists, and local resident cars. Extensively used in the Netherlands and gaining additional currency in other countries.

### Bike lane and sidepath:

Complete street with standard bike lanes and off-road shared use path for pedestrians and bicyclists uncomfortable with on-road facilities.



37% Moderately Comfortable (bicyclists)  
47% Very Comfortable (pedestrian)

### Bicycle boulevard or neighborhood greenway:

Low-volume residential street with sidewalks and traffic calming devices to hold speeds to 20-25 mph.



32% Moderately Comfortable



42% Moderately Comfortable

### Enhanced standard bike lanes:

Standard on-street lane with green paint at strategic locations and conflict points for greater visibility.



67% Very Comfortable

### Parking protected bike lane:

Bike lane separated from travel lanes by parking and painted buffer with vertical bollard delineators.



76% Very Comfortable

### Protected cycle track:

Two-way on-street path, separated from parking and travel lane by raised planter or median.



54% Very Comfortable (bicyclists)  
48% Very Comfortable (pedestrian)

### Shared use path on separated right-of-way

## Previous Transportation Plans

Several previous documents address the development of future streets, streetscapes, and trails:

- » **Plan Olathe.** PlanOlathe, the city's Comprehensive Plan, was completed in 2010 and is updated annually. It guides the future of the city's transportation network with its vision of establishing and maintaining a balanced multi-modal transportation system that provides effective, efficient, and safe mobility for residents. The plan emphasizes the need for improving mobility, supporting high-quality trails to connect activity centers, and integrating land uses with multi-modal transit opportunities.
- » **Olathe Transportation Master Plan.** In 2017, the city completed a Transportation Master Plan to guide long-range transportation investments. In its section on Active Transportation, the plan identifies the need for a variety of facilities to encourage bicycling for a range of users, including trails, bike lanes, and sidepaths. These were combined into a recommended active transportation network.
- » **Olathe Streetscape Master Plan and Downtown Design Guidelines.** The Streetscape Master Plan and Downtown Design Guidelines, prepared in 2003, establish a design framework for redevelopment in downtown and along Santa Fe Street. The plan describes public realm improvements and design standards/guidelines for private property. It did not include specific standards for Kansas Avenue or Kansas City Road.
- » **Envision Olathe.** Completed in April 2018, Envision Olathe included concepts and a high level network that form the basic foundation for this more detailed active transportation plan. The plan related connectivity, housing,

development, and public space to create a unified vision of the City Center district as a multi-use destination and neighborhood.

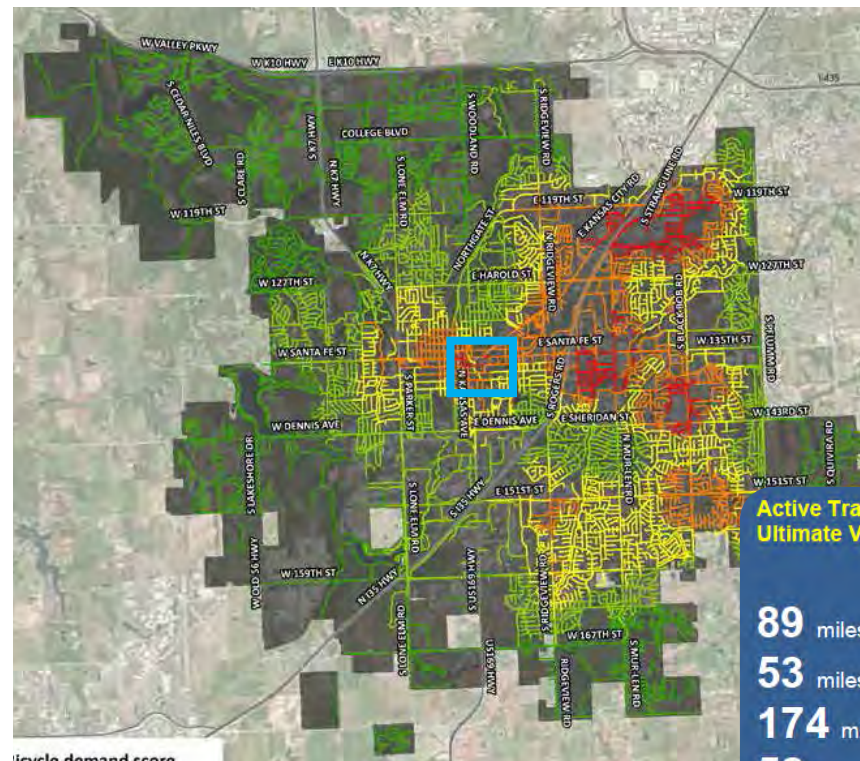
- » **Bike Share Implementation Strategy.** In February 2018 a report was prepared for Olathe to determine the benefits of a bike share system, assess demand, and identify locations for potential bike share facilities and service boundaries.. The public engagement identified downtown as residents' priority location for implementation of bike share. The map below shows the bicycle demand analysis with the study area highlighted in blue. The City Center exhibits high rates of potential bicycle

ridership. However, lack of connected and safe facilities depress levels to those of areas to the east and northeast, with better access to existing trails and bike lanes.

## Street Preservation Program

Much of the planned active transportation route can be built out by planning the upgrades with the Street Preservation Program. The Street Preservation Program is included in the Capital Improvement Program (CIP) for funding each year. Projects range from mill and overlay to full reconstruction. The reconstruction projects that correspond to the planned active transportation route are outlined in blue on the adjacent map.

**BIKE SHARE IMPLEMENTATION STRATEGY (2018):** High Bicycle Demand Map



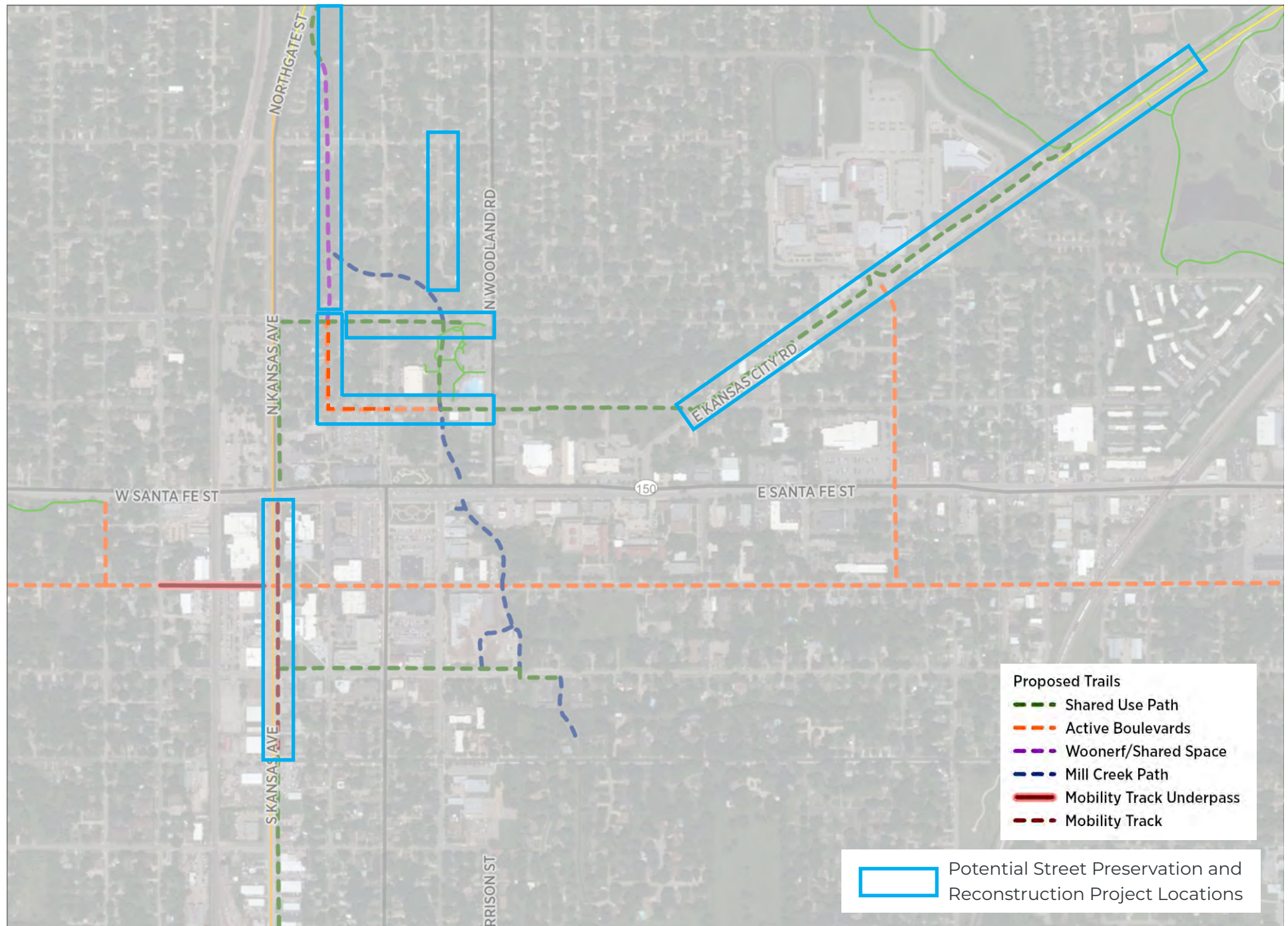
### Active Transportation Network – Ultimate Vision

**89** miles of bike lanes (vs. 13 today)  
**53** miles of trails (vs. 29 today)  
**174** miles of sidepaths (vs. 23 today)  
**52** miles of shared roads (vs. 4 today)

**+ pervasive network of sidewalks**



## STREET PRESERVATION AND RECONSTRUCTION POSSIBLE LOCATIONS







1

THE NETWORK

## Study Area

While the principal focus of this study is to consider strategies for making connections within the downtown core, it recognizes that regional connections are integral to a fully functioning active transportation network. Therefore, the City Center Network map proposed on the following pages incorporates a wider study area than the original Envision Olathe map.



## Transportation Network

A consideration of an active transportation system for downtown Olathe begins with a discussion of the city's overall transportation network. Key components of the network include:

### MOTOR TRAFFIC CIRCULATION

The downtown traffic circulation system consists of two-way gridded streets, aligned north-south and east-west. Blocks were originally served by sets of east-west mid-block alleys with a north-south alley to connect them. Several blocks preserve these alleys, although they are reconfigured or vacated on others. Remaining alleys provide building service and utilities off the street, improving the public realm. Some alleys are also used by pedestrians, a role that could be enhanced with outdoor amenities.

### MAJOR CORRIDORS AND INTERSECTIONS

Three major road corridors provide circulation from downtown to other parts of Olathe—Santa Fe (135th) Street, Kansas Avenue, and Kansas City Road. Spruce Street, with a grade-separated underpass at the railroad, is another important east-west route, especially when passing trains block the Santa Fe Street grade crossing. Clearance of the underpass is insufficient for many trucks. East-west Loula Street, two blocks south of Santa Fe, is also a collector street with a surface crossing of the railroad.

### SIGNALIZED INTERSECTIONS

In the study area, signalized intersections along Santa Fe Street include Kansas Avenue, Chestnut Street, and Kansas City Road. Kansas Avenue also has signals at Park Street, Loula Street and Spruce Street. Traffic count data and capacity needs have been revisited to determine whether the Park Street and Kansas Avenue intersection needs to remain signalized.

### RAILROAD CROSSINGS

The busy BNSF mainline borders the west side of downtown and averages 88 trains per day. As mentioned above, Santa Fe, Loula, and Park Streets cross the double-tracked line at-grade. Artificial horns, cross bars, and flashing lights are used to protect these crossings. The cumulative delay and crash costs at the Santa Fe Street crossing alone are estimated at over \$10 million between 2012 and 2025. The existing two-lane Spruce Street underpass, two blocks north of Santa Fe, is insufficient to handle traffic trying to avoid these grade crossings when trains pass.

## PEDESTRIANS

While the district has a complete grid of sidewalks, the railroad and traffic flow on major streets present obstacles to smooth, safe, and comfortable pedestrian movement. A defined pedestrian crossing at Santa Fe and Cherry is not signalized but receives heavy pedestrian use, which is likely to increase when the new courthouse on the north side of Santa Fe is occupied. Other desired pedestrian crossings of Santa Fe include Water Street, with demand likely to increase with development of a new library as part of a mixed use project north of Civic Center Park.

## BICYCLE FACILITIES

Bicycle-specific facilities are currently scarce in the city center, although infrastructure connections are available in surrounding areas. These include standard bike lanes on Kansas Avenue between Cedar Street and Dennis Avenue, the regional Gary Haller (Mill Creek) Trail from Mahaffie Stagecoach Park to Shawnee Mission Park and the Kansas River, the regional Indian Creek Trail from Sheridan and Santa Fe near Mur-Len Drive east of I-35, the Rolling Ridge Trail west of Parker between Ernie Miller to Oregon Trail Parks, the Dennis/Sheridan bike lanes from Lake Olathe to the east city line, and the Santa Fe sidepath west of the BNSF corridor. Kansas City Road is signed as a bike route between Santa Fe Street and the Gary Haller Trailhead.



## Existing Traffic Analysis

In late April and early May of 2019, traffic counts were conducted at several intersections in the downtown core to determine the Level of Service (LOS) during the AM (7:15 to 8:15) and PM (4:30 to 5:30) peak hours. Level of Service is defined as the measure of the quality of traffic flow with respect to average delay and is graded from “A” to “F” – with “A” being the best situation and “F” being the worst. Level of Service of D is considered acceptable by most municipalities.

Most intersections in the downtown core operate at a LOS D or better and have sufficient space for queuing vehicles during the AM and PM peak hours. Detailed analysis for each intersection is included within their respective section.

## Future Traffic Distribution

Proposed traffic volumes for the intersections in the downtown core analysis were developed using the April/May 2019 traffic counts (see Section 2 in the Appendix for traffic counts) augmented by the new Johnson County Courthouse and the proposed Milhaus development. The volumes from the north leg of Water Street were redirected to Chestnut Street to account for the closure of Water Street north of Santa Fe proposed by Envision Olathe. Park Street traffic was similarly redirected to Loula Street. Detailed descriptions of traffic impacts for each main intersection are included within their respective sections.

## Citizen Preferences

Downtown walkability is especially important because of its large number of daytime employees. Comments from the public engagement process reinforced the need connections and safe pedestrian paths to accommodate workers who walk around downtown during their breaks. In addition, a quality walking environment will encourage a growing residential population in and around downtown and new private investment.

Public input also suggested significant support for regional connectivity. Participants in events such as the concept open house appreciated ideas for a Kansas Avenue facility that would improve access to the Gary Haller Trail and Lake Olathe. The active transportation network described later is designed to tie the various regional facilities together in the center of the city and provide better links from Downtown Olathe to Mahaffie Stage Coach/Community Center to Downtown, Lake Olathe, the Gary Haller Trail, and a Mill Creek greenway corridor.

## The Network Concept

The maps on pages 17 through 19 provide the basis for the central Olathe system that is detailed in subsequent parts of the plan. The Potential Regional Connections identifies the corridor connections that link Downtown Olathe to features in the surrounding region. These corridors include connecting the City Center to:

- The Gary Haller Trail, connecting to northern Johnson County, Shawnee Mission Park and surrounding recreational resources, and the Kansas River.
- Lake Olathe, one of the city's principal recreational assets.
- Mahaffie Stage Coach Stop, Stagecoach Park, and Olathe Community Center.
- The Indian Creek Trail, connecting to Overland Park, Leawood, and the center of Kansas City.

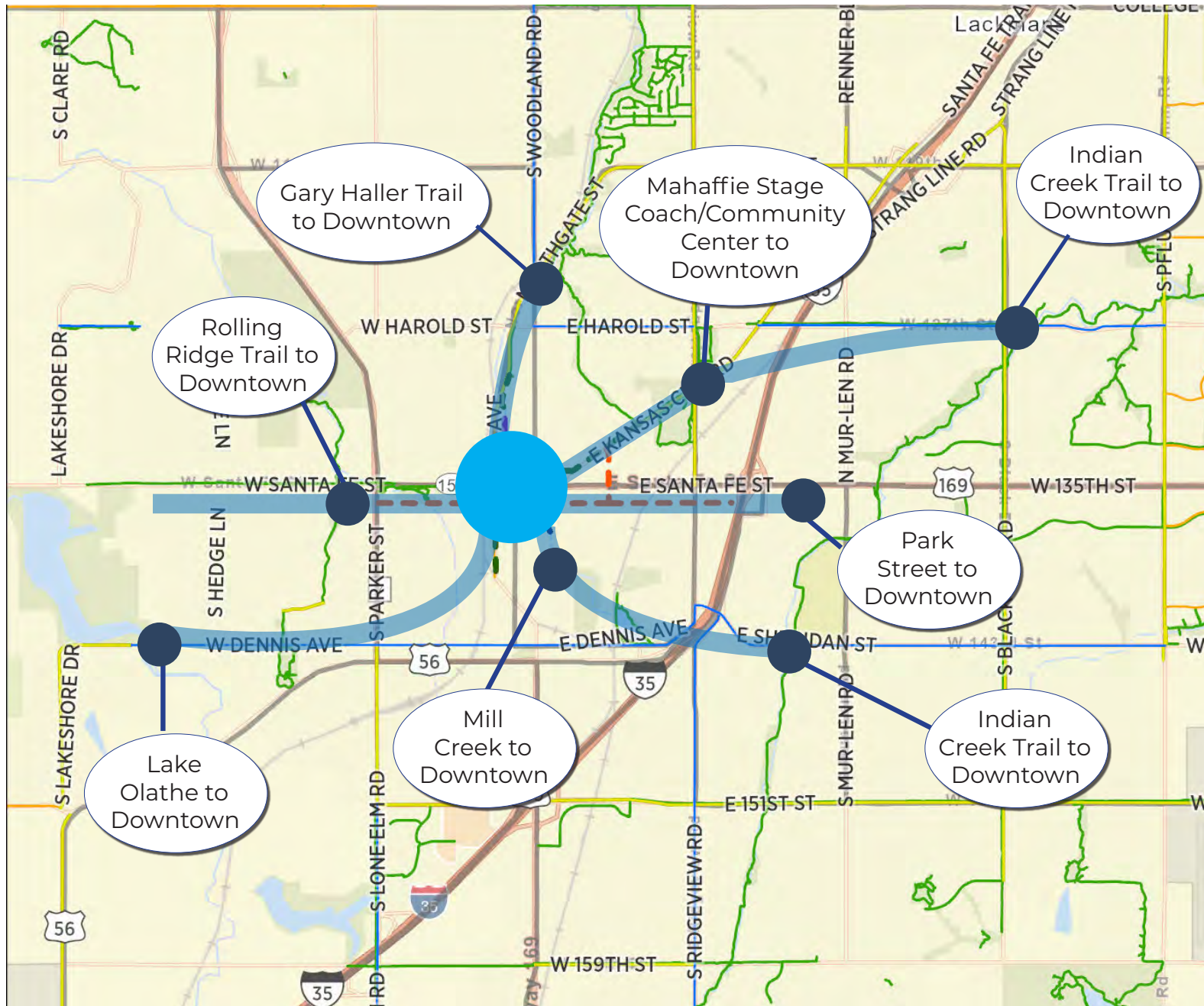
More local corridors include:

- Mill Creek to Water Works Park, the new library, Mill Creek Park, and ultimately the Gary Haller Trail.
- Park Street, once Olathe's principal east-west civic corridor, connecting to the K-7 corridor and Rolling Ridge Trail.

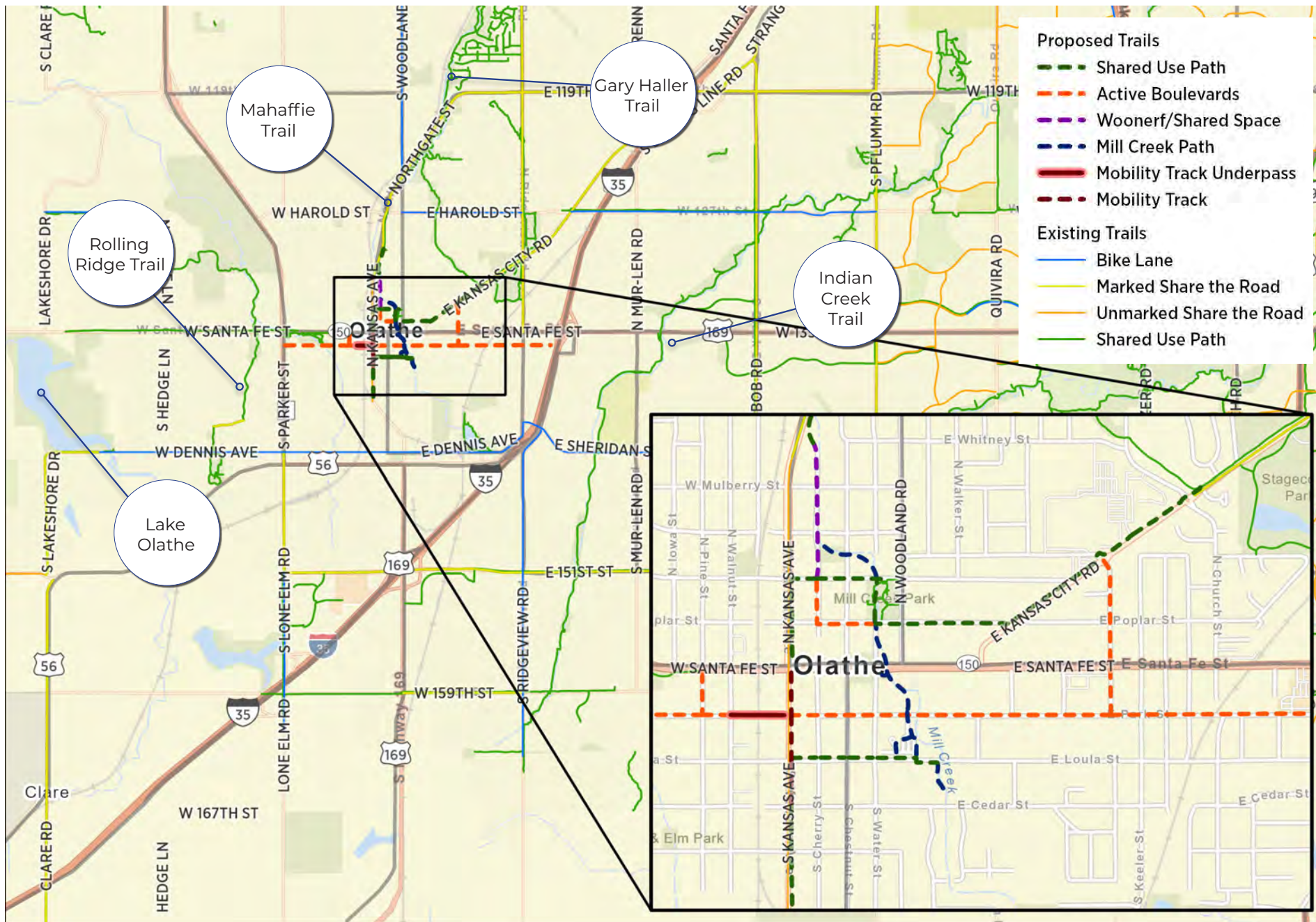
The Regional Network Map on page 18 relates these general corridors to specific routes and facility types, and the Downtown Network Map focuses on potential projects within the City Center study area. These specific components, discussed in detail in Chapter 2, include:

- Kansas Avenue, the major north-south facility connecting the Dennis Avenue bike lanes and Lake Olathe to the Gary Haller Trail through Downtown Olathe.
- Mill Creek, the central greenway between Cedar Street and the historic Mill building to Mill Creek Park and the north link to the Gary Haller Trail. A key element of this corridor is a safe Santa Fe Street crossing.
- Park Street, the major crosstown civic corridor through a central open space opened by relocation of the Courthouse north of Santa Fe and including a potential grade separated crossing of the BNSF Railway.
- Kansas City Road, connecting the Downtown core to Stagecoach Park and the Gary Haller and Indian Creek systems.
- Interconnections among these major component routes.

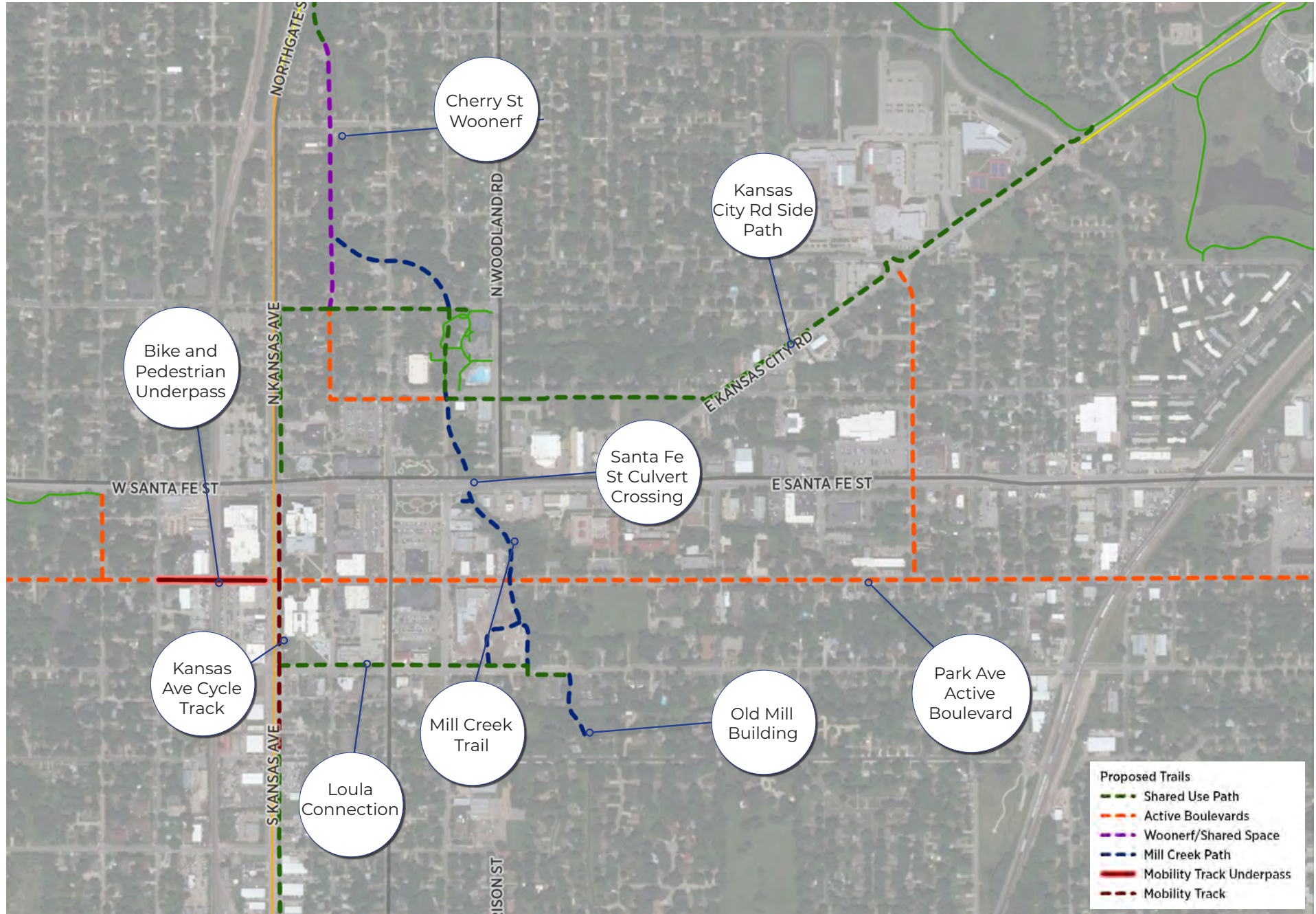
## Potential Regional Connections



# Regional Network Map



## Proposed Downtown Network Map





PARK ST

A photograph of a city street scene. In the foreground, a sidewalk and a brick wall are visible. A traffic light pole stands on the left, with a green light illuminated. A silver car is parked on the street. In the background, there are large, leafy trees and a brick building with several windows. The sky is clear and blue.

2

## SYSTEM COMPONENTS

# KANSAS AVENUE/NORTHGATE

Kansas Avenue and Northgate are important links to the regional transportation system, serving as the middle portion of a larger trail that connects the Gary Haller Trail (and ultimately the Kansas River) to the north and to Lake Olathe to the southwest.

## Why

The north-south connection is a higher priority project because of the imminent completion of the new Johnson County Courthouse and a previously programmed streetscape investment on Kansas Avenue. The Envision Olathe plan proposed a protected cycle track on the east side of the street between Cedar and Santa Fe Streets. This core facility would connect south to Lake Olathe and north to the Gary Haller Trail and Shawnee Mission. The Envision Olathe downtown plan identified the following challenges and opportunities:

- ◀ Perceived Barrier. Traffic speeds and volumes are relatively low through the Downtown core but the street's width presents a barrier to pedestrians.
- ◀ Parking Demand Shift. As the courthouse moves north of Santa Fe Street, parking preferences may also shift to the courthouse's new surface parking lot north of the new building.
- ◀ Streetscape improvements. Kansas Avenue is scheduled for improvements after the courthouse moves in 2021. This presents a great opportunity to enhance the street as an important approach to downtown.

## How

Kansas Avenue's existing curb to curb width averages 80 feet in the center of Downtown, with two direct lanes, short left turn lanes at intersections, and diagonal parking. The street width tends to encourage higher speeds through the central district, and conventional head-in diagonal parking creates hazards for micro-mobility modes such as bicycles and scooters. However, this generous width permits complete redesign within the existing curb width.

The recommended concept reallocates the existing street real estate on Cedar Street by providing:

- ◀ A two-way cycle track protected by a raised barrier with planters along the

east side of Kansas Avenue. The existing east side curb remains in place. The cycle track itself is 10 to 12 feet in width, with a protected buffer of 4 to 6 feet. The entire cycle track installation with buffer is 16 feet.

- ◀ A two-lane street with retained diagonal parking in the remaining 64 feet street channel. A left-turn lane would be maintained at the Santa Fe and Loula intersections. Diagonal parking on one side would be removed at these intersections to avoid traffic conflicts and provide space for the left turn lane.
- ◀ Curb extensions at intersections to reduce pedestrian crossing distance. This treatment would also be extended on the east side of the Park Street T-intersection, especially important with possible removal of the signal. The concept proposes a protected (or Dutch) intersection at the Santa Fe and Kansas Avenue intersection, providing a safe refuge and transition from the cycle track to a shared use path along the Courthouse site from Santa Fe to Spruce.
- ◀ Driveway accesses would be retained between Loula and Cedar. The raised buffer would be interrupted about 5 feet on either side of the driveway, with conflict zone striping across the width of the curb cut. The design of this is detailed in chapter 6.
- ◀ Upgraded sidewalk streetscape to provide a positive and memorable experience to attract visitors and private investment to Downtown's western edge. Features such as pedestrian lighting, trees and benches can be used to create a sense of place with a human scale. Clean streets, ornamental lighting, native plantings, shrubs, and community graphics can also create a more attractive visual and functional environment. Similar applications can also be made to secondary circulation corridors such as Spruce Street and Loula Street.

Overall advantages and features of the conceptual design include:

- ◀ Better safety and comfort for pedestrians, bicyclists, and users of other micro-mobility modes.
- ◀ Updated lighting
- ◀ Improved landscaping to complement a future Courthouse Square
- ◀ Preserve most on-street parking

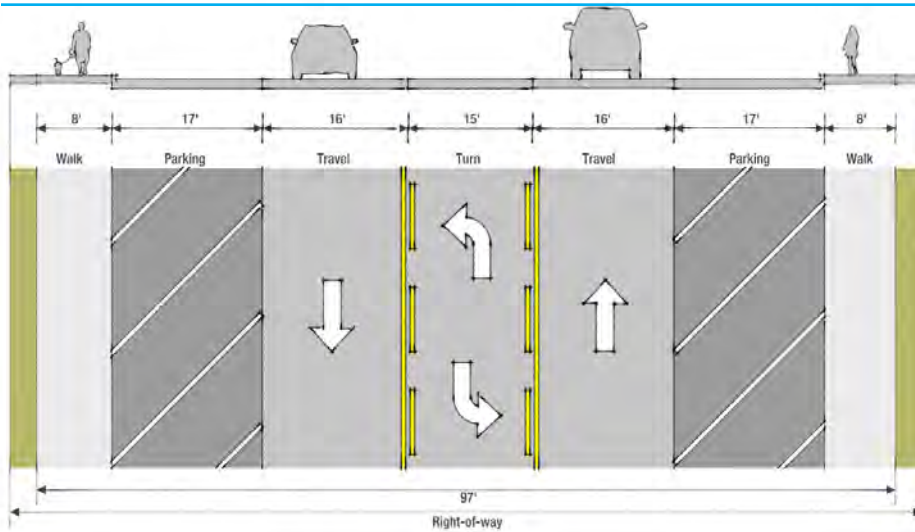
- ◀ Improved intersection design to provide well-defined pedestrian areas

The illustration below presents the overall concept of the core segment, while the following pages describe the individual segments and infrastructure solutions for each segment of this north-south facility.

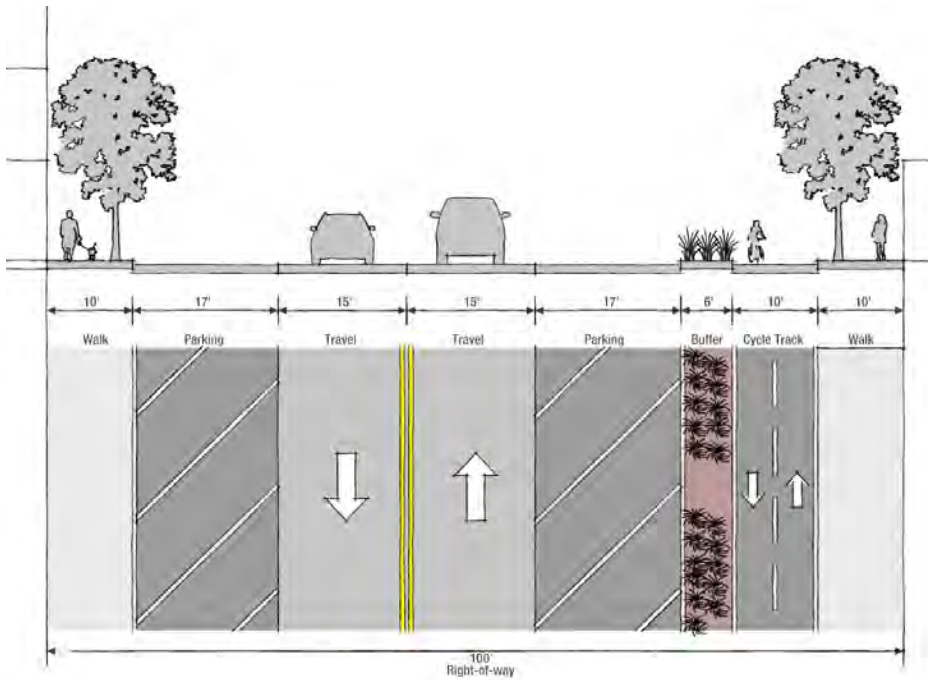


## 2 | SYSTEM COMPONENTS

South Kansas Avenue Street Section - Existing



South Kansas Avenue Street Section - Proposed Complete Street



## Downtown Core: Santa Fe to Cedar Street

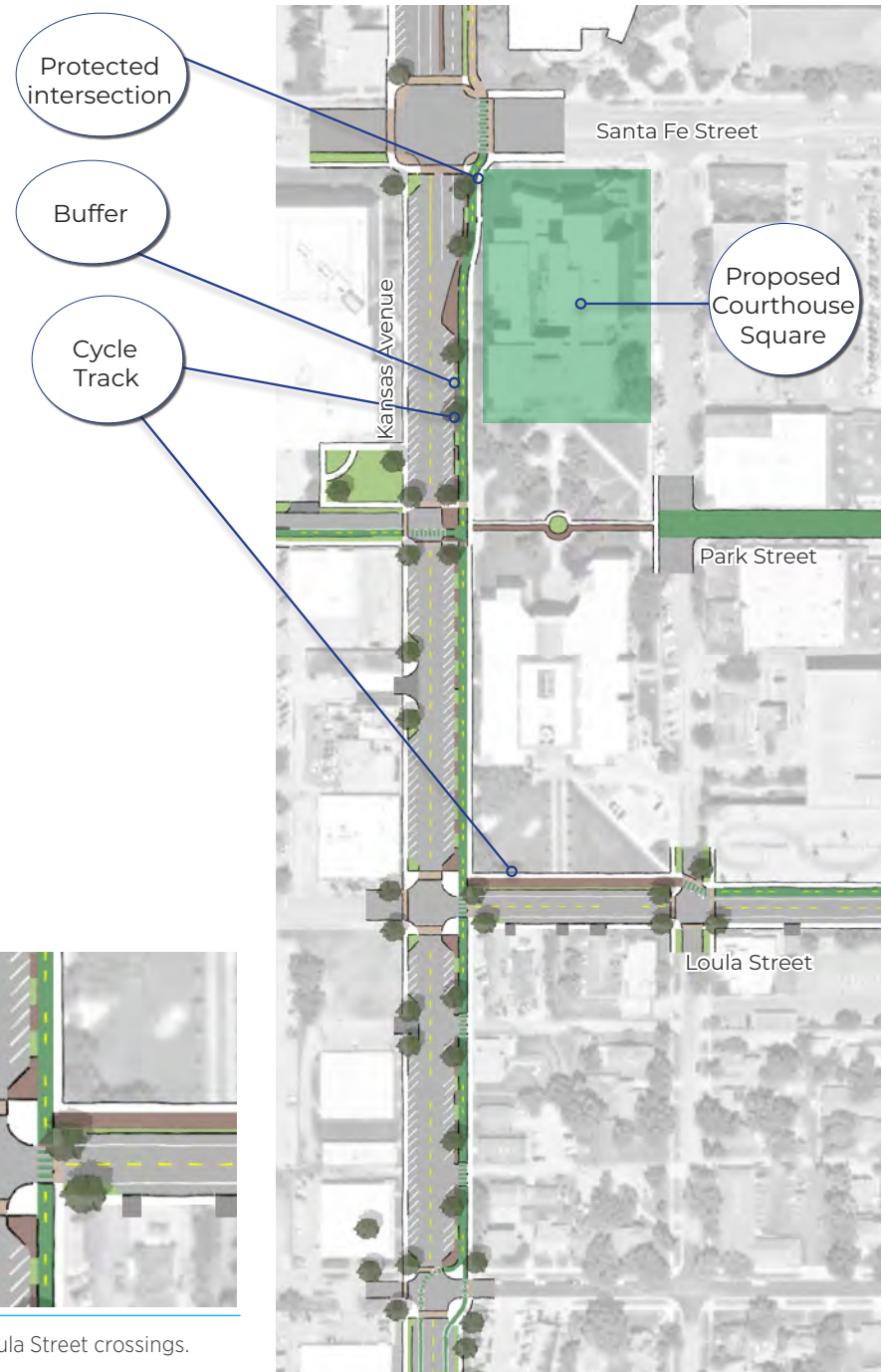
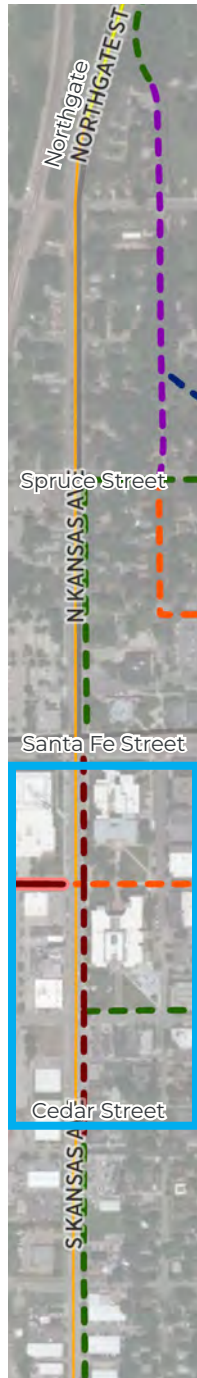
The protected cycle track would extend using the section and features described above from Cedar Street on the south to Santa Fe Street on the north. Significant interior intersections occur at Park and Loula. At Park Street, a longer extension between travel lanes and the cycle track will define the intersection as a pedestrian zone, necessary because of the probable future removal of the unwarranted traffic signal at this location. This also aligns with the pathway and open space connection across the courthouse green to the continuation of Park Street east of Cherry. Loula marks an intersection between a connecting bicycle and pedestrian facility to the Mill Creek Path, described later. Crosswalks and pavement markings would mark a transition of the cycle track to bike lanes south of Cedar.

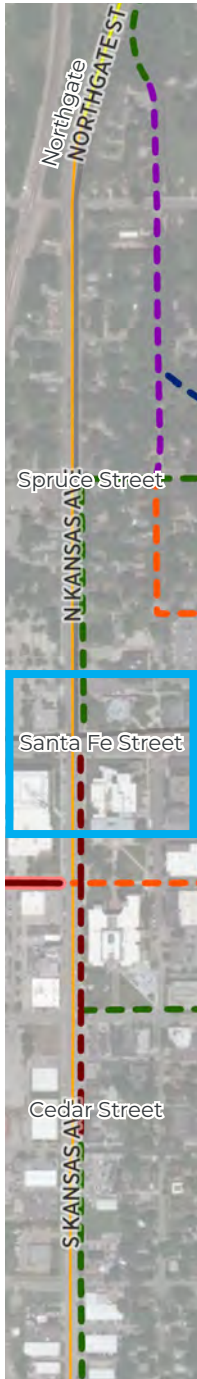
### Traffic Impacts

The City is studying the status of the existing signal at Park and Kansas Avenue. The existing analysis assumed an eastbound stop sign on Park and free-flowing north-south movements on Kansas. All movements are expected to operate at a LOS B or better with the eastbound traffic stop controlled. A future Park Street underpass, proposed later in this chapter, could include closure of the existing railroad grade crossing. Should this occur, access to driveways would be provided from Kansas on the east and Walnut on the west to serve the Adult Detention Center and businesses on the west side of the tracks. East-west traffic would use Santa Fe or Loula, and closure of Park Street does not significantly affect LOS on either corridor.



**Intersections from the Kansas Avenue cycle track.** From left: Park Street and Loula Street crossings.



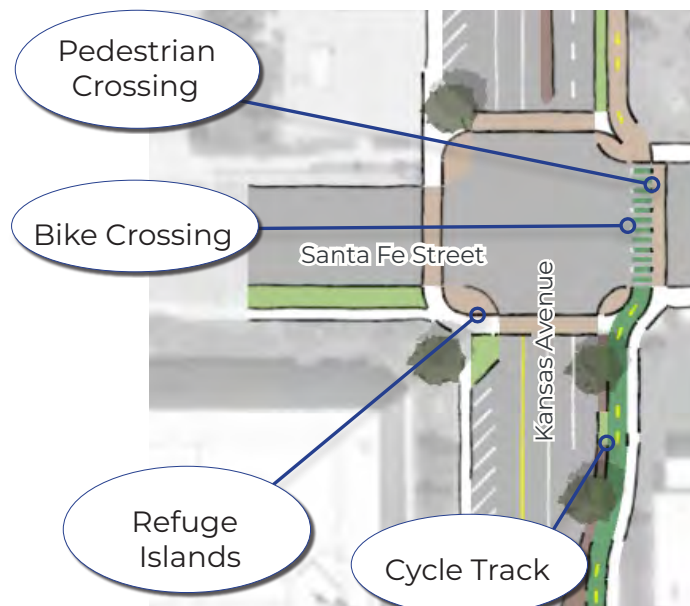


### Santa Fe and Kansas Avenue Intersection

A protected intersection would substantially improve the comfort and safety of pedestrians and bicyclists crossing this intersection. The concept adapts a Dutch design that does not affect traffic operations but provides a safer crossing for bicycles and pedestrians. It does this by extending the physical separation of the protected bike lane into the intersection. This greatly increases the visibility of cyclists at red lights by positioning them in front of cars, reduces the distance of unprotected road that must be crossed, and prevents motorists from turning into the cyclist's blind spot.

#### Traffic Impacts

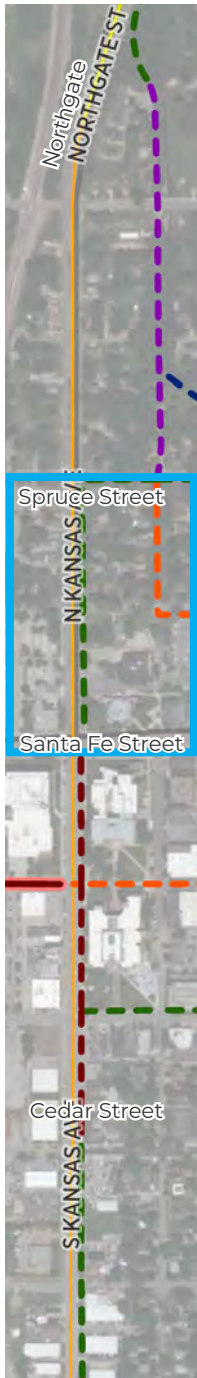
The signalized intersection at Santa Fe and Kansas Avenue has the highest traffic volumes of all the intersections in the downtown core. Overall it operates at a LOS D. The proximity to the railroad crossing on the west side can cause traffic to be delayed in excess of the LOS E criteria (80 seconds) which is caused by the railroad; signal timing adjustments wouldn't be able to decrease the delay. The LOS at this intersection is not expected to be impacted with the additional traffic from the planned developments.



**Protected intersection concept for Kansas and Santa Fe.** Kansas cycle track at left crosses Santa Fe and transitions to a shared use path along the Courthouse site.



**Protected intersection in the Chicago Loop.** For more information on Protected Intersections see page 57.



### NORTHBOUND: Santa Fe to Spruce Street

The northbound extension of the Kansas Avenue facility transitions to a shared use sidepath north of Santa Fe. This facility should provide a 10-foot path with a minimum separation of six feet from back of the Kansas Avenue curb. The northbound route continues on a similar sidepath on the north edge of the Courthouse site to Cherry Street. An active boulevard, marked with route designation signage and shared lane markings (sharrows) would continue south to Poplar Street, which in turn connects to both the Mill Creek and Kansas City Road Paths described below. Future changes to the Kansas Avenue and Spruce Street intersection include widening Spruce to provide left turn lanes.

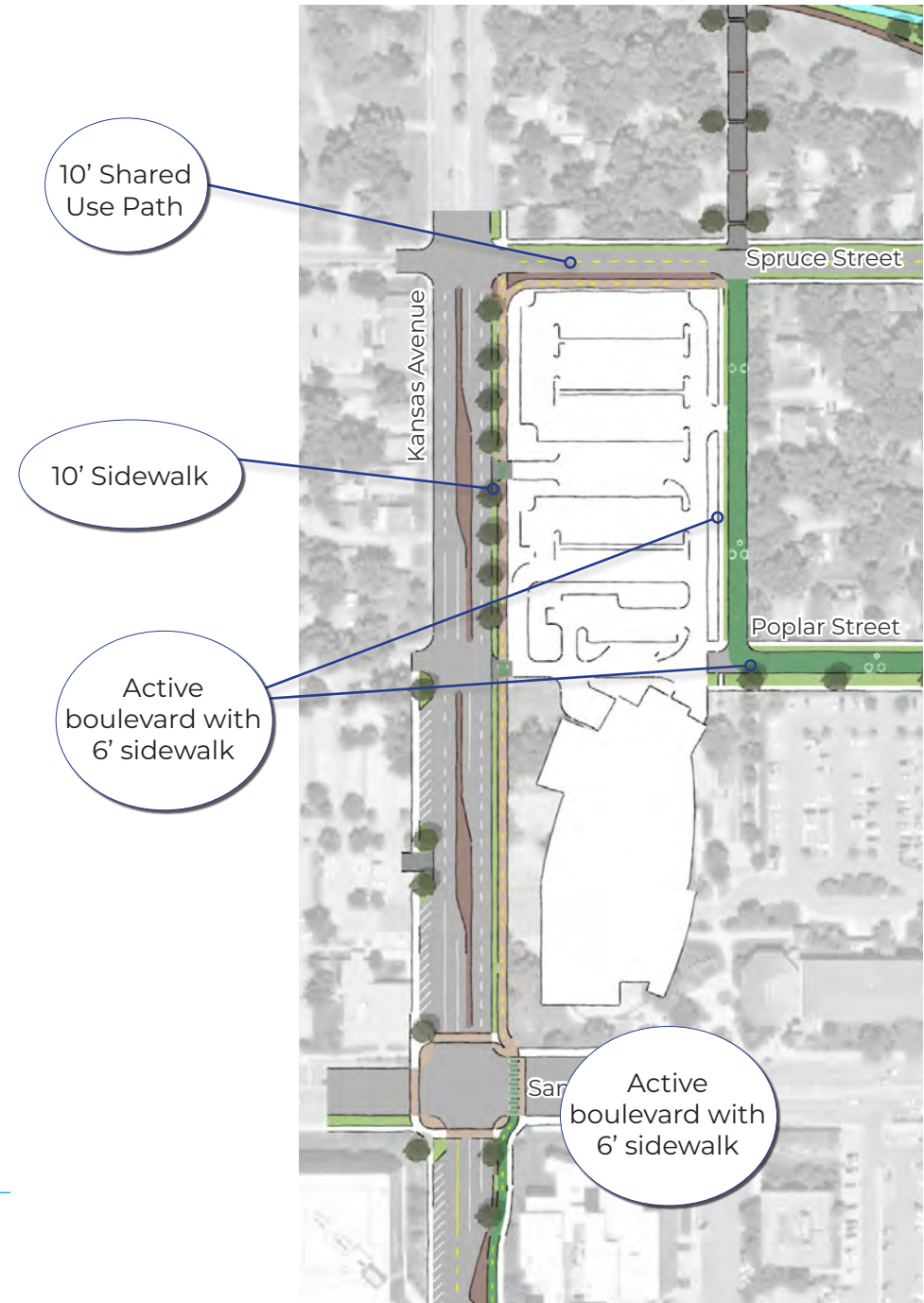
### Traffic Impacts

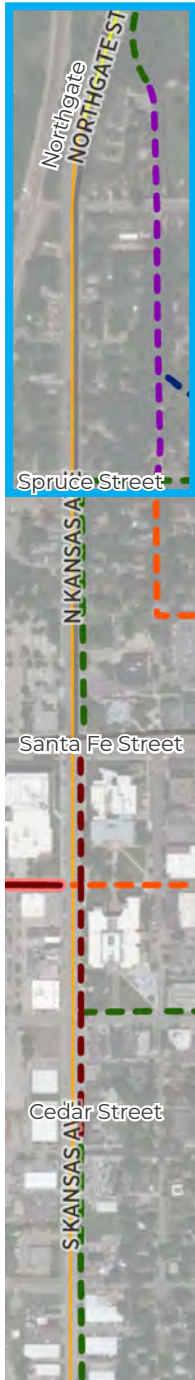
When the traffic counts were conducted, all movements at the signalized intersection of Spruce and Kansas Avenue operated at a LOS C or better except for the east-west movements. The shared through-turning movements have an average delay of greater than one minute during the AM and PM peak hour. The eastbound movement during the AM peak hour queues back approximately 440 feet.

Analysis was completed with the addition of an eastbound and westbound left-turn lane. With the addition of the turn lanes all movements are expected to operate at a LOS D or better. Overall the signal operates at a LOS C for the AM and PM peak hours.

Introduction of a sidepath on the periphery of the Courthouse site does not affect on-road traffic flow.

**Courthouse shared use sidepath.** The Kansas Avenue facility continues north as a sidepath along the western edge of the Courthouse site.





## NORTHBOUND: Spruce Street to Northgate

Leaving the city center and continuing northbound to reach the Gary Haller Trail, the shared use path along Kansas Avenue turns east on the south side of Spruce Street, continuing for one block to Cherry Street. Cherry Street from Spruce Street to its terminus in a cul-de-sac north of Mulberry is essentially narrow alley, providing local access only. A section between Spruce and Mulberry Streets not needed for driveway access will be closed to traffic as part of the Mill Creek stormwater management project. Two short segments will remain open to serve driveways just north of Spruce and south of Mulberry. This provides the opportunity to redesign Cherry as a “woonerf” – a street concept originated in Holland where bicyclists, pedestrians, and cars at very low speed comfortably and safely share space. Landscaping and low-cost streetscape features are used to reinforce this shared space character.

Three options are available to continue the route north of Mulberry to connect with an existing path that begins at the Chestnut Street cul-de-sac south of Olathe Memorial Cemetery.

- » **Option 1.** Continue the Cherry woonerf to the cul-de-sac north of Mulberry, with a short path connection to the existing Northgate sidewalk; widening the Northgate sidewalk to shared use path standards from that point to the Northgate path. The path would narrow to use the existing sidewalk on the Mill Creek bridge.
- » **Option 2.** Cross Mill Creek at Mulberry and build a new shared use path the east side of the creek, connecting to the existing Northgate path north of the Mill Creek bridge.
- » **Option 3.** Adapt Chestnut Street to provide an on-street “active boulevard” on Chestnut to the existing path at the street’s terminus south of the cemetery. This facility would be identified by signage and shared lane markings for wayfinding.

The Northgate path continues to Harold Street, where existing bike lanes connect to the Gary Haller Trail.



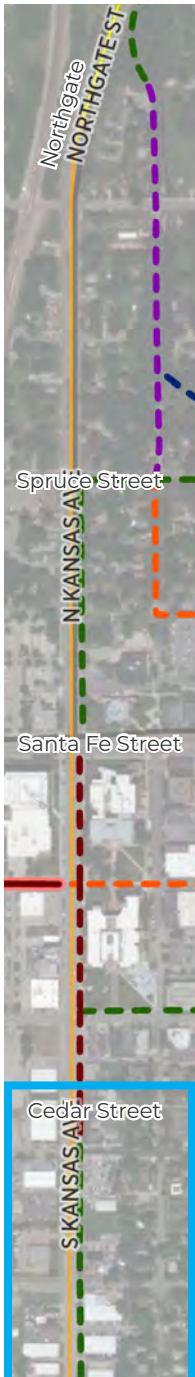
From left: Cherry Street north of Spruce; Dutch woonerf



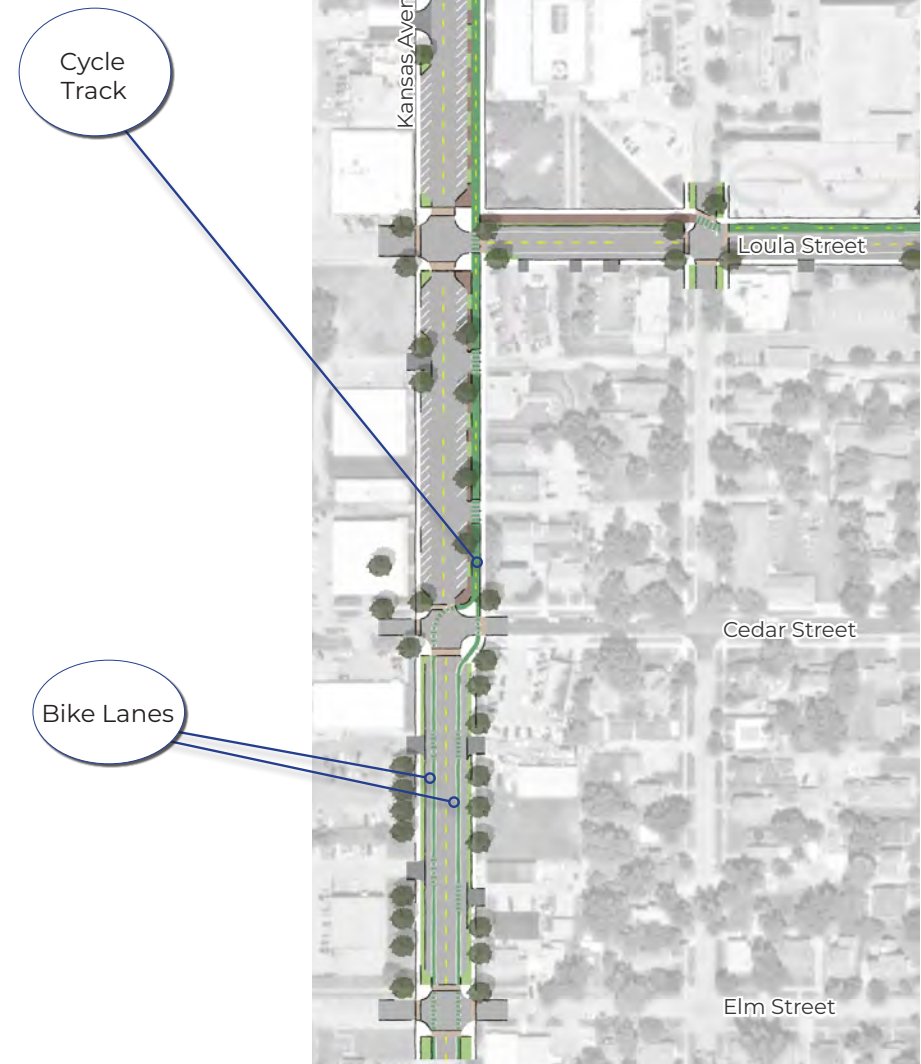
### SOUTHBOUND: Cedar Street to Dennis Avenue

Several options are available to continue the Kansas Avenue facility south of Cedar. The street right-of-way is wide enough to accommodate a shared use sidepath between Cedar and Southgate Street, transitioning to the existing bike lanes south of the Southgate branch line crossing. The cycle track would transition to the sidepath on the east side of Kansas at the Cedar intersection. Alternatively, the cycle track would end at Cedar, with a transition to bike lanes between Cedar and Dennis. The street is sufficiently wide between Cedar and Southgate to provide buffered bike lanes with parking on one side of the street. Painted markings would help indicate to both bicyclists and vehicles that the cycle track users are crossing from the east to the west side of the street in order to enter the southbound bicycle lane.

The bike lanes markings end just north of Dennis Avenue. The intersection should be modified to either continue the bike lanes to the Dennis Avenue bike lanes or transition to an off-street directional path above the curb. Bike lane crossings at the intersection should also be clearly marked to provide a clear path to the east-west Dennis/Sheridan route to Lake Olathe to the west and the Indian Creek Trail to the east.



**Buffered bike lane.** Armour Boulevard in Kansas City



## Implementation

Estimated costs have been prepared for all options presented within this plan. This helps the City determine the best route option given the current projects and funding available. Detailed breakdowns for each option and network segment can be found in the appendix.

The table at right summarizes estimated costs for each portion of the Kansas Avenue network. Economies are realized if these are included in existing city projects. All three segments lie within the boundaries of planned projects in the Street Preservation and Reconstruction program. Given both the near term opportunity to reduce the project cost and the benefit of the north-south route, the Kansas Avenue connections should be given priority.

### ESTIMATED COSTS

| Segment                            | Details                         | Cost                              |
|------------------------------------|---------------------------------|-----------------------------------|
| Northgate Trail Connection         | Using existing bridge           | \$614,790                         |
|                                    | New pedestrian bridge           | \$981,030                         |
|                                    | Chestnut bicycle boulevard      | \$76,320                          |
| Cherry Street Woonerf              | Spruce to Chestnut Street       | \$723,060                         |
| Kansas Avenue Cycle Track/Sidepath | Santa Fe Street to Cedar Street | \$740,700                         |
| <b>Total Cost Range</b>            |                                 | <b>\$1,540,080 to \$2,444,790</b> |

\* This estimate assumes substantial use of pavers and resurfacing of the corridor. These costs can be significantly reduced, depending on the final design of the facility.





# MILL CREEK TRAIL

The concept of a Mill Creek Trail began in 2006 when the Central Core Neighborhood Committee produced “An Urban Trail: Mill Creek Trail from Spruce Street to Cedar Street.” This chapter builds upon the ideas of the original trail document, modified for right-of-way constraints and changes its release. The trail generally follows the creek from Cedar Avenue to Northgate, connecting into the existing trail system that leads to the Gary Haller Trail, and includes some segments of the Kansas Avenue route described earlier.

## Background

In 2002-2003, Olathe's Central Core Neighborhood Committee undertook a twelve month study to develop strategies for the downtown area. One of the plan's goals was an urban trail that followed Mill Creek through the center of the city. The original concept linked the Water Works Park area to Northgate near Woodland Cemetery. The path would pass by historic Ott's Mill, originally known as Olathe Mills, currently sitting vacant, but a potential development catalyst and south trail head.



The original trail envisioned ponds and waterfalls along the course. Additional trail amenities included benches, security call boxes, drinking fountains, and pedestrian lighting with built-in electrical outlets. It was seen as a place for daily workers to visit on weekdays and families and residents at night and on weekends. The trail could also host Old Settlers Day activities, art fairs, sculptures, displays, and other events.

## Why

A pedestrian path along Mill Creek would make this potential greenway a significant amenity for Downtown, improve circulation and connectivity, and encourage more residential development, an important priority for the recent Envision Olathe plan. It would link Mill Creek Park, the two Civic Center Parks on either side of Santa Fe Street, Mill Creek Center, and the neighborhoods on the north and south side of Santa Fe Street. The existing right-of-way adjacent to the trail bed would minimize the amount of private property affected by the trail development. However, some segments may require access easements to complete.

The path would also reintroduce nature as a Downtown feature, making the creek more than a functional channel for runoff. Natural waterways are often channelized or enclosed, depriving their urban surrounding of their aesthetic and recreational benefits. Adding a trail along a large portion of the creek will draw residents to the waterway.

A major challenge to a continuous Mill Creek Trail has been the Santa Fe Street crossing. Creating a safe path crossing would be an enormous benefit, especially with the proposed siting of the library on the north side of Civic Center Park. The existing culvert under the street can be adapted as an underpass for trail users, link neighborhoods on both sides of the arterial to each other and to major community facilities.

## How

On its north end, the Mill Creek Trail connects with the Cherry Street woonerf segment of the Kansas Avenue/Northgate route just south of Prairie Street. It continues south through Mill Creek Park, past the planned library and Civic Center Park, across Santa Fe Street and ends at the Old Mill on Cedar Street. Some parts of the path accommodate shared uses, while others are intended primarily for pedestrians. The majority of the path follows the west side of the creek itself. The key Santa Fe crossing uses the existing culvert under the street, although a long-term storm management solution may involve expanding or replacing the culvert, which would also improve this under-crossing. Additional lighting along the trail, especially between Loula Street and the Mill Creek Park, is desirable and would create the trail a more welcoming environment for evening pedestrian use.

The Mill Creek Trail varies in width from six to ten feet. Wider sections, generally north of Santa Fe, are part of the shared use path system of the central city district, while narrower sections are designed as pedestrian priority environments. The following pages detail the individual segments of the path.



### Prairie Street to Poplar Street

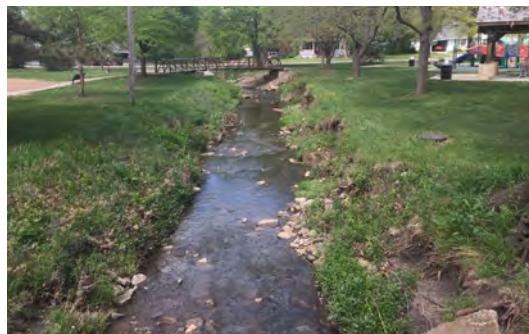
This section provides a standard 10 foot wide shared use path beginning at the Cherry Street woonerf south of Prairie Street. The trail runs on city property between Cherry and Chestnut and property to be acquired with the Mill Creek stormwater improvement project between, turning south to Spruce Street. Two options are available to maintain a continuous path:

- » **Option 1.** Upgrading sidewalks on Chestnut and Spruce Streets to Mill Creek Park, with bike route designation and advisory bike lanes on those two blocks of local street.
- » **Option 2.** Expanding sidewalks along Chestnut and Spruce to shared use path standards, again connecting to Mill Creek Park on the Water Street alignment.

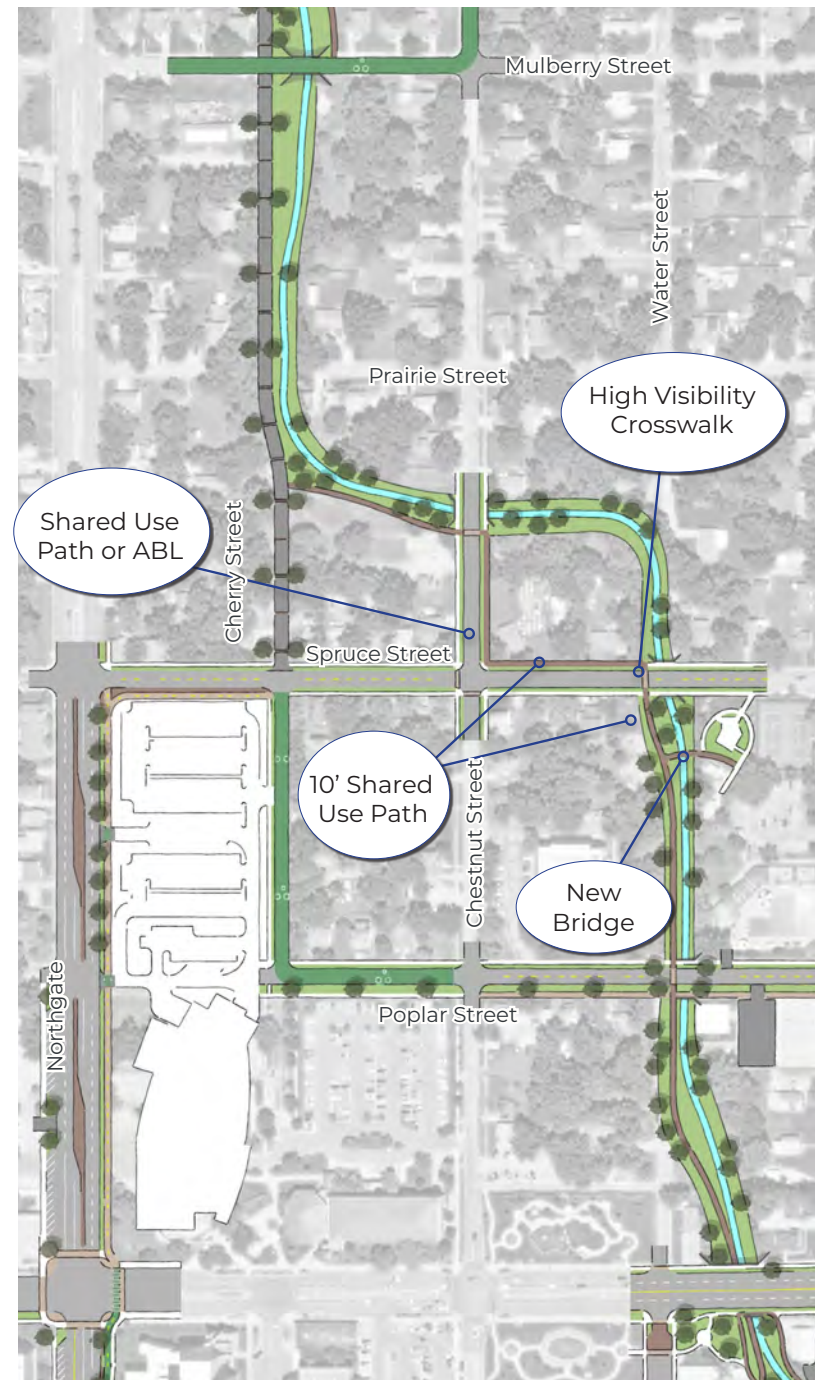
A high visibility crosswalk across Spruce Street leads to Mill Creek Park, and the path continues as a 10-foot shared use path through the park to Poplar Street. Two existing bridges would be removed and replaced with one new central bridge across the creek at the north end of the park. A high visibility crosswalk would be installed at the Poplar Street crossing, and the Mill Creek facility continues as a shared use path south along the existing Water Street right-of-way, which would be converted to trail and greenway use.



**North terminus of Mill Creek Trail.** Trail would be located on this city property between Cherry and Chestnut.



**Mill Creek Park.** The trail would expand an existing walkway on the west side of the creek and replace two older pedestrian bridges with a single bridge to the main park facilities east of the creek.



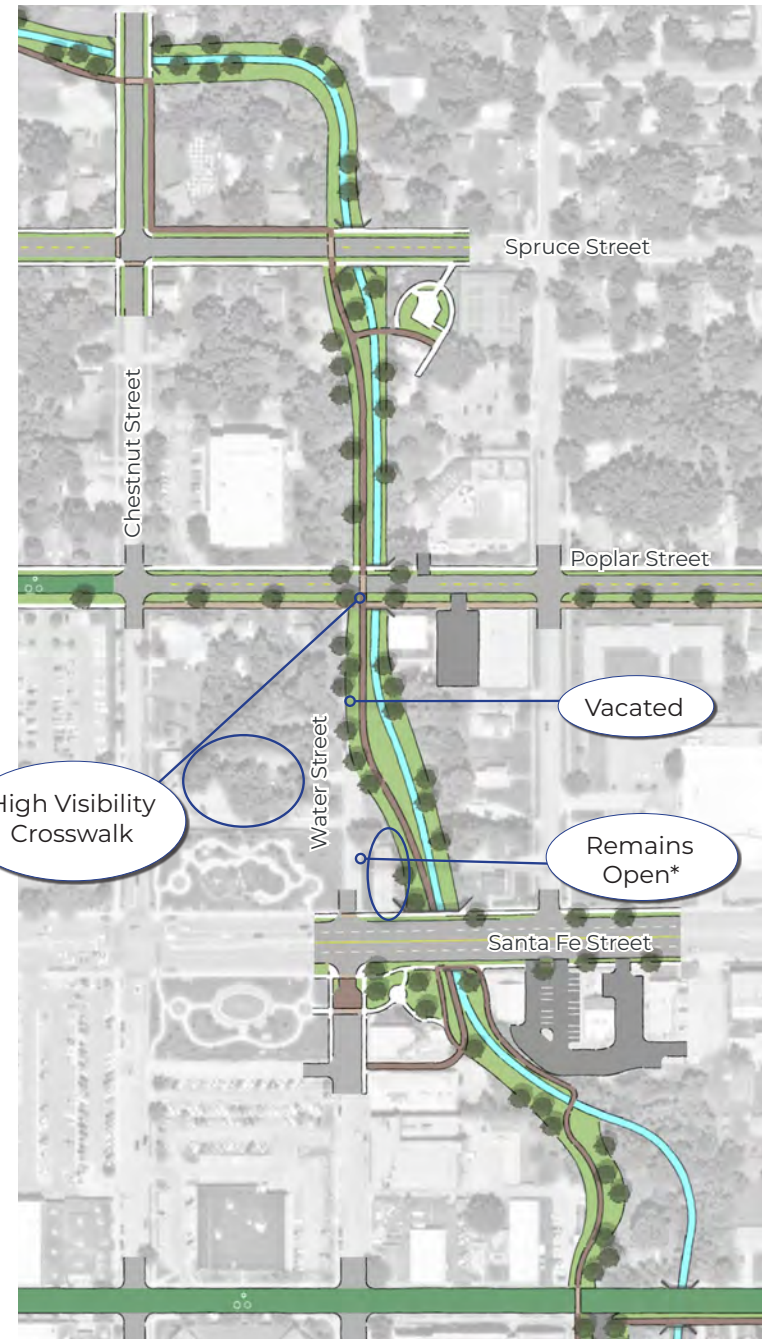


## Poplar Street to Santa Fe Street

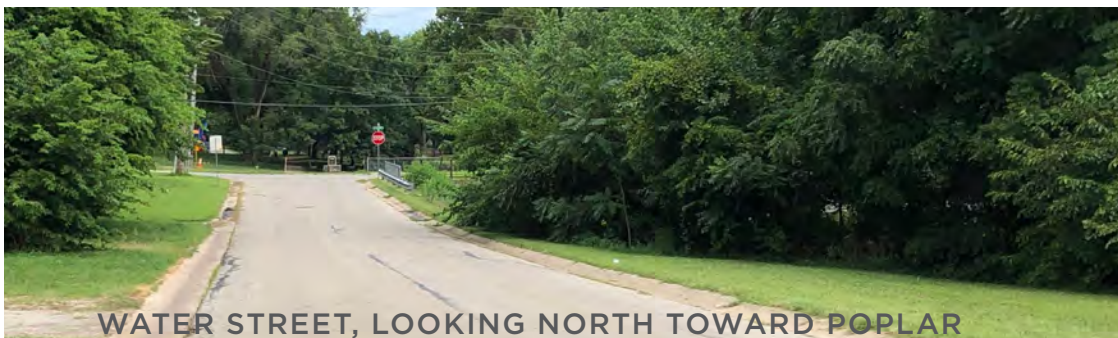
The Envision Olathe Plan recommended conversion of Water Street to a greenway with trail between Santa Fe and Poplar Streets. This plan modifies that concept by maintaining street access on the southern 1/3 of the block to serve adjacent properties. These properties include the proposed library and mixed use development between Water and Chestnut, fronting on Civic Center Park North; and the existing Mannes Bonding Company on the east side of Water. Site design or redevelopment of the east side could make closure and greening of the entire block feasible. The path itself uses the vacated Water Street greenway, curving to the east around private property to access the westernmost of the three culvert apertures under Santa Fe Street.

### Traffic Impacts

The intersection at Water and Santa Fe Street is stop controlled for the north-south movements. The east-west movements are free flowing. The east-west traffic movements operate at a LOS B or better during the AM and PM peak periods. During the PM peak period the northbound movement drops to a LOS E and the southbound movement is at a LOS F, largely because of the difficulty of crossing the major arterial without a signal cycle. With the proposed changes, the northbound left-turn movement continues to operate at a LOS F without the north leg of the intersection. Fewer than ten vehicles make this movement during the AM and PM peak hour. The existing southbound traffic volumes are likely to use Woodland and Chestnut Streets as alternate routes. For analysis purposes, the traffic was all redirected to Chestnut Street as it is signalized and has sufficient capacity for additional traffic. With the additional traffic all the movements operate at a LOS C or better.



\*Street to remain open unless the circled lots (north and east of the park) are redeveloped in a way that does not require Water Street access.



WATER STREET, LOOKING NORTH TOWARD POPLAR

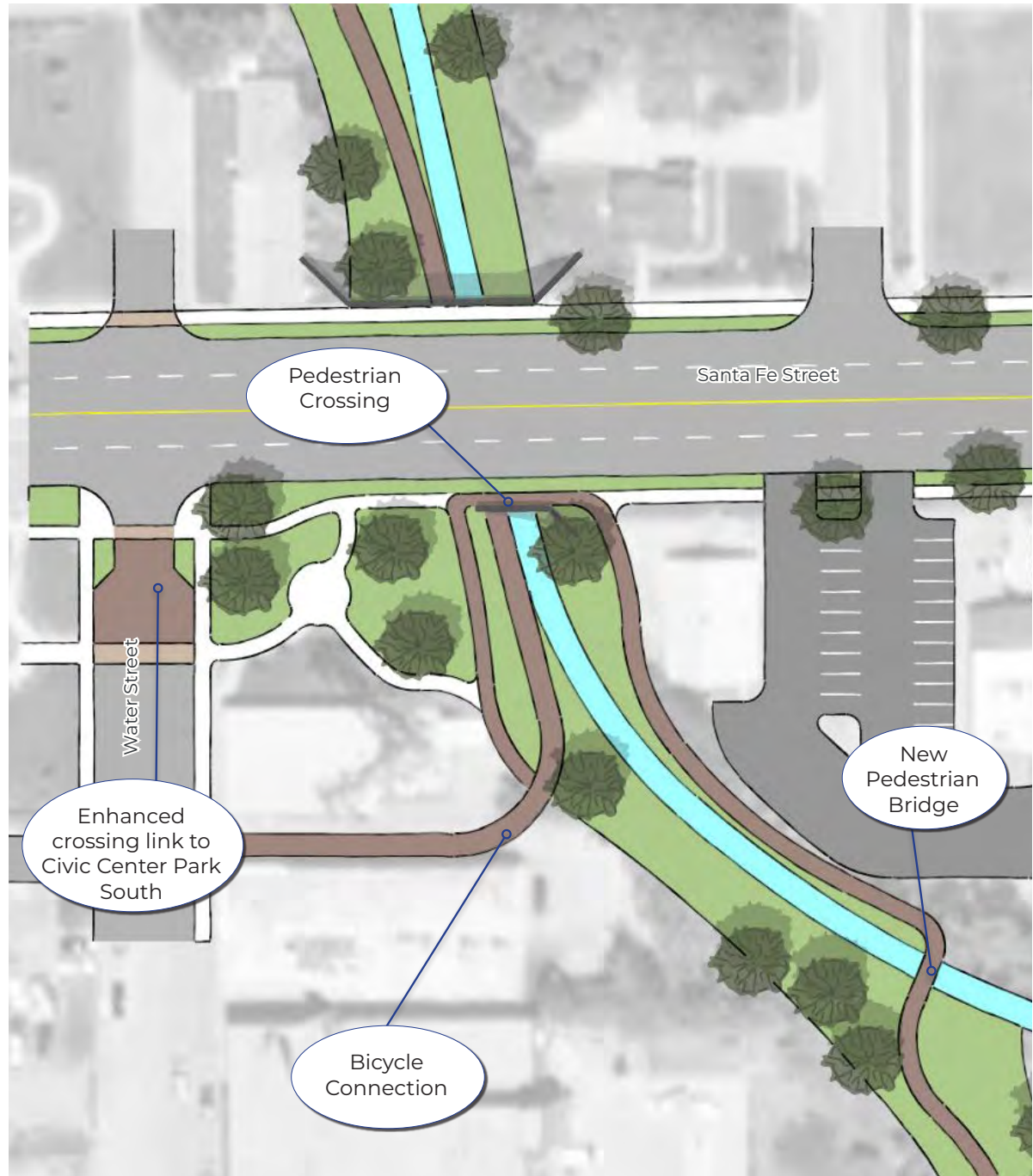


### Santa Fe to Park Street

A true grade separated crossing of Santa Fe Street is a very important part of the Mill Creek concept. The existing triple culvert under Santa Fe can be adapted to protect minimal but adequate clearance for the trail to pass. The recommended route uses the westernmost aperture for the underpass. From the north, the shared use path would ramp down to culvert level, and cross under the street.

**The culvert crossing itself must be equipped with warning signage and devices to prevent entry in high water events.** High quality safety and aesthetic lighting should be provided to ensure a safe and attractive experience for people walking and biking through the tunnel. An alternate surface crossing of Santa Fe at Water Street should be maintained. With either closure or restricted use of Water Street north of Santa Fe, the eastbound to northbound left turn pocket may be eliminated in favor of a pedestrian refuge median. Installation of a warning device such as Rectangular Rapid Flashing Beacons may also be considered here.

The shared use path concept continues south and





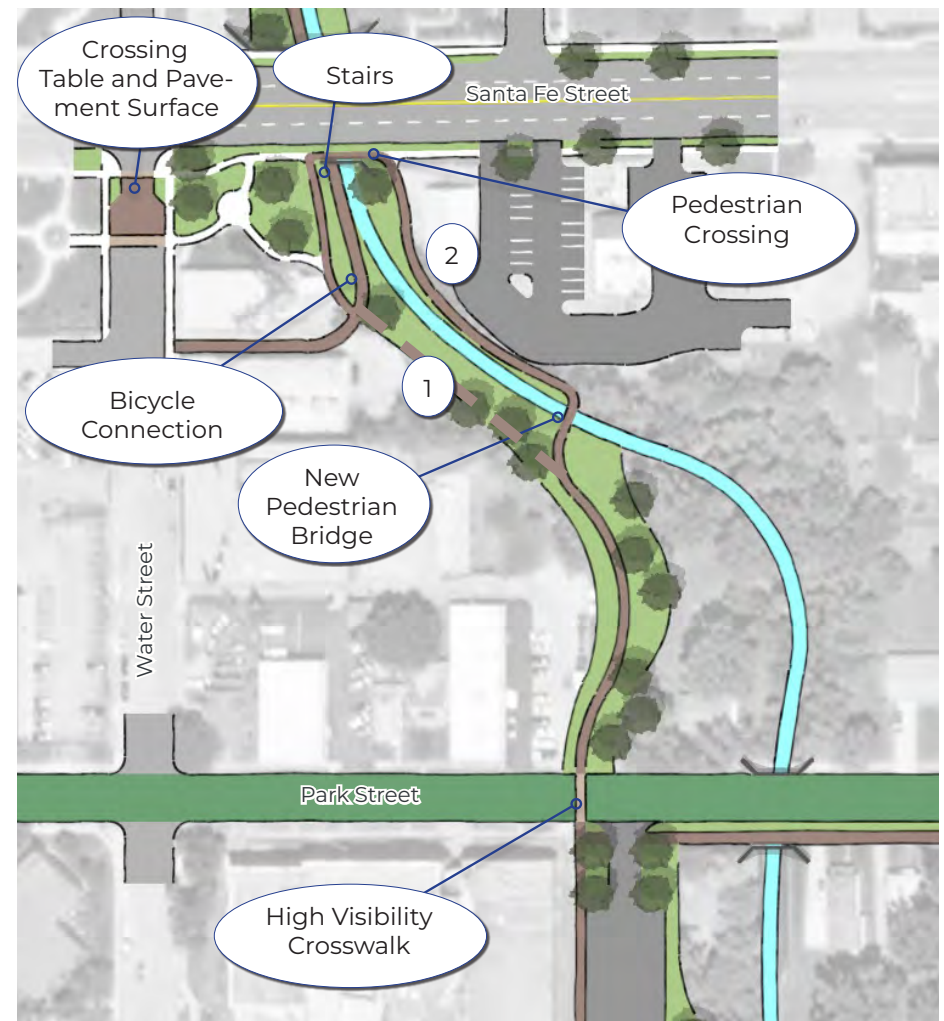
**Crossing treatments.** From left, three images of a trail crossing using a culvert under a major arterial in Sioux Falls, SD; and the impact of dramatic lighting at the High Trestle Trail Bridge over the Des Moines River near Madrid, Iowa.



ascends the bank for about 100 feet. At this point, pedestrian and bicycle routes separate. Bicycles would be directed to an existing alley between two commercial office buildings back up to Water Street, with local access along Water to Downtown and the Loula Street connector described later. Pedestrians would loop back north and use the existing Santa Fe Street sidewalk to cross the creek. This loop should also connect to Civic Center Park South. The Civic Center Park spaces on both sides of Water should be connected by a speed table and pavement surfacing to provide a visual and functional link between the two public spaces and indicate pedestrian priority here.

The main pedestrian trail continues south at the top of the stream bank on land made available through site redesign, providing more efficient shared parking for the two existing businesses east of the creek. The pedestrian path returns to the west side of the creek with installation of a new pedestrian bridge. This configuration avoids disturbing operations at the AT&T site on the west side of the creek.

South of this pedestrian bridge, the pedestrian path continues through open land, eventually curving near or adjacent to a parking lot serving a small office building, at which point the path crosses Park Street to Mill Creek Center.





### Park Street to Loula Street

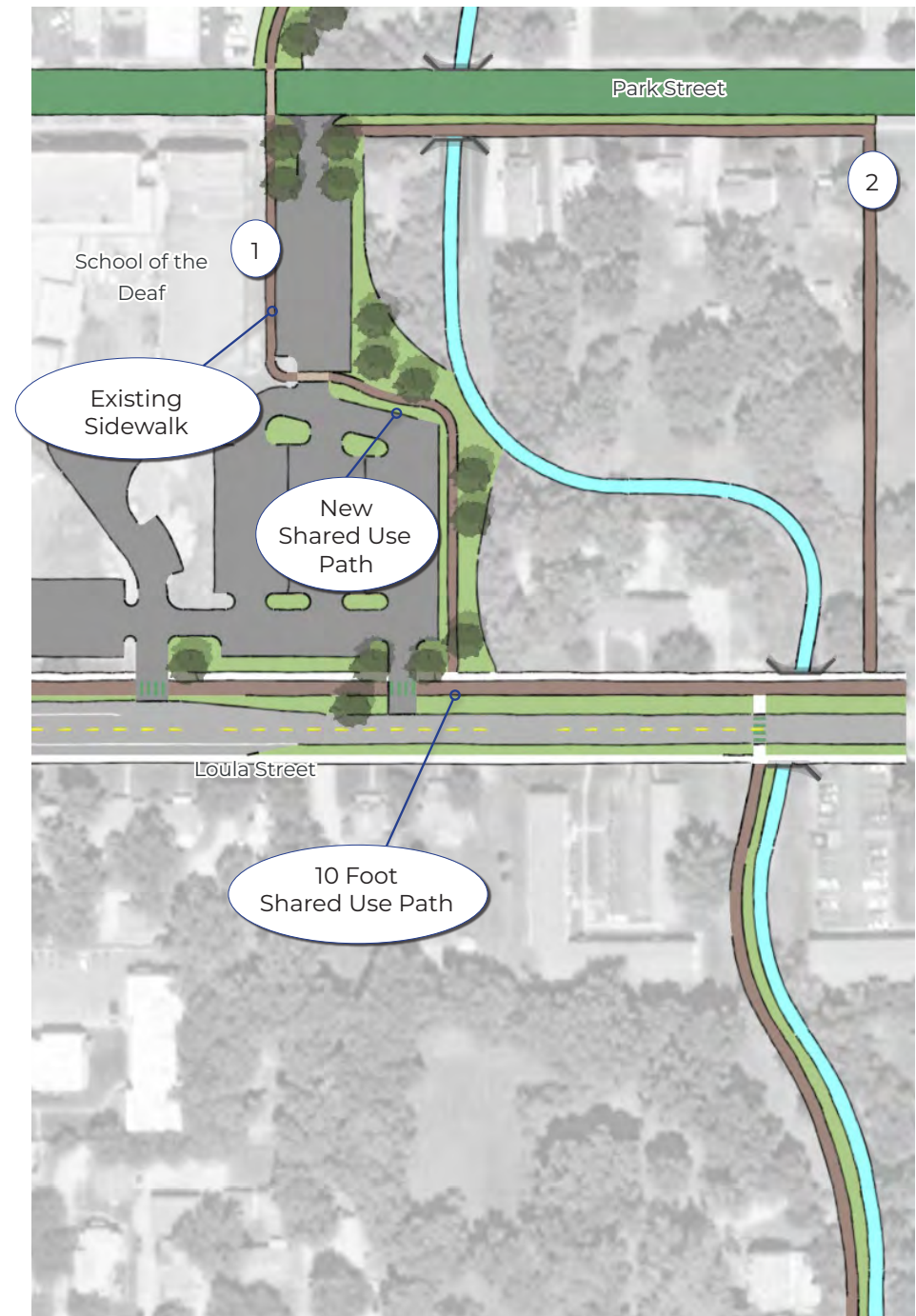
The Park Street to Loula block of the trail has two potential options.

- » **Option 1.** The most attainable option is use of the existing sidewalk of along the east side of the Mill Creek Center building, crossing at the curb extensions at the south of the single-bay parking lot. A new pedestrian path then continues east and south in grass area on the edge of the south lot to Loula Street. It continues to the east along a proposed shared use path on the north side of Loula, described later, and crosses Loula with a high visibility crosswalk west of the creek crossing.
- » **Option 2.** This more difficult alternative would use the Park Street on-street route for bicyclists and sidewalk for pedestrians to the western edge of the Kansas School for the Deaf practice field, continuing south on KSD and the creek edge of private property to Loula.

A third option, following the west side of the creek, was considered but not recommended because of grades and right-of-way acquisition issues.



**Paths through Mill Creek Center.** Walkway along north parking lot; green space strip between edge of south parking lot and Mill Creek

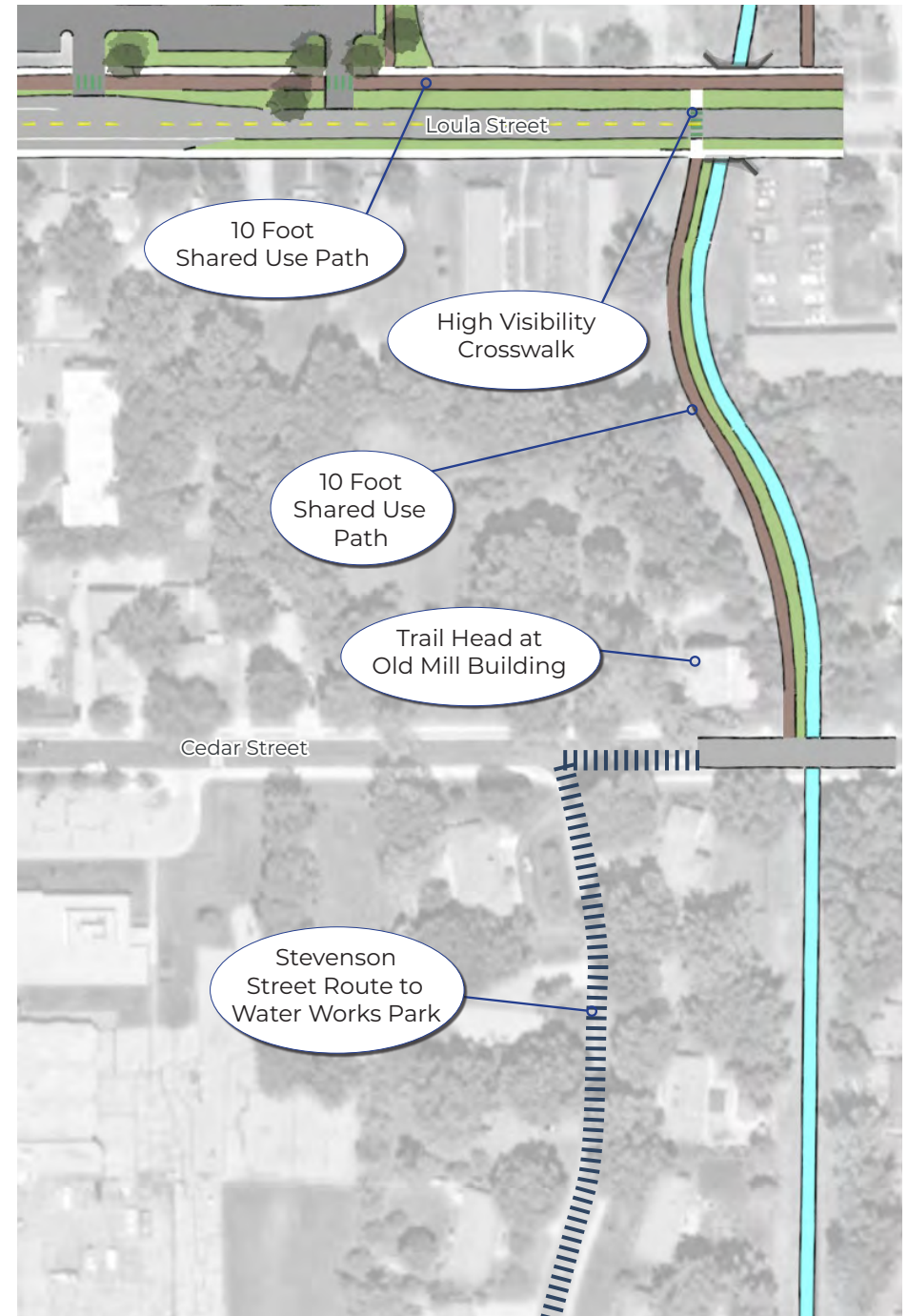




### Loula Street to Cedar Street and Beyond

The final segment of the path to the historic mill structure is very feasible with no grade or building obstructions along the west side of the creek. However, the preferred route is likely to require easements or friendly acquisitions from properties. An easement is probably necessary from the apartments bordering the creek, but has no impact on property use. An easement or acquisition will also be required to reach the historic mill building, but a variety of paths can be used to minimize impact on property or tree cover. The most likely of these stays close to the creek corridor itself. The end point of the path would be adjacent to the Old Mill building which would be an ideal redevelopment and catalyst project for the system.

In addition to the mill and its potential adaptive reuse, Cedar Street, with its historic homes and streetscape is a worthy destination. Additionally, Cedar at its east end leads to Keeler Street, which in turn connects to the Dennis/Sheridan bike lanes. From the potential Olathe Mill trailhead, Stevenson and Sheridan Streets also provide a very low traffic and attractive connection to Water Works Park.



From left: Potential path route along edge of Mill Creek Apartments; historic Olathe Mill, the logical trailhead for the Mill Creek Trail

## Implementation

The cost estimates in the adjacent table reflect the preferred route for the Mill Creek Trail with two options for crossing under Santa Fe Street. The first is a near term solution which retrofits the existing culvert to accommodate a trail. The cost estimate assumes using one of the existing apertures which are 9 feet wide and 8 feet high. According to AASHTO guides on bicycle facilities the recommended height is 10 feet, however 8 feet is acceptable in constrained areas. The 10 foot height is recommended for vehicular maintenance, but this is less necessary for the short tunnel. The second estimate, full replacement, would be a long term solution to provide more head height to meet the preferred AASHTO clearance. This should be done when the culvert is planned for a complete reconstruction for stormwater purposes.

### COST ESTIMATE

| Segment                 | Details                                               | Cost        |
|-------------------------|-------------------------------------------------------|-------------|
| Shared Use Path         | Cherry to Poplar Street                               | \$712,590   |
| Active Boulevard        | Spruce and Chestnut Street (660' each)                | \$152,040   |
| Pedestrian Trail        | Poplar to Santa Fe Street (with Water Street Closure) | \$264,420   |
|                         | Santa Fe to Park Street-No Pedestrian Bridge          | \$204,216   |
|                         | Santa Fe to Park Street-With Pedestrian Bridge        | \$304,062   |
|                         | Park to Loula Street                                  | \$128,760   |
|                         | Loula to Cedar Street                                 | \$204,840   |
| Santa Fe Underpass      | Retrofit                                              | \$291,610   |
|                         | Full Replacement                                      | \$1,029,180 |
| <b>Total Cost Range</b> | <b>\$1,958,476 to \$2,795,892</b>                     |             |



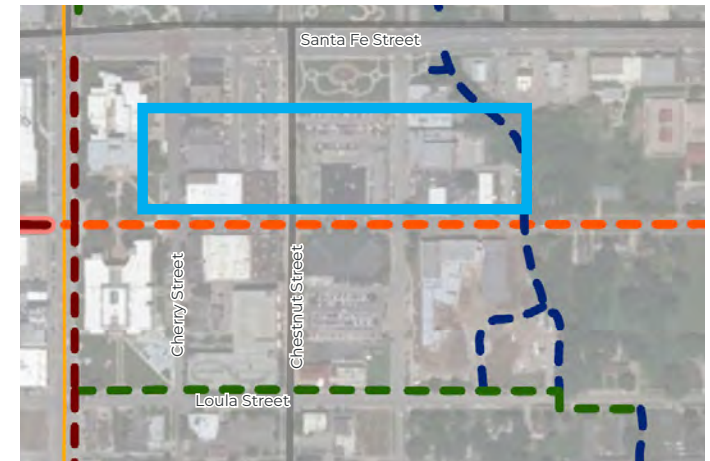
# INTERNAL CONNECTIVITY

While much of the network is created through continuous north-south or east-west spines, a truly connected network requires shorter segments to tie major facilities together. These connections include a Loula Street path to connect the Mill Creek Trail to downtown and alley enhancements between Cherry and Chestnut Streets.

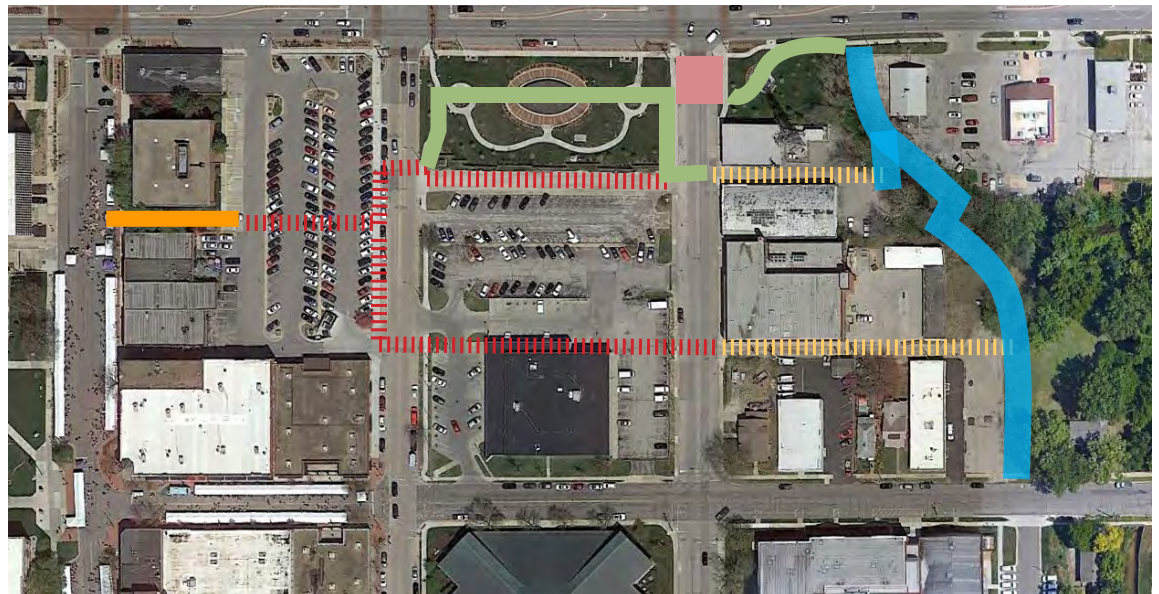
## Enhanced Alley

The alley between Cherry Street and the Chestnut Street public parking lot was part of a previous enhancement project and should be maintained as a future connection. Redevelopment on the east side of this block should maintain a path to Chestnut Street and ultimately to Mill Creek.

- » **Option 1.** Potential future redevelopment of the Post Office site should include a clear path or other public way through to Water Street, continuing east to the Mill Creek Trail on either of the existing driveways leading to the Mill Creek Trail.
- » **Option 2.** If redevelopment does not occur, the pedestrian connection to the trail would go north on Chestnut Street and connect to the rest of the network through Civic Center Park.



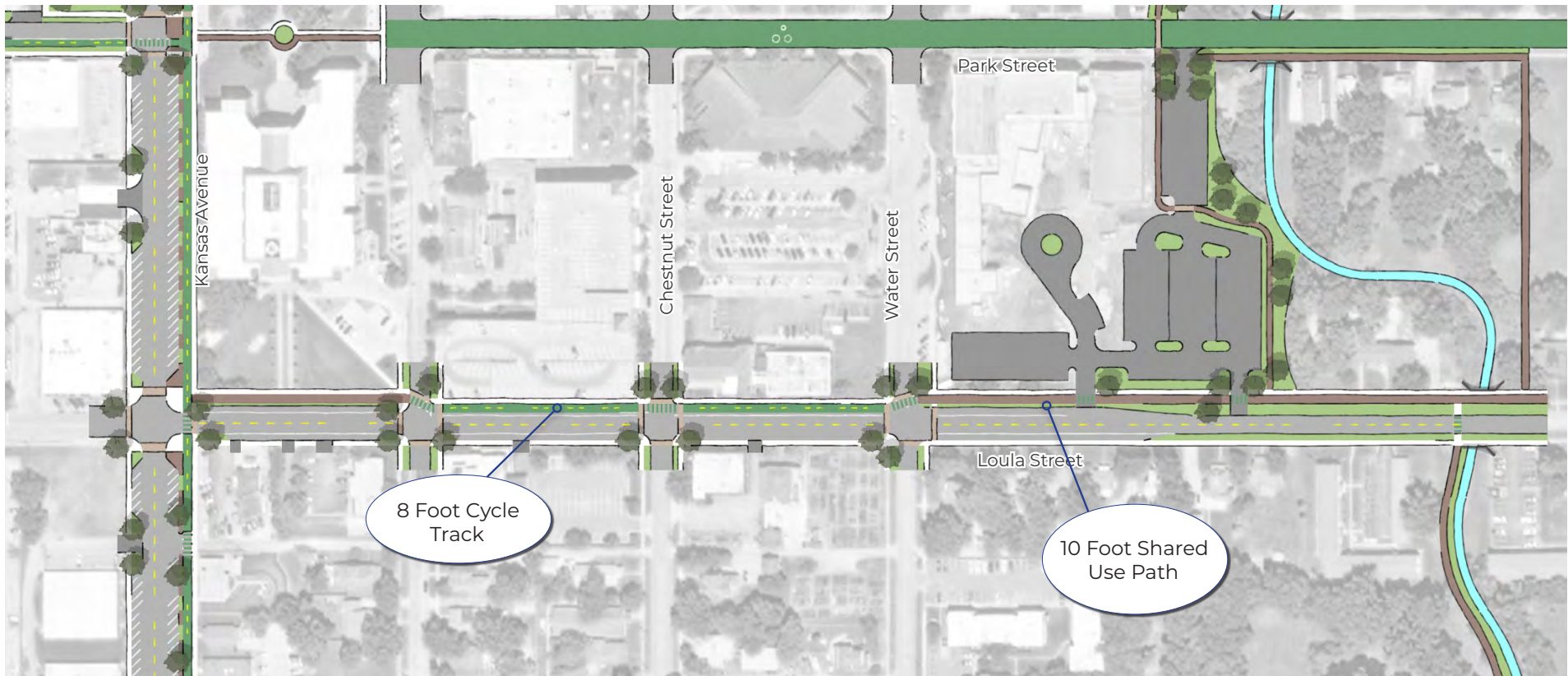
- Previous alley enhancement
- Paths with redevelopment
- Available public connections
- Driveway links
- Mill Creek Trail route
- Raised crosswalk table



## Loula Street

Loula Street presents a good corridor between the Mill Creek Trail, the Downtown center, and the Kansas Avenue cycle track. Two options present themselves for making this link.

- » **Option 1.** A continuous 10 foot shared use sidepath on the north side of the street. This option would require removal of street landscaping and modification of the existing streetscape adjacent to the present county parking structure, and creates potential pedestrian conflicts on the core blocks between Water and Cherry Streets. It would also affect the south side of First Christian Church by widening the existing sidewalk or moving the path closer to the building to avoid an undesirable back of curb condition.
- » **Option 2.** Develop a 10-foot shared use sidepath on the north side of the street between the Mill Creek Trail and Water Street. Transition this off-street path to an on-street, 8-foot wide two-way protected bike lane, keeping the existing sidewalk in place with parking on one side. This is feasible within the street's 45 to 50-foot curb-to-curb width. The cycle track transitions back to a sidepath south of the County Administrative Center to the Kansas Avenue cycle track. The buffer would be painted with possible use of flexible delineators. The estimated cost for this option is \$493,842.



# KANSAS CITY ROAD

This network component is relatively straightforward. Kansas City Road runs diagonally from Santa Fe Street northeast and generally followed the historic Santa Fe Trail into Kansas City. It now marks a relatively intact route to 87th and Quivira. Within Olathe itself, it connects the City Center to important cultural institutions in Olathe, including Olathe North High School, the historic Mahaffie Stagecoach Stop and Farm Historic Site, and the Olathe Community Center. It also provides a direct access to the Gary Haller Trail via the Parkway Drive path.

## Why

Kansas City Road is a three-lane, 38-foot wide urban street currently has sidewalk facilities on both sides of the road and is designated as a bike route. However, it lacks distinct bicycle facilities and is uncomfortable for many users. Upgrading to a shared use sidepath on the north side of Kansas City Road would accommodate most “active” and recreational users to Mahaffie Stagecoach Park and the Olathe Community Center. It is also an important historic link to the Santa Fe Trail itself and connects to the existing path facilities along Nelson Street and Parkway Drive, which in turn lead to the regional Gary Haller Trail and Mill Creek Streamway. The Envision Olathe plan recommended an upgraded Kansas City Road facility that would provide better Downtown connections, serve key community destinations, and improve safety conditions for a variety of users.

## How

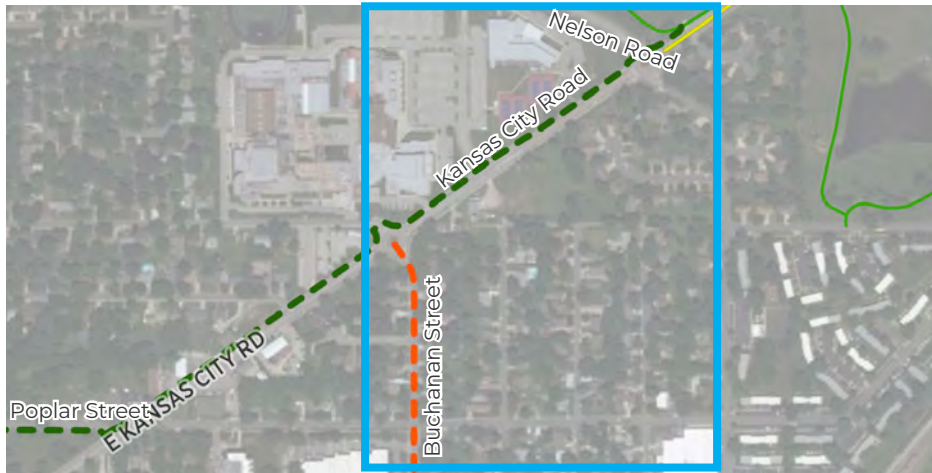
The recommended infrastructure solution is a 10 foot wide shared use sidepath on the north side of Kansas City Road, continuing the current westward path to Poplar Street. The trail is currently in place between Ridgeview and Nelson Road, where it turns north and eventually joins the Gary Haller Trail. The entire segment is wide enough to accommodate the path, except for a section between Poplar and Spruce where available right-of-way narrows. When the path reaches the Buchanan Street roundabout, wheeled users would follow the traffic flow and cross at the current crosswalk, continuing southwest on the path on the north side of the road.

The Kansas City Road path would continue westward on the south side of Poplar, and serves a potential new development site between Kansas City Road and Woodland Street, the Salvation Army facilities, Mill Creek Park, the new library, City Hall, and, as a path along the periphery of the new Johnson County Courthouse, the Kansas Avenue/Northgate Trail. Parallel to and one block north of Santa Fe Street, a Poplar Street path also provides access to commercial destinations along that major arterial.

## Implementation

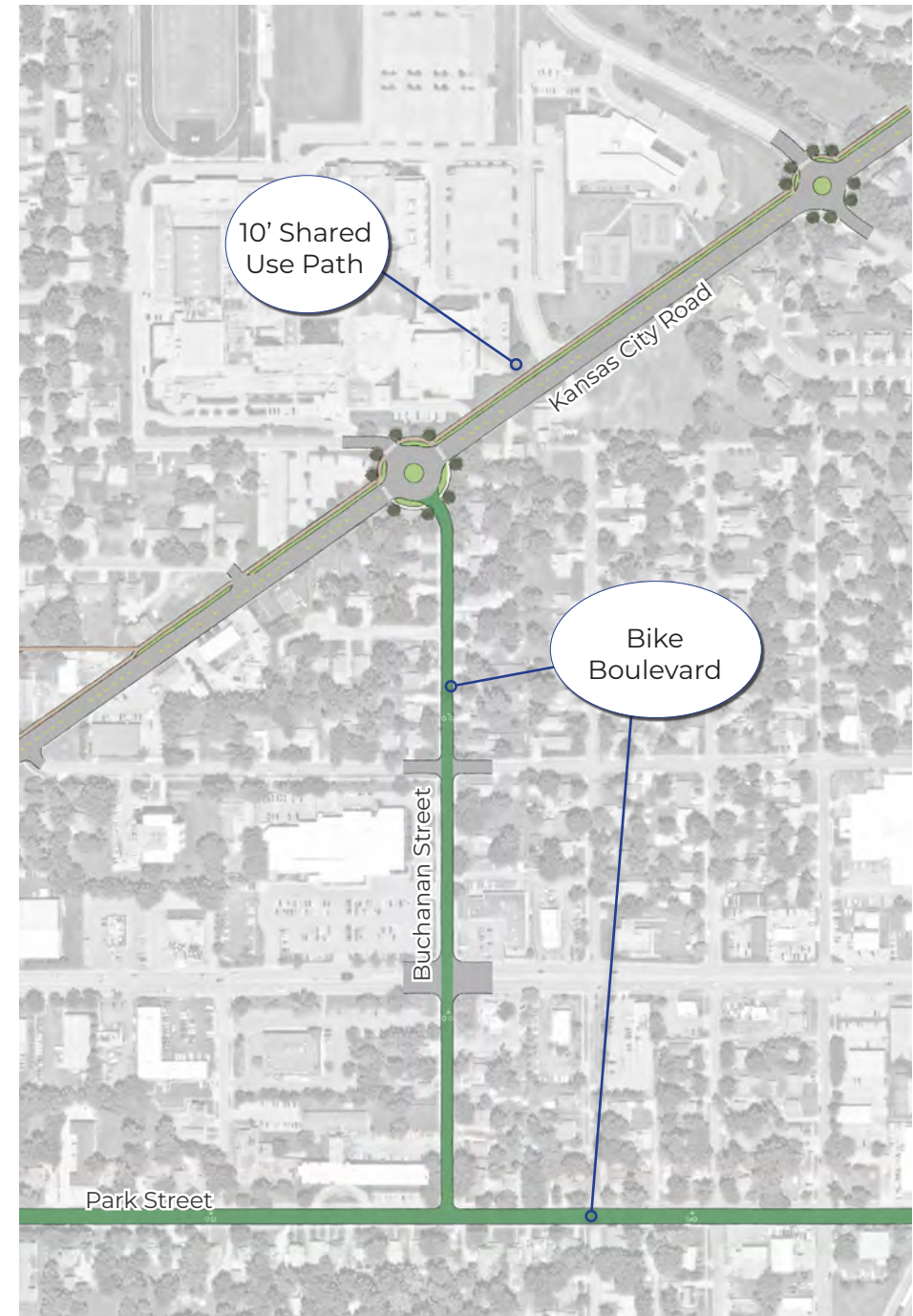
The estimated cost to complete the sidepath construction from Nelson Road to Cherry Street (4,800 feet of facility) is \$703,824. The breakdown of costs is included in the appendix. The work estimated in the estimate consists of demolition of the existing sidewalk, site preparation work, and construction of an 10-foot asphalt path, narrowing to 8 feet where right-of-way is limited, with sod and landscaping. The entire stretch on Kansas City Road and the western half of Poplar Street are included in the Street Preservation and Reconstruction program. Timing the planned active transportation facilities proposed in this document with the planned street projects could significantly reduce the project expenses and lead to a quick implementation. As such, this section of the system should receive a priority similar to the Kansas Avenue segment.





### Nelson Road to Buchanan Street

This segment provides a 10 foot sidepath connecting to the Santa Fe Trail at Nelson Road on the north side of Kansas City Road. The existing sidewalk would be widened to sidepath standards. Where roundabouts occur, the path would align with existing colored concrete crossings. Bicyclists may also enter the circle as vehicles and move with the intended flow of traffic, important for southbound turning movements to Buchanan Street and its signalized intersection with Santa Fe Street. Buchanan Street would be adapted as an active boulevard all the way through to Park Street, where users can then continue east or west.

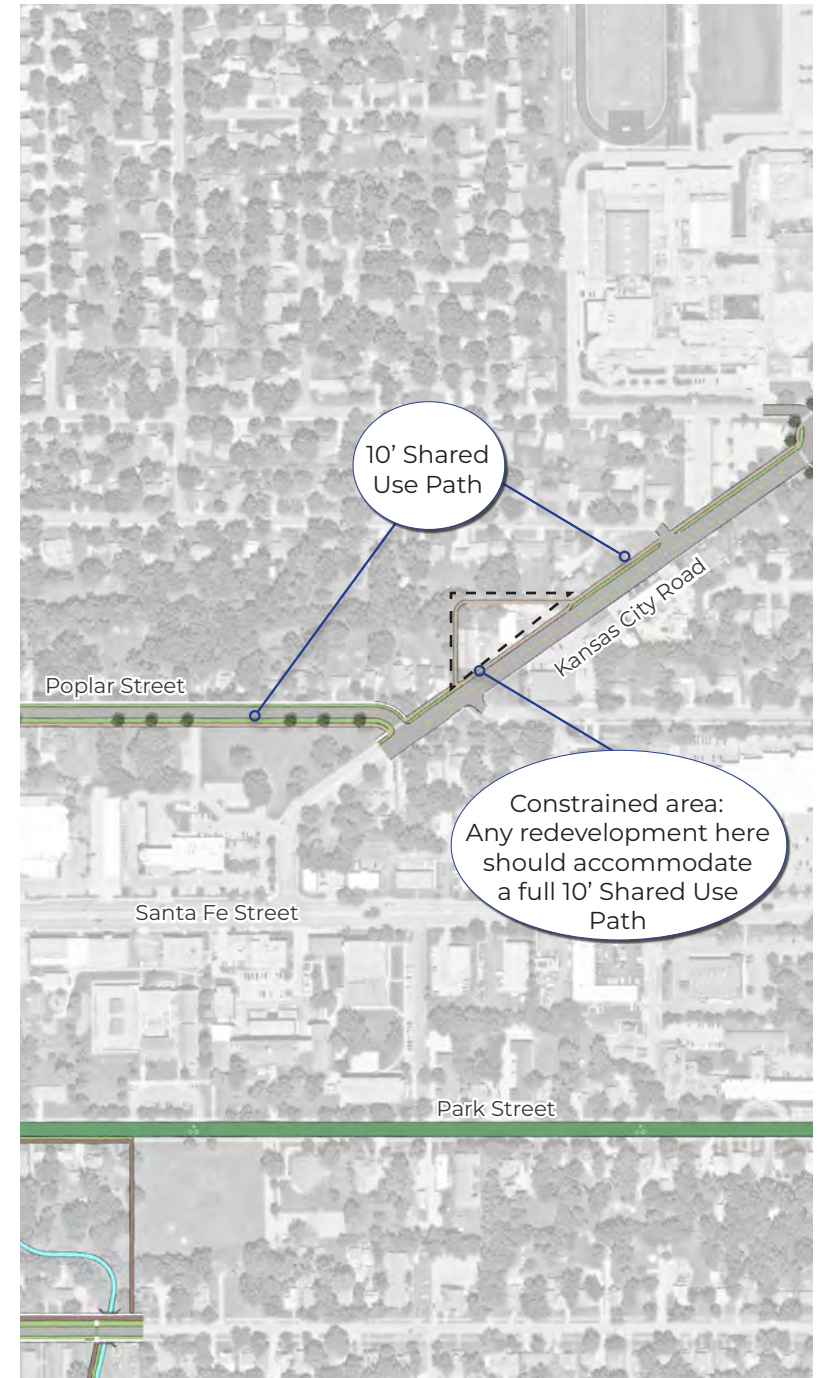


## Buchanan Street to Poplar Street

Southwest from the Buchanan Street roundabout, sidepath continues on the north side to Poplar Street. Right-of-way tightens between Poplar and Spruce Streets which may require narrowing the path for this block. Any future redevelopment on this block should require a sufficient setbacks and driveway configurations to allow a full-width shared use path along the street.

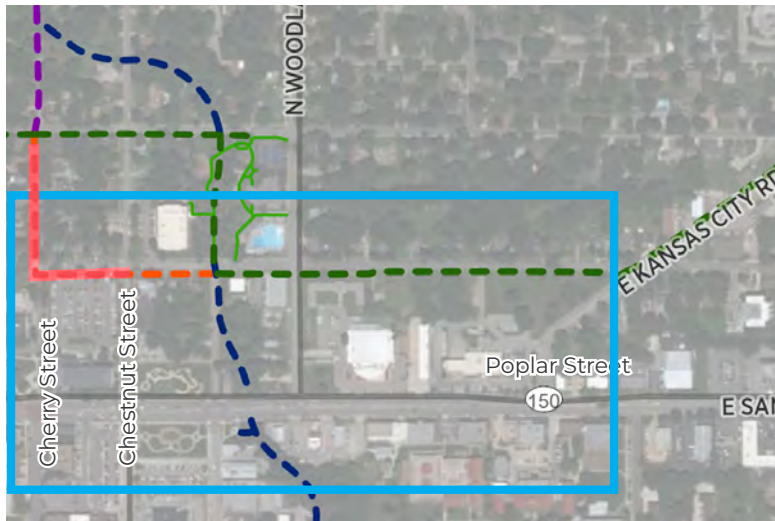
### Traffic Impacts

All approaches at the intersection at Kansas City Road and Poplar Street are projected to continue to operate at a LOS D. The intersection has sufficient capacity for queuing vehicles.

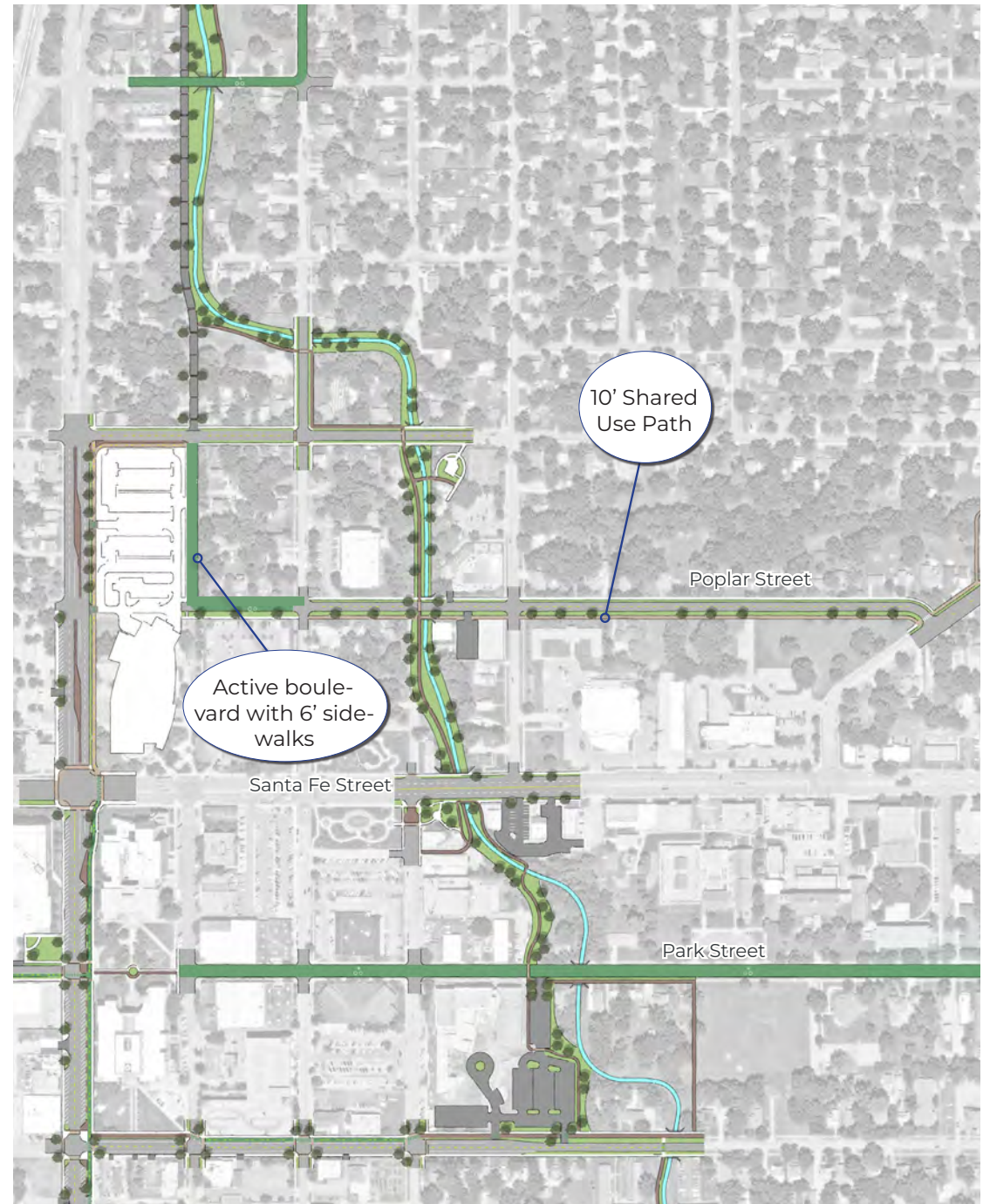


## Poplar Street to Kansas Avenue

The westbound sidepath continues on the south side of Poplar Street to Chestnut Street. From that point, pedestrians bound for the Kansas Avenue/Northgate facility would use six-foot sidewalks along Poplar and Cherry Streets to a path at Spruce and Cherry. Bicyclists would utilize a marked “active boulevard” route for the same segment. The Poplar Street route also connects to the Mill Creek Trail and the Cherry Street woonerf.



**Sidepath route along the south side of Poplar.** This would also serve a potential residential development site on the north side of the Enterprise Bank and Trust property.



# PARK STREET

Park Street was traditionally Olathe's east-west civic street and continues to serve major community institutions. It is an excellent active transportation route, as it parallels the Santa Fe corridor and provides access to many of that corridor's features and businesses. Park Street also crosses under the east side rail elevation, connecting it to Ridgeview Road and an intriguing opportunity for a west side grade separation.

## Why

Few low volume streets exist to connect bicyclists from downtown east, especially south of the Santa Fe corridor. East-west Dennis Avenue provides bike lanes, but is a mile south of the city center district. Marking Park Street as an "active boulevard" with strategic modifications can make this an excellent and pleasant corridor for active travel.

Connections across the extremely busy west side BNSF mainline that leads directly to the giant Edgerton Intermodal Facility were a subject of considerable concern during both the Envision Olathe and Active Transportation planning processes. Traffic backups when trains pass through cause delays for motorists, but also create safety concerns for pedestrians and bicyclists. The Park Street concept includes a pedestrian and bicyclist underpass of this line, maintaining access when trains pass. This provides the additional benefit of potential elimination of a grade crossing and financial participation by the railroad. The concept also maintains local access to businesses and facilities that need it for normal operations. The Envision Olathe Plan proposed a concept that would use long ramps parallel to the BNSF that would provide a grade separated underpass for all modes of travel. A study after completion of that plan estimated the cost of this idea at \$17 million. A pedestrian/bicycle underpass is estimated at about 1/4 that cost and provides another option for the community to consider.

Finally, an active boulevard is a great starting point when developing an

active transportation network. The relatively low cost allows for progress within the first year. Street signs identifying the active boulevard, pavement markings, and low-cost features such as mini-roundabouts and neckdowns are easily added to street improvement projects and demonstrate the City's commitment to implementation.

## How

Active boulevards range in design from being very inexpensive with simple signage and pavement markings to more elaborate with medians and traffic diverters. Funding levels and neighborhood support will influence the ultimate design of Park Street. In the near term, signage and pavement markings would be sufficient, but over time improvements can be made to add elements to enhance the corridor. Different levels of landscaping can help define Park Street as an active boulevard, the value of which are evident in recent Cedar Street enhancements. The overall concept is considered by segments on the following pages.

## Implementation

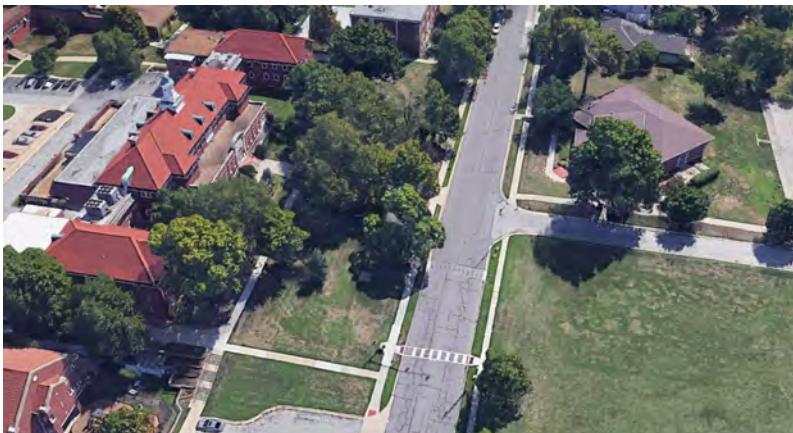
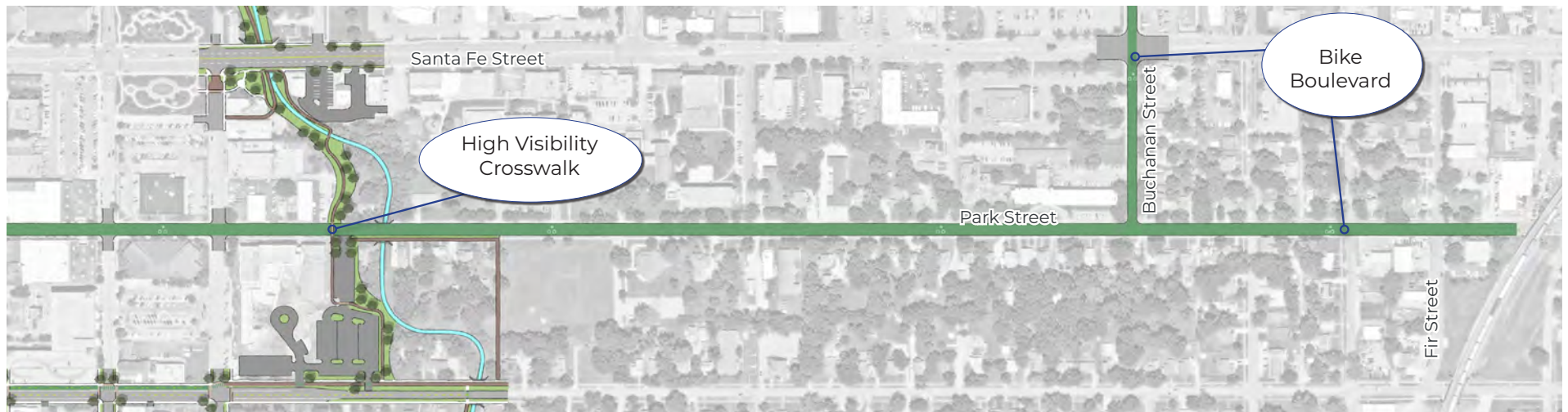
The estimated cost to construct a pedestrian and bicycle underpass below the railroad tracks on Park Street is \$4,224,810, including street reconstruction, excavation, and the path facilities. This is considerably less than the \$17 million estimate ascribed to the Loula Street underpass. Active boulevards can range in cost based on the detail of the route design. Generally, if the route was just signed and pavement markings added, the approximate cost for the active boulevard from Fir Street to Walnut Street would be \$633,600.





### Fir to Cherry Street

This section of path is proposed as an active boulevard, with identifying and wayfinding signage, shared lane pavement markings, or more elaborate traffic calming and speed management features such as mini-roundabouts, curb extensions, and speed tables. While this plan takes the route as far east as Fir Street, active boulevard treatment continued along Fir connects to the Dennis/Sheridan and Ridgeview bike lanes to the east and south. Wayfinding signage could be employed to identify these direct routes to the Indian Creek Trail.



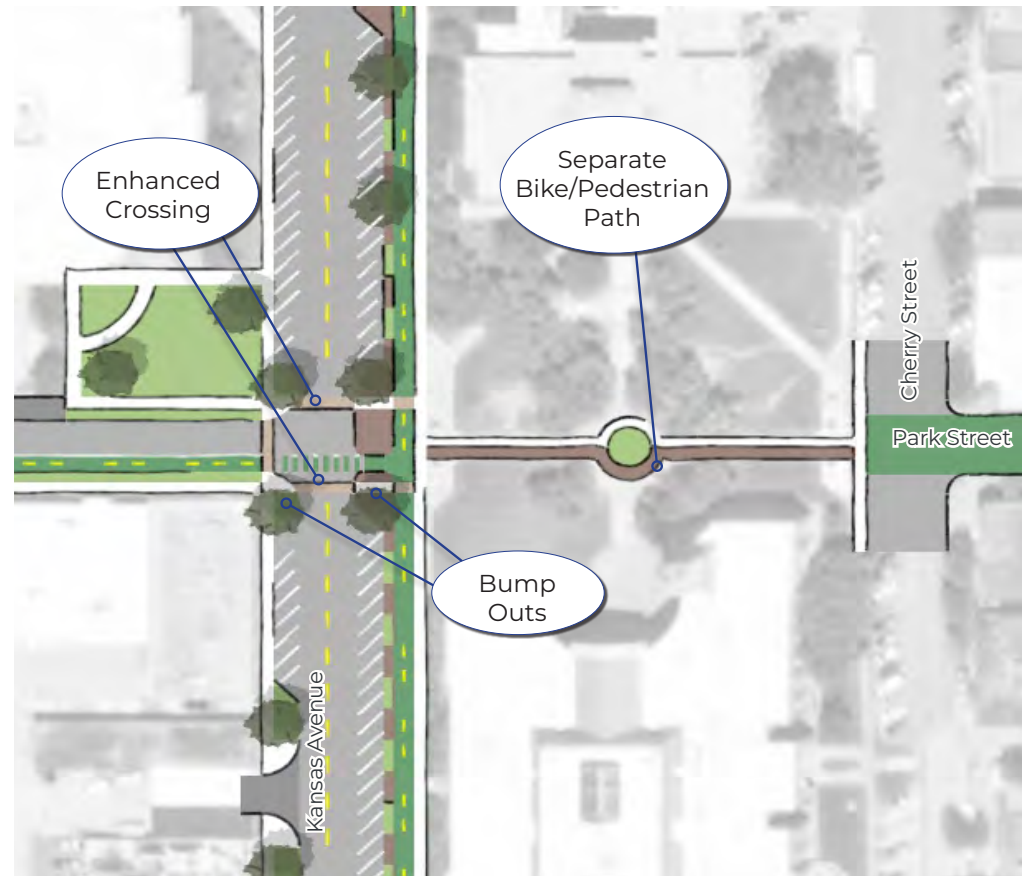
From left: Aerial view of Park Street (Google Earth Image); Mini-roundabouts, an effective way to manage traffic speeds on active (or bicycle) boulevards.



### Cherry Street to Kansas Avenue

Park Street was closed to motor vehicles between Cherry and Kansas as part of development of the Johnson County courthouse grounds. With development of an active boulevard, creation of a large courthouse square with probable demolition of the old courthouse building, and the possibility of a west side grade separation, this important green space will experience more activity, including increased numbers of pedestrians, bicyclists, and micro-mobility users. Travel through the square may require separated parallel paths for pedestrians and wheeled traffic (bikes, strollers, scooters), a technique used in high volume environments like college campuses. Developing this site to its greatest potential will require city and county collaboration.

The traffic signal at the intersection of Park Street and Kansas Avenue is no longer necessary and may be removed in the future. The development of the Kansas Avenue cycle track and streetscape will calm traffic through this intersection. Other improvements to compensate for the removal of signals should include enhanced crosswalks, curb extensions, and green area instead of diagonal parking opposite Park Street west.



**Pedestrian and wheeled vehicle separation.** From left: Broadway along the edge of the CU campus in Boulder; the Brooklyn waterfront.



## Kansas Avenue to Walnut Street and Beyond

The grade crossing issue of the north-south BNSF mainline paralleling Kansas Avenue was an important community concern during the Envision Olathe planning process. The short distance between Kansas Avenue and the railroad is insufficient for the ramps needed for typical over- or underpass solutions. In response, Envision Olathe proposed ramps paralleling the railroad to provide the running distance necessary to provide clearance for an underpass. The so-called “Loula Loop” connected Loula east and west of the mainline together to provide a grade separation that would replace the existing Loula and Park Street grade crossings. The city commissioned a subsequent cost study that estimated cost of the project in the range of \$17 million.

The possible removal of the unwarranted signal at Kansas Avenue and Park is likely to decrease the already light traffic on Park Street traffic. This provides the opportunity for converting Park Street between Kansas and Walnut to a pedestrian/bicycle underpass, with local vehicle access to adjacent properties. In this concept, a two-way protected bike lane would be developed adjacent to the curb on the south side of Park, and with straight ramps to the underpass. The distance between the parallel streets and the tracks is adequate to meet the reduced clearance requirement for pedestrian and bicycle travel. The remaining street width provides access to the County detention center east of the tracks and businesses on the west side. The adjacent public parking lot would be adapted to the loss of Park Street access and the grade crossing closed.

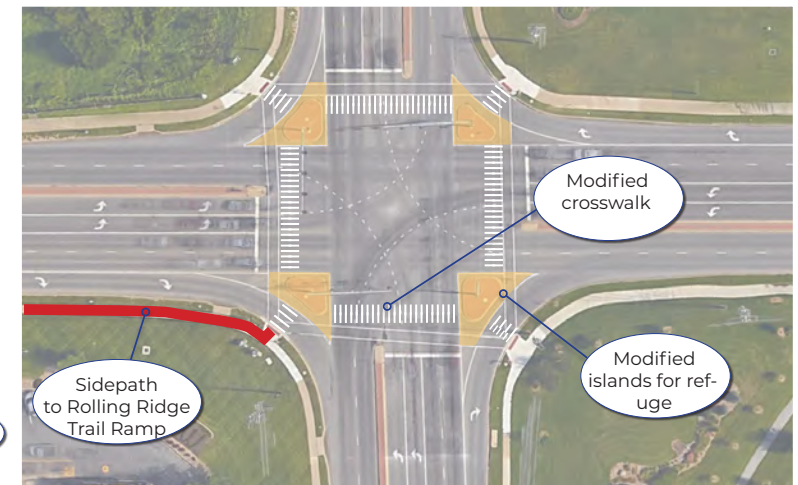
Connections to the Rolling Ridge Trail and Lake Olathe west of the proposed underpass can be made in two ways:



- » **Option 1.** Designate Park Street from Walnut Street to Parker Street an active boulevard to Parker Street, and widening the Parker Street sidewalk to sidepath standards between Park and Loula, and using the signalized Loula intersection crossing and Loula Street to continue west.
- » **Option 2.** Using Park and Pine Streets to connect to the existing shared use path on the south side of Santa Fe Street to Parker. At Parker, the path that can eventually provide a continuous route to Lake Olathe shifts to the north side. This requires path users to negotiate the very wide K-7 intersection in two directions. A safer solution would be widening the existing sidewalk on the south side to sidepath standards to the Rolling Ridge Trail ramp and using the trail tunnel under Santa Fe to make the connection to the north. Right-turn bypass islands should be lengthened to provide pedestrian refuge areas as illustrated below.



From left: Right turn island crossing and refuge and path underpass, both in Boulder, CO; Below: Suggested modifications at K-7 and Santa Fe







3

**COMPLETE  
STREETS GUIDE**

# COMPLETE STREETS GUIDELINES

During the completion of the 2003 Downtown Master Plan a set of design standards and guidelines were adopted for the downtown core. This streetscape plan focused on Santa Fe Street which is reflected in the amenities and improvements that have been made along this corridor. The update to the downtown master plan completed in 2018 recommended updating the streetscape plan to include Kansas Avenue and Kansas City Road. Following are a set of new guidelines and standards to be followed when implementing the Active Transportation Plan, specifically on Kansas Avenue and Kansas City Road.

Santa Fe Street reflects the value of applying well considered design guidelines to a major arterial corridor. The 2003 streetscape plan included a variety of elements that included intersection design, paving materials, lighting, street furniture, street graphics, and other elements. Many of these guidelines are appropriate to the study area's other two major streets, specifically Kansas Avenue and Kansas City Road. Relevant components are addressed in this section. Along Kansas Avenue in the downtown core, street landscape and furniture would generally be found in the buffer area between the cycle track and the new curb adjacent to parking. Where sidepaths are used, these features would ordinarily be focused in the setback between curb and the edge of the path. The width of these areas may vary depending on the final design, but a desirable minimum setback for a sidepath is typically six feet. Streetscape features may include rain gardens and other "green" stormwater management techniques, seating, trash receptacles, signage and street graphics, lighting, bicycle parking, and public art.

In a street design process, each block should be analyzed individually to identify needs and functions strategically to use limited space most effectively. Sometimes, street design features can serve dual functions. For example, planters can also double as informal seating, lighting standards also can accommodate street graphics and banners, and public art can be incorporated into functional elements like bus shelters and bike racks.

In general, the attractive patterns of the Santa Fe streetscape should establish a palette for treatments along Kansas Avenue and Kansas City Road. But the other corridors may include some subtle distinctions to create individual character within a unified family of materials and components. An example of identification without conflict might be the use of uniquely designed tree grate covers for each streetscape or incorporation of green infrastructure that was not included in the original guidelines.



The National Association of City Transportation Officials (NACTO) provides guides for all the facilities included in this report for further reading

## LANDSCAPING

Landscaping in downtown creates a more pleasant environment for users and can serve an important environmental function by capturing rainwater. Forms of landscaping to consider are street trees, planter boxes, and rain gardens. Many of these are already part of the downtown in various locations and should be carried throughout the remainder of the district.

- » **Street trees.** Trees with a minimum canopy of 25 feet should be planted approximately 30 feet on center in pits of at least 6 feet in width. Varieties similar to those existing in downtown should be considered, but varied to ensure preservation if disease takes over a certain tree type. Trees that leave little debris such as flowering varieties or those with large leaves should be avoided.
- » **Planter boxes.** Planter boxes have been successful along streets like Chestnut and could be installed at locations with sufficient space on Kansas Avenue and Kansas City Road. Permanent boxes require less maintenance and can be planted with year round varieties. The best location is between the curb and sidewalk to act as a pedestrian buffer to traffic. On Kansas Avenue, planters can help reinforce the separation between the cycle track and the parking area. Planters can also be areas for stormwater management.
- » **Curb extensions (“Bump outs”).** Curb extensions are good locations for landscaping to beautify the streetscape. Where there is sufficient space, each bump out should include a street tree and shorter shrubs and plants (maximum height of 3 feet) to avoid visibility concerns.
- » **Rain gardens.** An optional concept for the bump outs are rain gardens. A rain garden is designed similar to the existing bump out planters on Kansas Avenue, but include a depressed area at the center to infiltrate stormwater. In addition, the curb is broken to allow water into the garden.



Photo Credit: Iron Age Designs



## BIKE PARKING

Strategically located bike parking is a low cost but significant physical improvement that both encourages cycling, provides greater security, and keeps bikes from damaging trees or street furniture or obstructing pedestrians. The parking program should:

- » **Identify key locations for facilities.** Priority locations include schools, City Hall, the library, parks or shopping destinations. City Hall and the County Administration building have installed bike parking. However, the shopping and dining areas of downtown lack bicycle parking and convenient, non-obtrusive locations should be identified.
- » **Use standardized bike parking equipment that is durable, relatively inexpensive, and unobtrusive.** Many bike racks in common use (notably wave and “schoolhouse” type racks) take up too much space, are inefficient, and can damage bikes if they do not provide for frame locking. Better designs are the inverted U which can be embellished by art, creating an interesting community project that can involve art students or art groups. A city branding theme could be established and carried through into the design of trash bins and benches to unify the district.
- » **Consider locations for a future bike share program.** The Bike Share Implementation Strategy completed in February 2018 identified potential locations in downtown for the bike share hubs. Generally these locations were on private property rather than public right-of-way. Sites in the private domain should be readily accessible from streets and sidewalks.



## SIGNAGE AND WAYFINDING

Wayfinding signs are currently installed throughout the downtown district to guide residents and visitors to major destinations such as the library, post office, and government buildings. These signs are very general, providing only arrows in the general direction. Signage and wayfinding should instead include the following key features:

- » **Estimated distance to each destination.** This gives pedestrians and bicyclists a general estimate for how far they need to travel to each destination. For pedestrians, giving the distance in blocks instead of miles tends to reduce the perceived distance.
- » **Break out destinations.** The current signs state County Government, however with several county buildings in downtown Olathe, the new signage should specify specific buildings and distances.
- » **Consolidate signs.** Signs should be used as efficiently as possible.
- » **Design for flexibility and visibility.** The graphic system should be modular to provide maximum flexibility and efficiency in fabrication. Signs should use reflective material for night visibility.

Installation of a wayfinding system is an inexpensive way to implement a major part of the bike network ahead of major capitol expenditures, especially on streets like bicycle boulevards that do not require extensive infrastructure to be operational. Bicycle signage should comply with the current version of the Manual for Uniform Traffic Control Devices. (MUTCD).



## STREET LIGHTING

Lighting is an important safety element in the design of streets. Street and pedestrian lighting should illuminate the sidewalk and bicycle paths at a level consistent with pedestrian scale.

- ◀ Lighting for Kansas Avenue and Kansas City Road should be consistent with Santa Fe Street, which is a historical lantern luminance.
- ◀ For pedestrian only paths like the Mill Creek Trail the pedestrian scale versions of the historical lantern luminance (seen in Civic Center Park) should be used.
- ◀ LED bulbs should be used because of their superior performance and energy efficiency.
- ◀ Staggered placement of light posts across the street from one another is less formal and may reduce the number of lights required on a street.
- ◀ Fixtures should include attachments for banners to promote events like Old Settlers Day or display seasonal designs.



**Unified family of lighting in Downtown Olathe.** From left: Pedestrian scaled modern lights on Cherry Street, lanterns in Civic Center Park, roadway standards on Santa Fe Street.

## BENCHES AND TRASH BINS

Seating has been installed in parks and open spaces in downtown, with some seating at the Santa Fe and Cherry Street intersection. Benches should be viewed as both aesthetic and functional features – they should be placed where people will actually use them. Trash receptacles should be co-located with seating areas.

- ◀ Along high traffic streets, landscaping can buffer seating areas and street effects and noise.
- ◀ To avoid blocking pedestrian paths in constrained areas, benches can be placed on private property adjacent to the right-of-way with property owner approval.

Seating and trash bins can be used to brand the downtown district, using furnishings like bench backs and trash bins to convey a district logo. This may also be relevant in downtown Olathe.



**Functional elements.** From left: Planters also designed as seating in South Omaha, NE, trash receptacle with district logo at Aksarben Village in Omaha.

#### WOONERF

The woonerf concept applies to Cherry Street north of Spruce Street and potentially a segment of Water Street immediately north of Santa Fe. The woonerf provides shared space in areas with potential pedestrian and bicycle demand but local, very low-speed access is still needed by businesses or residences. When designing a woonerf, the following should be considered:

- Pedestrians and bicyclists are priority users, with motorists limited to pedestrian speed.
- Woonerfs (woonerven in Dutch) are often curbless, forcing motorists to move at very slow speeds. Subtle curvature can also help manage vehicle speed.
- Street furniture and landscaping can enliven the space and bring more people out to activate the street. Trees both provide shade and reinforce the character of the environment.
- Colored pavers could be used to create distinctive designs or delineate vehicle parking areas. However because of cost, they must be used strategically.
- Signage and lighting at gateways can communicate the distinctive territory of the woonerf.



#### ACTIVE BOULEVARD

Active boulevards, also known as bicycle boulevards or neighborhood greenways, are a type of shared roadway with bicycle and pedestrian-friendly features that manage speeds. They are typically local streets that provide good continuity, operate at maximum desirable speeds of 25 mph, have low or moderate traffic volumes, and often parallel or complement major streets. Active boulevard treatments can range from simple installation of pavement markings and signs to speed management devices such as mini-roundabouts, chicanes, curb extensions, and speed tables. Active boulevards should always include pedestrian paths or sidewalks.



#### HIGH VISIBILITY CROSSWALK

Crosswalk enhancements that help improve safety by making pedestrians more visible can reduce crashes by up to 48%. Features include high visibility marking, restricting parking on the crosswalk approach, advance STOP or YIELD markings and signs, curb extensions or bump outs, and in street STOP or YIELD signs. Continental markings are usually preferred over the single line “transverse” crosswalk markings. The Federal Highway Safety Administration maintains guidelines for installation of highly visible crosswalk features.



## CYCLE TRACK

A cycle track provides a dedicated on-street path for bicycles (and micro-mobility devices such as scooters) protected from traffic by such techniques as painted buffers, vertical delineators, parking lanes, raised islands, and planters and other landscaping. Cycle tracks (also referred to as protected bike lanes), first introduced on 9th Avenue in New York City, have grown tremendously in popularity in America because they can be installed relatively easily while offering bicyclists the separation from traffic that they want. Primary features of cycle tracks include:

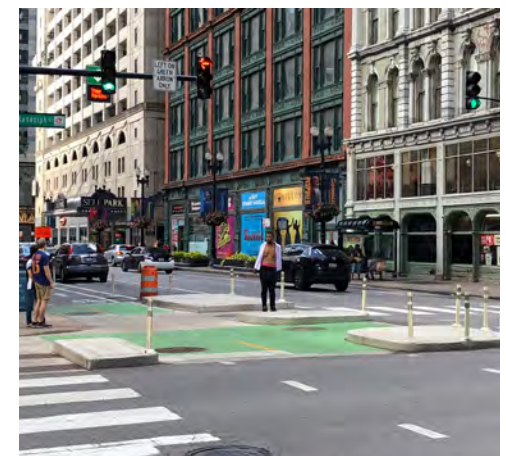
- » Raised or other vertical buffers a minimum of 3 feet wide. The width of Kansas Avenue permits a more generous separation. Some cycle tracks, including the proposed Kansas Avenue project, are further buffered by parking. Paint and flexible delineators are used on lower-cost installations.
- » Cycle tracks can provide for either one-way or two-way travel. A two-way track is desirably 12 foot wide, but can be as narrow as 8 feet when right-of-way is constrained.
- » Painted markings of the cycle track in conflict zones such as driveways or minor street crossings to alert drivers of bicycle traffic. Additional “Yield to Bikes” signage should be used to indicate potential conflict.
- » A buffer area between the cycle track and the pedestrian path with planters, bike racks, lighting, and other amenities.
- » Special signalization with a bicycle cycle when conflicts with turning traffic are likely to occur. These signals will stop turning motor vehicles on a green bicycle cycle. A cycle track may be necessary at Loula and possibly Santa Fe.



## INTERSECTION DESIGN

Intersections are the main point of conflict for pedestrians and bicyclists. Olathe can redesign their intersections to create safer crossings by giving non-vehicular traffic more time to cross, better visibility, reducing speeds of vehicles, and making their crossing a priority. Design features that achieve these goals include:

- » **Bump Outs.** Bump-outs allow pedestrians cross intersections at shorter distances and protect parked vehicles. They can also be places for trees and landscaping. Bump-outs in this design concept shorten the crossing distance by 19 feet.
- » **Pedestrian Islands.** These reduce the crossing distance and improve visibility by clearing the intersection.
- » **Corner Island.** This concrete barrier is placed further into the intersection to give bicyclists more protection from drivers turning right, forcing the turning vehicle further into the intersection before making the turn instead of risking the “right hook” that often causes crashes. This type of protected intersection is proposed at the Kansas and Santa Fe intersection.
- » **Crossing Markings.** Colored markings provide guidance for both pedestrians and bicyclists crossing, but also call attention to their presence for vehicles. Bicycle markings are often green, while pedestrian zones are white.
- » **Right turn islands.** At extremely wide intersections such as Parker and Santa Fe, right-turn islands can provide vulnerable users with a refuge that separates right-turns from other movements. This reduces the distance of exposure, currently almost 150 feet at the Parker intersection.



# SUSTAINABLE DEVELOPMENT TECHNIQUES

Active transportation and sustainable development go hand in hand. Many of the treatments identified within the complete streets guidelines are opportunities to include sustainable elements such as native plants in a bump out or a rain garden alongside a bike lane to act as a buffer. This section presents sustainable development techniques that can and should be incorporated with each project that advances the plan.

Public right-of-ways can and should address significant environmental issues and goals. They can also demonstrate practices that citizens can use in their own lives. The diagram to the right shows how one stretch of Kansas Avenue can incorporate multiple sustainable practices, especially relevant to the future development of a major public space on the old courthouse site. Good practices include stormwater management, energy conservation, and reforestation.

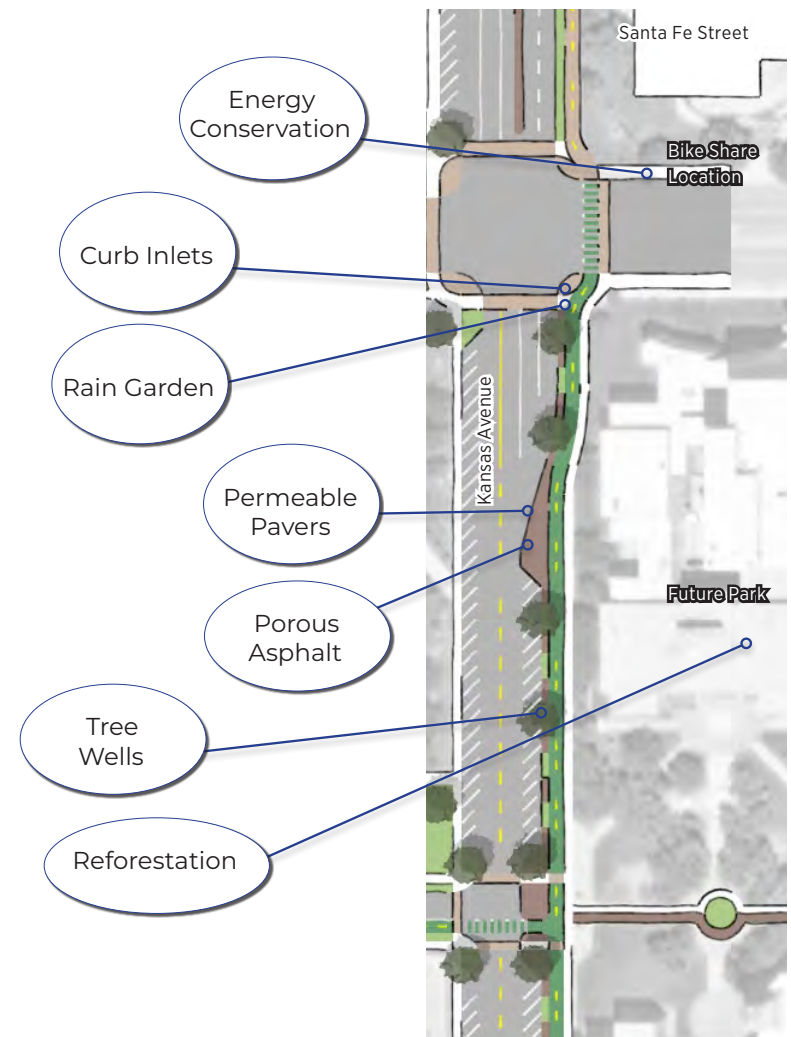
Stormwater management in an urban environment can take several directions, the three common principles of which are slow it down, spread it out, soak it in. With limited permeable area, it is important to incorporate small stormwater installations to focus on detention and infiltration to slow and absorb surface flows.

Energy conservation techniques may also be incorporated into a streetscape. Solar energy can be used to power bike share docking stations and have even been embedded in roadbeds. Light fixtures should have proper daylighting functions and use LED bulbs to reduce energy consumption.

Reforestation is already underway in downtown Olathe with the streetscape improvements but could be advanced further. If the former county building site is reused as public open space, a dense and diverse stock of trees should be planted to help reduce the heat island effect in the downtown, absorb CO2 emissions, and provide shady areas for residents, visitors, and downtown employees.

The following pages show examples of each of these three key components of sustainability to be considered for downtown Olathe.

## Sustainable Street Opportunities

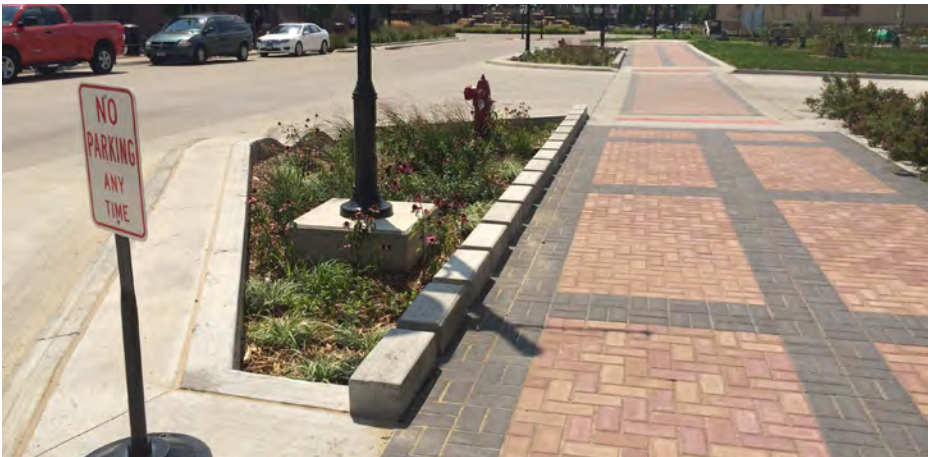


### CURB INLETS

Sawtooth curbs can direct runoff into planted stormwater management features like rain gardens. These curbs are broken every few feet to allow water to run into the planting area, but still provide the protection of a curb. This technique is often used in areas with large impervious surfaces to funnel rainwater into adjacent landscaping areas or bioswales.



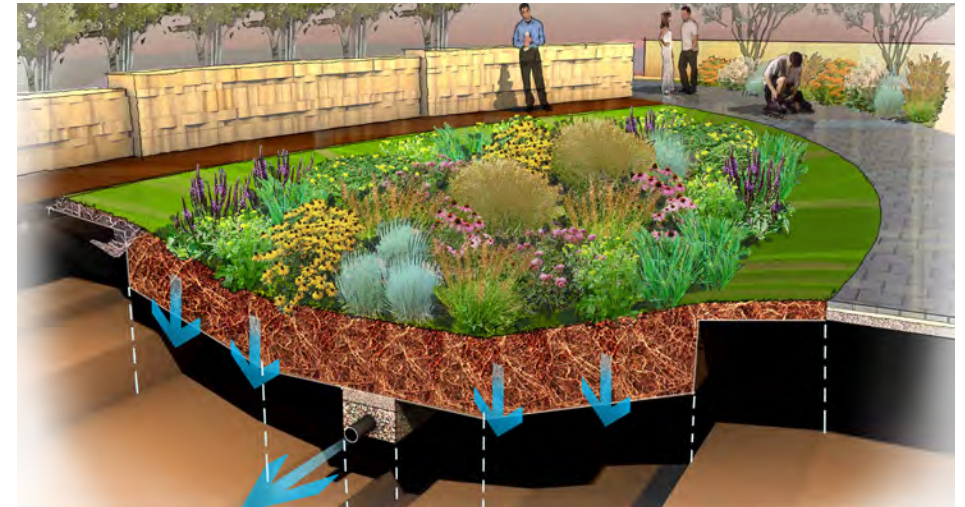
Downtown bioswale in Topeka. This innovative project replaced an unnecessary travel lane.



Coralville, IA Bump Out and curb inlet

### RAIN GARDENS

Rain gardens are an attractive way to capture water while providing landscaping that softens the concrete surfaces in downtown. Rain gardens are dry most of the time, but are designed to capture and hold significant amounts of runoff from adjacent streets and buildings during a rain event. If designed properly, they will absorb rain water into the ground within an hour to two. When designed to capture runoff from streets or sidewalks, careful consideration to the type of plants is necessary as road salt is likely to concentrate in the garden with the spring thaw.



Rain garden diagram



Omaha, NE Rain garden bump out

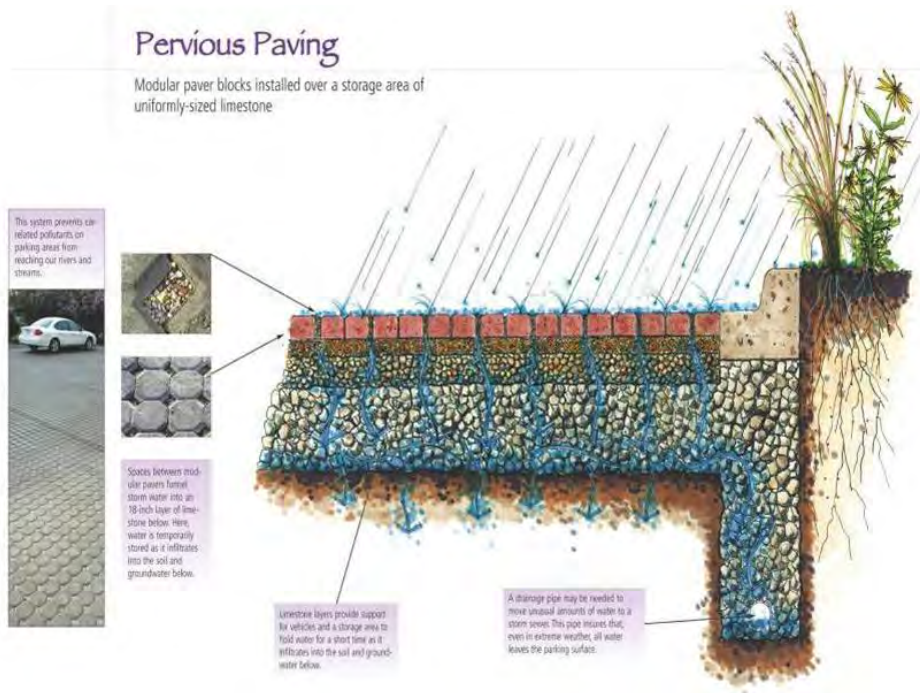
#### PERMEABLE PAVERS AND POROUS ASPHALT

Permeable pavers can capture runoff and provide a distinctive and appealing paving surface. These pavers come in a variety of styles, but all are designed to absorb water into the ground. Paver technology has advanced and pavers are now resistant to winter conditions and as durable as conventional materials when properly maintained.

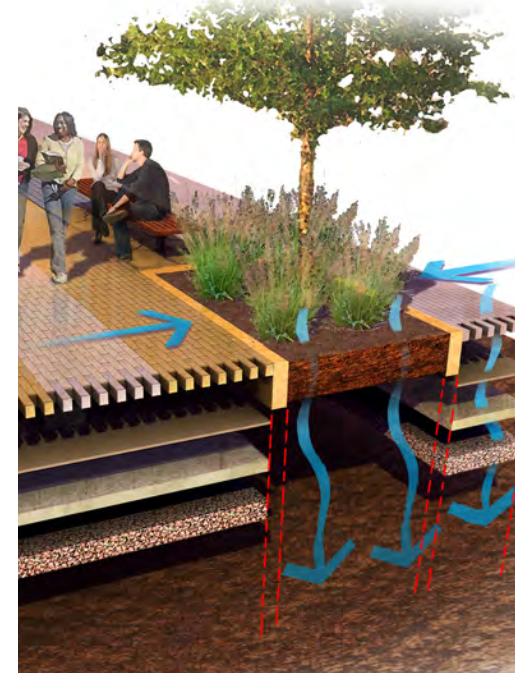
Porous asphalt provides another “green” paving option, conducting water into the ground rather than blocking infiltration.

#### TREE WELLS

Trees sequester carbon and provide much needed shade. They also serve an important function in stormwater management. Tree wells and planter beds in a streetscape capture water from sidewalks and increase ground absorption.



Seattle, WA Tree Wells



The absorption process.

### REFORESTATION.

Many cities are encouraging the growth of their urban forests because of the many benefits they provide. Trees provide shade to reduce heat island effect in urban areas, help sequester carbon dioxide, and capture and absorb stormwater runoff, and provide delight and comfort to downtown's citizens. The types and placement of trees must be carefully considered to avoid maintenance issues created when leaves or fruit begins dropping. Honey locust trees are popular for their resilience and ability to thrive in difficult urban growing conditions. However, the lessons of the emerald ash underscores the need to diversify and avoid monocultures that are vulnerable to disease and infestation. Tree wells should be a minimum of 6 feet square with either mulch or shrubs and groundcover.



### ENERGY CONSERVATION

Active transportation contributes to energy conservation in cities in a variety of ways. The reduction in vehicular travel as more residents commute by bicycle or walk for work or recreation reduces fuel consumption and greenhouse gas pollution. Savings are especially strategic because cars are less fuel efficient and pollute more with shorter trips in cities. Active transportation often leads to more compact development patterns which conserve energy by reducing impervious surface area, preserving open space, and requiring fewer building materials. In Olathe, active access in the city center will encourage new mixed use and higher-density residential development, both of which advance the city's environmental goals. Solar can also be easily integrated into active transportation projects. If a docking station style bike share program were implemented, it could be powered by solar panels as seen below. Solar energy has also been used in street and trail lighting.





A black and white photograph of a group of people at a community meeting. In the foreground, a person's hand is visible pointing at a large map or plan spread out on a table. The map includes various diagrams and text. In the background, several people are standing and talking. One man in a light blue shirt is gesturing with his hand near his face. Another man in a light blue polo shirt is holding a small electronic device. A woman in a striped shirt is looking at a notebook. A woman in a grey shirt and a baseball cap is also visible. A large white number '4' is overlaid on the left side of the image, and a blue banner with the word 'IMPLEMENTATION' in white capital letters is overlaid on the right side.

# 4 IMPLEMENTATION

# FUNDING AND PHASING

The Olathe Street Preservation Program and ongoing Stormwater Improvement projects provide a great opportunity to complete many pieces of the downtown active transportation plan within the next few years. The best way to see quick results is to find options to incorporate portions of the system into already planned projects. This helps reduce cost and speed up the schedule for implementation.

The Downtown Active Transportation Plan establishes a concept for future improvements in Downtown Olathe. To ensure that projects within the concept are implemented over time, the City must set its priorities for individual projects, complete initial steps towards implementing the projects, and evaluate new conditions as they arise. The general strategy, phasing, and schedule presented in the following pages are based on the following considerations:

- » **Think ahead for long-term projects.** Some projects will not occur for many years. However, advance planning starts the process by building partnerships, initiating conversations with adjacent property owners, and conducting initial studies to determine project feasibility.
  - » **Focus efforts wisely.** Keeping in mind community priorities, the City should concentrate activity and benefits to create the greatest returns. By pairing upgrades with already planned projects such as a stormwater upgrades or the street preservation program the City can complete much of this network in the near term.
  - » **Be open to opportunity.** New opportunities may arise as situations change downtown. Awareness of and openness to opportunities can help implement the plan. This is especially true for ongoing projects such as the Mill Creek Trail which will require communication with property owners along the length of the trail and building an understanding of the benefits that such a project could bring.
- « Will the project generate private investment by adjacent property owners?
  - « What is its potential to transform the image of the area and community?
  - « Does the project attract local residents and visitors, increasing business traffic and creating new reasons for people to be downtown?
  - « Does the project generate substantial community support or consensus?
  - « Does the project incorporate and leverage outside funding sources, such as state grants or charitable contributions?

Funding programs and opportunities will inevitably change and influence priorities. The current schedule is based on an aggressive implementation time frame of 6+ years given the programs in place that can assist in route completion over the next few years. However, the City should modify the schedule annually, based on constraints, opportunities, and priority criteria that consider the following questions:

- « Does the project fill a gap in the existing network?
- « Does the project increase safety for bicyclists and pedestrians?

## Implementation Steps

This plan included detailed plans with measurements and cost estimates for each section of the proposed active transportation plan in downtown Olathe. The following implementation table identifies each segments costs and time frame for completion. As mentioned, these time frames may change depending on available funding sources. The next steps to seeing these routes built include:

1. Obtain Funding
2. Boundary & Topographical Survey
3. Preliminary Design
4. Public Involvement
5. Land Acquisition (if necessary)
6. Final Design
7. Utility Relocations
8. Construction

**FIGURE 5.4A:** Implementation Table

| SEGMENT                              | COST RANGE                 |                   |              |                   |
|--------------------------------------|----------------------------|-------------------|--------------|-------------------|
|                                      |                            | Within<br>3 Years | 3-5<br>Years | Beyond<br>5 Years |
| Kansas Avenue                        | \$1,540,080 to \$2,444,790 | ✖                 |              |                   |
| Kansas City Road                     | \$703,824                  | ✖                 |              |                   |
| Mill Creek Trail                     | \$1,958,476 to \$2,795,892 |                   |              | ✖                 |
| Park Street with<br>Grade Separation | \$4,224,810                |                   |              | ✖                 |
| Loula Street                         | \$493,842                  |                   | ✖            |                   |



## Funding Sources

Given the multi-year nature of this active transportation program, identifying and sustaining funding sources is critical. Many projects involving on-street routes could be incorporated into normal maintenance activities. Thus, the marginal cost of activities such as painting and maintaining bicycle boulevards may be significantly lower than the cost factors incorporated here. However, sidepaths and cycle tracks can be expensive and difficult to retrofit after development has already taken place, but are often preferred by residents because of their separation from traffic.

A number of funding sources support the implementation of this active transportation plan, including various local and federal programs. Following is a list of programs that may be appropriate for funding various segments of the network.

### City

- » **Street Preservation and Reconstruction Program.** Much of the proposed network lies within the boundaries of planned street preservation and reconstruction projects. If timed correctly, project costs for building the proposed bicycle and pedestrian infrastructure can be wrapped into the Street Preservation and Reconstruction Program. This not only reduces the estimated costs, but provides an opportunity to see portions of the network built in the next five years.
- » **Capital Improvement Program.** Establishing a dedicated set-aside in the Capital Improvement Program can help the city prepare for implementing this plan for sidewalks, paths, and bicycle infrastructure to improve conditions for bicycling and walking. This set-aside may also be used as a local match for external funding sources, or as contributory towards bicycle elements of larger projects.
- » **City Operating Budget.** The operating budget of Olathe may be a source of funding for the network. Segments of the network can be developed or improved as part of normal operations. This is one way to advance the bicycle and pedestrian network in an incremental and practical manner.

### State

- » **Chronic Disease Risk Reduction.** Funding through the Kansas Department of Health and Environment is available through the Aid to Local (ATL) grant program. Applicable programs in the funding pool include Bike Walk Committees, Active Transportation, and Improving Public Spaces.

## Federal Transportation Act Programs

- » **Surface Transportation Program (STP).** The surface transportation funds are sub-allocated to MARC by the Federal Highway Administration to fund multi-modal and roadway projects on federal-aid highways. Priority is given to projects that increase modal choice, integrate into the community, and manage roadway capacity.
- » **Congestion Mitigation Air Quality (CMAQ).** The congestion mitigation air quality program began in 1991 as part of the Intermodal Surface Transportation Efficiency Act to help pay for transportation projects that improve air quality in “non-attainment” and “maintenance” areas. Funds are distributed by MARC and may or may not be available for Olathe.
- » **Transportation Alternatives Set-Aside.** This program, formerly known as the Transportation Alternatives Program (TAP), is a set-aside of Surface Transportation Block Grant (STBG) funding for transportation alternatives. Eligible projects include smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, and environmental mitigation related to stormwater and habitat connectivity. This program is ideal for carrying out the larger segments of the network such as the Kansas Avenue cycle track.
- » **Highway Safety Improvement Program.** The HSIP program funds projects consistent with the state’s Strategic Highway Safety Plan. Within the context of this plan, it is most useful for helping to fund specific safety infrastructure improvement projects. Safety funds are especially appropriate for intersection enhancement projects.
- » **National Recreational Trails.** This venerable program, administered in Kansas by the Kansas Parks, Wildlife and Tourism Department (KDPWT), was originally established in 1991 and provides funding assistance for recreational projects, such as park trails. This contracts with TAP funds that must be used for projects with a significant transportation component. Trail projects can including walking, bicycling, and other recreational aspects.





A photograph of a brick building with a concrete walkway. A large white letter 'A' is overlaid on the image, positioned in the center-left. The building is made of red brick and has a concrete walkway running alongside it. The letter 'A' is large and white, standing out against the brick background.

A

**APPENDIX**

# SECTION 1: DETAILED COST ESTIMATES

## MAP KEY FOR DETAILED COST ESTIMATES



## #9 - TRAIL CONNECTION ALONG NORTHGATE

## Option 1 - Using Existing Bridge

10/1/2019

| Item No. | Item                                        | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                                | 1        | LS   | \$30,000.00 | \$30,000.00 |
| 2        | Clearing and Grubbing                       | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 3        | Demolition and Removal                      | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 4        | Contractor Construction Staking             | 1        | LS   | \$8,000.00  | \$8,000.00  |
| 5        | Traffic Control                             | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 6        | Removal of existing sidewalk                | 750      | LF   | \$12.00     | \$9,000.00  |
| 7        | Subgrade Stabilization (Est.)               | 400      | SY   | \$15.00     | \$6,000.00  |
| 8        | Unclassified Excavation                     | 450      | CY   | \$14.00     | \$6,300.00  |
| 9        | Compacted Embankment                        | 500      | CY   | \$5.00      | \$2,500.00  |
| 10       | Surface HMA-Commercial Grade (Class A) (2") | 45       | Ton  | \$80.00     | \$3,600.00  |
| 11       | Base HMA-Commercial Grade (Class A) (8")    | 180      | Ton  | \$80.00     | \$14,400.00 |
| 12       | Concrete Curb & Gutter (Type B)             | 990      | LF   | \$30.00     | \$29,700.00 |
| 13       | Woonerf - Permanent Pavers                  | 1000     | SF   | \$55.00     | \$55,000.00 |
| 14       | Aggregate Base under Paving                 | 425      | Ton  | \$20.00     | \$8,500.00  |
| 15       | 10' Asphalt Side Path                       | 300      | Ton  | \$80.00     | \$24,000.00 |
| 16       | Guardrail, Steel Plate (MGS)                | 80       | LF   | \$50.00     | \$4,000.00  |
| 17       | Guardrail End Terminal (MGS-SRT)            | 2        | Each | \$3,500.00  | \$7,000.00  |
| 18       | Large Block Retaining Wall                  | 400      | FF   | \$50.00     | \$20,000.00 |
| 19       | Decorative Lighting                         | 12       | Each | \$6,000.00  | \$72,000.00 |
| 20       | Concrete Sidewalk (4")                      | 150      | SF   | \$10.00     | \$1,500.00  |
| 21       | Concrete Driveways (6")                     | 420      | SY   | \$85.00     | \$35,700.00 |
| 22       | Landscaping                                 | 1        | LS   | \$45,000.00 | \$45,000.00 |
| 23       | Rip Rap                                     | 975      | SY   | \$75.00     | \$73,125.00 |
| 24       | Sod                                         | 1000     | SY   | \$8.00      | \$8,000.00  |
| 25       | Seed                                        | 1.7      | Acre | \$2,000.00  | \$3,400.00  |
| 26       | Pavement Marking X-Walk                     | 1        | Each | \$600.00    | \$600.00    |
|          |                                             |          |      |             |             |

|                 |              |
|-----------------|--------------|
| sub-total       | \$512,325.00 |
| 20% Contingency | \$102,465.00 |
| Total           | \$614,790.00 |

## #9 - TRAIL CONNECTION ALONG NORTHGATE

## Option 2 - New Ped Bridge

10/1/2019

| Item No. | Item                                        | Quantity | Unit | Unit Cost   | Total Cost   |
|----------|---------------------------------------------|----------|------|-------------|--------------|
| 1        | Mobilization                                | 1        | LS   | \$40,000.00 | \$40,000.00  |
| 2        | Clearing and Grubbing                       | 1        | LS   | \$20,000.00 | \$20,000.00  |
| 3        | Demolition and Removal                      | 1        | LS   | \$20,000.00 | \$20,000.00  |
| 4        | Contractor Construction Staking             | 1        | LS   | \$10,000.00 | \$10,000.00  |
| 5        | Traffic Control                             | 1        | LS   | \$10,000.00 | \$10,000.00  |
| 6        | Removal of existing sidewalk                | 750      | LF   | \$12.00     | \$9,000.00   |
| 7        | Subgrade Stabilization (Est.)               | 400      | SY   | \$15.00     | \$6,000.00   |
| 8        | Unclassified Excavation                     | 450      | CY   | \$14.00     | \$6,300.00   |
| 9        | Compacted Embankment                        | 500      | CY   | \$5.00      | \$2,500.00   |
| 10       | Surface HMA-Commercial Grade (Class A) (2") | 45       | Ton  | \$80.00     | \$3,600.00   |
| 11       | Base HMA-Commercial Grade (Class A) (8")    | 180      | Ton  | \$80.00     | \$14,400.00  |
| 12       | Concrete Curb & Gutter (Type B)             | 990      | LF   | \$30.00     | \$29,700.00  |
| 13       | Woonerf - Permanent Pavers                  | 1000     | SY   | \$250.00    | \$250,000.00 |
| 14       | Aggregate Base under Paving                 | 425      | Ton  | \$20.00     | \$8,500.00   |
| 15       | 10' Asphalt Side Path                       | 340      | Ton  | \$80.00     | \$27,200.00  |
| 16       | Guardrail, Steel Plate (MGS)                | 80       | LF   | \$50.00     | \$4,000.00   |
| 17       | Guardrail End Terminal (MGS-SRT)            | 2        | Each | \$3,500.00  | \$7,000.00   |
| 18       | Large Block Retaining Wall                  | 400      | FF   | \$50.00     | \$20,000.00  |
| 19       | Decorative Lighting                         | 12       | Each | \$6,000.00  | \$72,000.00  |
| 20       | Concrete Sidewalk (4")                      | 150      | SF   | \$10.00     | \$1,500.00   |
| 21       | Concrete Driveways (6")                     | 420      | SY   | \$85.00     | \$35,700.00  |
| 22       | Landscaping                                 | 1        | LS   | \$45,000.00 | \$45,000.00  |
| 23       | 10' Pedestrian Bridge                       | 60       | LF   | \$1,500.00  | \$90,000.00  |
| 24       | Rip Rap                                     | 975      | SY   | \$75.00     | \$73,125.00  |
| 25       | Sod                                         | 1000     | SY   | \$8.00      | \$8,000.00   |
| 26       | Seed                                        | 1.7      | Acre | \$2,000.00  | \$3,400.00   |
| 27       | Pavement Marking X-Walk                     | 1        | Each | \$600.00    | \$600.00     |
|          |                                             |          |      |             |              |

|                 |              |
|-----------------|--------------|
| sub-total       | \$817,525.00 |
| 20% Contingency | \$163,505.00 |
| Total           | \$981,030.00 |

**#9 - TRAIL CONNECTION ALONG NORTHGATE****Option 3 - Chestnut Bicycle Boulevard (1700')**

10/1/2019

| Item No. | Item                         | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                 | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 2        | Traffic Control              | 1        | LS   | \$3,000.00  | \$3,000.00  |
| 3        | Landscaping                  | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 4        | Permenant Signage            | 6        | Each | \$1,000.00  | \$6,000.00  |
| 5        | Pavement Marking "Boulevard" | 16       | Each | \$750.00    | \$12,000.00 |
| 6        | Pavement Marking "Bicycle"   | 16       | Each | \$750.00    | \$12,000.00 |
| 7        | Pavement Marking X-Walk      | 1        | Each | \$600.00    | \$600.00    |
|          |                              |          |      |             |             |

|                 |                    |
|-----------------|--------------------|
| sub-total       | \$63,600.00        |
| 20% Contingency | \$12,720.00        |
| Total           | <u>\$76,320.00</u> |

**#8 - CHERRY STREET - WOONERF****Spruce to Mulberry (1100')****12/30/2019**

| Item No. | Item                             | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|----------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                     | 1        | LS   | \$40,000.00 | \$40,000.00 |
| 2        | Clearing and Grubbing            | 1        | LS   | \$25,000.00 | \$25,000.00 |
| 3        | Demolition and Removal           | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 4        | Contractor Construction Staking  | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 5        | Traffic Control                  | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 6        | Subgrade Stabilization (Est.)    | 3200     | SY   | \$15.00     | \$48,000.00 |
| 7        | Unclassified Excavation          | 1200     | CY   | \$14.00     | \$16,800.00 |
| 8        | Compacted Embankment             | 1200     | CY   | \$5.00      | \$6,000.00  |
| 9        | Concrete Curb & Gutter (Type A)  | 2500     | LF   | \$30.00     | \$75,000.00 |
| 10       | 2" Asphalt Mill & Overlay        | 300      | Ton  | \$80.00     | \$24,000.00 |
| 11       | Woonerf - Permanent Pavers       | 800      | SY   | \$90.00     | \$72,000.00 |
| 12       | Aggregate Base under Paving      | 350      | Ton  | \$20.00     | \$7,000.00  |
| 13       | Guardrail, Steel Plate (MGS)     | 100      | LF   | \$50.00     | \$5,000.00  |
| 14       | Guardrail End Terminal (MGS-SRT) | 2        | Each | \$3,500.00  | \$7,000.00  |
| 15       | Decorative Lighting              | 12       | Each | \$6,000.00  | \$72,000.00 |
| 16       | Concrete Sidewalk (4")           | 100      | SF   | \$10.00     | \$1,000.00  |
| 17       | Concrete Driveways (6")          | 350      | SY   | \$85.00     | \$29,750.00 |
| 18       | Landscaping                      | 1        | LS   | \$50,000.00 | \$50,000.00 |
| 19       | Sod                              | 1800     | SY   | \$8.00      | \$14,400.00 |
| 20       | Seed                             | 1.2      | Acre | \$2,000.00  | \$2,400.00  |
| 21       | Fencing                          | 1100     | LF   | \$50.00     | \$55,000.00 |
| 22       | Permanent Signage                | 6        | Each | \$1,000.00  | \$6,000.00  |
| 23       | Pavement Marking X-Walk          | 2        | Each | \$600.00    | \$1,200.00  |
|          |                                  |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$602,550.00        |
| 20% Contingency | \$120,510.00        |
| Total           | <u>\$723,060.00</u> |

**#1 - KANSAS AVE MOBILITY TRACK & SIDEPATH****Cedar to Santa Fe****10/1/2019**

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost   |
|----------|---------------------------------|----------|------|-------------|--------------|
| 1        | Mobilization                    | 1        | LS   | \$35,000.00 | \$35,000.00  |
| 2        | Demolition and Removal          | 1        | LS   | \$50,000.00 | \$50,000.00  |
| 3        | Contractor Construction Staking | 1        | LS   | \$15,000.00 | \$15,000.00  |
| 4        | Traffic Control                 | 1        | LS   | \$40,000.00 | \$40,000.00  |
| 5        | Subgrade Stabilization (Est.)   | 400      | SY   | \$15.00     | \$6,000.00   |
| 6        | Unclassified Excavation         | 1500     | CY   | \$14.00     | \$21,000.00  |
| 7        | Concrete Curb & Gutter (Type B) | 2000     | LF   | \$30.00     | \$60,000.00  |
| 8        | Pavers                          | 1000     | SF   | \$55.00     | \$55,000.00  |
| 9        | Concrete Sidewalk (4")          | 800      | SF   | \$10.00     | \$8,000.00   |
| 10       | Landscaping                     | 1        | LS   | \$85,000.00 | \$85,000.00  |
| 11       | Storm Inlet Adjustments         | 7        | Each | \$2,500.00  | \$17,500.00  |
| 12       | Sod                             | 300      | SY   | \$8.00      | \$2,400.00   |
| 13       | Cycle Track "Green" Marking     | 16200    | SF   | \$12.00     | \$194,400.00 |
| 14       | Pavement Marking Solid White    | 4000     | LF   | \$2.00      | \$8,000.00   |
| 15       | Pavement Marking Solid Yellow   | 3400     | LF   | \$2.00      | \$6,800.00   |
| 16       | Pavement Marking Dashed White   | 1700     | LF   | \$1.50      | \$2,550.00   |
| 17       | Pavement Marking "Arrows"       | 8        | Each | \$500.00    | \$4,000.00   |
| 18       | Pavement Marking X-Walk         | 11       | Each | \$600.00    | \$6,600.00   |
|          |                                 |          |      |             |              |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$617,250.00        |
| 20% Contingency | \$123,450.00        |
| Total           | <u>\$740,700.00</u> |

**#10 - ACTIVE BOULEVARD****Spruce and Chestnut (660') Advisory Bike Lane (1 side only)****10/1/2019**

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                    | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 2        | Clearing and Grubbing           | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 3        | Demolition and Removal          | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 4        | Contractor Construction Staking | 1        | LS   | \$3,000.00  | \$3,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$3,000.00  | \$3,000.00  |
| 6        | Concrete Sidewalk/Sidepath (4") | 5500     | SF   | \$10.00     | \$55,000.00 |
| 7        | Concrete Driveways (6")         | 350      | SY   | \$85.00     | \$29,750.00 |
| 8        | Permenant Signage               | 4        | Each | \$1,000.00  | \$4,000.00  |
| 9        | Solid White Pavement Marking    | 660      | LF   | \$2.50      | \$1,650.00  |
| 10       | Pavement Marking "Bicycle"      | 6        | Each | \$750.00    | \$4,500.00  |
| 11       | Pavement Marking X-Walk         | 3        | Each | \$600.00    | \$1,800.00  |
| 12       | Sod                             | 500      | SY   | \$8.00      | \$4,000.00  |
|          |                                 |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$126,700.00        |
| 20% Contingency | \$25,340.00         |
| Total           | <u>\$152,040.00</u> |

## #12 - SHARED USE PATH

## Poplar to Cherry

10/1/2019

| Item No. | Item                             | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|----------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                     | 1        | LS   | \$40,000.00 | \$40,000.00 |
| 2        | Clearing and Grubbing            | 1        | LS   | \$25,000.00 | \$25,000.00 |
| 3        | Demolition and Removal           | 1        | LS   | \$50,000.00 | \$50,000.00 |
| 4        | Contractor Construction Staking  | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 5        | Traffic Control                  | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 6        | Subgrade Stabilization (Est.)    | 1600     | SY   | \$15.00     | \$24,000.00 |
| 7        | Unclassified Excavation          | 150      | CY   | \$14.00     | \$2,100.00  |
| 8        | Compacted Embankment             | 300      | CY   | \$5.00      | \$1,500.00  |
| 9        | Concrete Curb & Gutter (Type B)  | 100      | LF   | \$30.00     | \$3,000.00  |
| 10       | Aggregate Base under Paving      | 400      | Ton  | \$20.00     | \$8,000.00  |
| 11       | 10' Asphalt Side Path            | 650      | Ton  | \$80.00     | \$52,000.00 |
| 12       | Guardrail, Steel Plate (MGS)     | 500      | LF   | \$50.00     | \$25,000.00 |
| 13       | Guardrail End Terminal (MGS-SRT) | 8        | Each | \$3,500.00  | \$28,000.00 |
| 14       | Large Block Retaining Wall       | 1200     | FF   | \$50.00     | \$60,000.00 |
| 15       | Decorative Lighting              | 15       | Each | \$6,000.00  | \$90,000.00 |
| 16       | Concrete Sidewalk (4")           | 600      | SF   | \$10.00     | \$6,000.00  |
| 17       | Landscaping                      | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 18       | Fencing                          | 600      | LF   | \$50.00     | \$30,000.00 |
| 19       | 10' Pedestrian Bridge            | 45       | LF   | \$1,500.00  | \$67,500.00 |
| 20       | Rip Rap                          | 350      | SY   | \$75.00     | \$26,250.00 |
| 21       | Sod                              | 1000     | SY   | \$8.00      | \$8,000.00  |
| 22       | Seed                             | 0.9      | Acre | \$750.00    | \$675.00    |
| 23       | Pavement Marking X-Walk          | 3        | Each | \$600.00    | \$1,800.00  |
|          |                                  |          |      |             |             |

|                 |              |
|-----------------|--------------|
| sub-total       | \$593,825.00 |
| 20% Contingency | \$118,765.00 |
| Total           | \$712,590.00 |

## #13.1 - MILL CREEK GREENWAY PATH

## Cedar to Loula

10/1/2019

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                    | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 2        | Clearing and Grubbing           | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 3        | Demolition and Removal          | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 4        | Contractor Construction Staking | 1        | LS   | \$4,000.00  | \$4,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 6        | Subgrade Stabilization (Est.)   | 650      | SY   | \$15.00     | \$9,750.00  |
| 7        | Unclassified Excavation         | 100      | CY   | \$14.00     | \$1,400.00  |
| 8        | Compacted Embankment            | 150      | CY   | \$5.00      | \$750.00    |
| 10       | Aggregate Base under Paving     | 135      | Ton  | \$20.00     | \$2,700.00  |
| 11       | 10' Asphalt Side Path           | 150      | Ton  | \$80.00     | \$12,000.00 |
| 14       | Large Block Retaining Wall      | 500      | FF   | \$50.00     | \$25,000.00 |
| 15       | Decorative Lighting             | 4        | Each | \$6,000.00  | \$24,000.00 |
| 16       | Concrete Sidewalk (4")          | 250      | SF   | \$10.00     | \$2,500.00  |
| 19       | Landscaping                     | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 20       | Sod                             | 3500     | SY   | \$8.00      | \$28,000.00 |
| 21       | Pavement Marking X-Walk         | 1        | Each | \$600.00    | \$600.00    |
|          |                                 |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$170,700.00        |
| 20% Contingency | \$34,140.00         |
| Total           | <u>\$204,840.00</u> |

## #13.2 - MILL CREEK GREENWAY PATH

## Loula to Park

10/1/2019

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                    | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 2        | Clearing and Grubbing           | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 3        | Demolition and Removal          | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 4        | Contractor Construction Staking | 1        | LS   | \$3,000.00  | \$3,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 6        | Subgrade Stabilization (Est.)   | 250      | SY   | \$15.00     | \$3,750.00  |
| 7        | Unclassified Excavation         | 100      | CY   | \$14.00     | \$1,400.00  |
| 8        | Compacted Embankment            | 150      | CY   | \$5.00      | \$750.00    |
| 9        | Aggregate Base under Paving     | 50       | Ton  | \$20.00     | \$1,000.00  |
| 10       | 6' Asphalt Side Path            | 60       | Ton  | \$80.00     | \$4,800.00  |
| 11       | Large Block Retaining Wall      | 300      | FF   | \$50.00     | \$15,000.00 |
| 12       | Decorative Lighting             | 4        | Each | \$6,000.00  | \$24,000.00 |
| 13       | Concrete Sidewalk (4")          | 100      | SF   | \$10.00     | \$1,000.00  |
| 14       | Landscaping                     | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 15       | Sod                             | 250      | SY   | \$8.00      | \$2,000.00  |
| 16       | Pavement Marking X-Walk         | 1        | Each | \$600.00    | \$600.00    |
|          |                                 |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$107,300.00        |
| 20% Contingency | \$21,460.00         |
| Total           | <u>\$128,760.00</u> |

**#13.3 - OPTION 1 - MILL CREEK GREENWAY PATH****Park to Santa Fe (No Ped Bridge)****10/1/2019**

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                    | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 2        | Clearing and Grubbing           | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 3        | Demolition and Removal          | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 4        | Contractor Construction Staking | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 6        | Subgrade Stabilization (Est.)   | 400      | SY   | \$15.00     | \$6,000.00  |
| 7        | Unclassified Excavation         | 120      | CY   | \$14.00     | \$1,680.00  |
| 8        | Compacted Embankment            | 180      | CY   | \$5.00      | \$900.00    |
| 9        | Aggregate Base under Paving     | 90       | Ton  | \$20.00     | \$1,800.00  |
| 10       | 6' Asphalt Side Path            | 100      | Ton  | \$80.00     | \$8,000.00  |
| 11       | Large Block Retaining Wall      | 600      | FF   | \$50.00     | \$30,000.00 |
| 12       | Decorative Lighting             | 7        | Each | \$6,000.00  | \$42,000.00 |
| 13       | Concrete Sidewalk (4")          | 100      | SF   | \$10.00     | \$1,000.00  |
| 14       | Landscaping                     | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 15       | Sod                             | 400      | SY   | \$8.00      | \$3,200.00  |
| 16       | Pavement Marking X-Walk         | 1        | Each | \$600.00    | \$600.00    |
|          |                                 |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$170,180.00        |
| 20% Contingency | \$34,036.00         |
| <b>Total</b>    | <b>\$204,216.00</b> |

**#13.3 - OPTION 2 - MILL CREEK GREENWAY PATH****Park to Santa Fe (Including Ped Bridge)****10/1/2019**

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                    | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 2        | Clearing and Grubbing           | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 3        | Demolition and Removal          | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 4        | Contractor Construction Staking | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 6        | Subgrade Stabilization (Est.)   | 425      | SY   | \$15.00     | \$6,375.00  |
| 7        | Unclassified Excavation         | 150      | CY   | \$14.00     | \$2,100.00  |
| 8        | Compacted Embankment            | 200      | CY   | \$5.00      | \$1,000.00  |
| 9        | Aggregate Base under Paving     | 95       | Ton  | \$20.00     | \$1,900.00  |
| 10       | 6' Asphalt Side Path            | 110      | Ton  | \$80.00     | \$8,800.00  |
| 11       | Large Block Retaining Wall      | 725      | FF   | \$50.00     | \$36,250.00 |
| 12       | 10' Pedestrian Bridge           | 50       | LF   | \$1,500.00  | \$75,000.00 |
| 13       | Decorative Lighting             | 7        | Each | \$6,000.00  | \$42,000.00 |
| 14       | Concrete Sidewalk (4")          | 100      | SF   | \$10.00     | \$1,000.00  |
| 15       | Landscaping                     | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 16       | Sod                             | 420      | SY   | \$8.00      | \$3,360.00  |
| 17       | Pavement Marking X-Walk         | 1        | Each | \$600.00    | \$600.00    |
|          |                                 |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$253,385.00        |
| 20% Contingency | \$50,677.00         |
| Total           | <u>\$304,062.00</u> |

**#13.4 - MILL CREEK GREENWAY PATH****Santa Fe to Poplar (Removal of Water Street)****10/1/2019**

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                    | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 2        | Clearing and Grubbing           | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 3        | Demolition and Removal          | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 4        | Contractor Construction Staking | 1        | LS   | \$7,000.00  | \$7,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 6        | Subgrade Stabilization (Est.)   | 650      | SY   | \$15.00     | \$9,750.00  |
| 7        | Unclassified Excavation         | 400      | CY   | \$14.00     | \$5,600.00  |
| 8        | Compacted Embankment            | 200      | CY   | \$5.00      | \$1,000.00  |
| 9        | Aggregate Base under Paving     | 140      | Ton  | \$20.00     | \$2,800.00  |
| 10       | 10' Asphalt Path (Water Street) | 160      | Ton  | \$80.00     | \$12,800.00 |
| 11       | Large Block Retaining Wall      | 900      | FF   | \$50.00     | \$45,000.00 |
| 12       | Decorative Lighting             | 7        | Each | \$6,000.00  | \$42,000.00 |
| 13       | Concrete Sidewalk (4")          | 100      | SF   | \$10.00     | \$1,000.00  |
| 14       | Landscaping                     | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 15       | Sod                             | 600      | SY   | \$8.00      | \$4,800.00  |
| 16       | Permenant Signage               | 3        | Each | \$1,000.00  | \$3,000.00  |
| 17       | Pavement Marking X-Walk         | 1        | Each | \$600.00    | \$600.00    |
|          |                                 |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$220,350.00        |
| 20% Contingency | \$44,070.00         |
| Total           | <u>\$264,420.00</u> |

**#14 - PEDESTRIAN UNDERPASS****Santa Fe RCB Replacement****12/30/2019**

| Item No. | Item                                        | Quantity | Unit | Unit Cost   | Total Cost   |
|----------|---------------------------------------------|----------|------|-------------|--------------|
| 1        | Mobilization                                | 1        | LS   | \$50,000.00 | \$50,000.00  |
| 2        | Clearing and Grubbing                       | 1        | LS   | \$10,000.00 | \$10,000.00  |
| 3        | Demolition and Removal                      | 1        | LS   | \$15,000.00 | \$15,000.00  |
| 4        | Contractor Construction Staking             | 1        | LS   | \$8,000.00  | \$8,000.00   |
| 5        | Traffic Control                             | 1        | LS   | \$25,000.00 | \$25,000.00  |
| 6        | Subgrade Stabilization (Est.)               | 1200     | SY   | \$15.00     | \$18,000.00  |
| 7        | Unclassified Excavation                     | 1500     | CY   | \$14.00     | \$21,000.00  |
| 8        | Compacted Embankment                        | 1000     | CY   | \$5.00      | \$5,000.00   |
| 9        | Surface HMA-Commercial Grade (Class A) (2") | 140      | Ton  | \$80.00     | \$11,200.00  |
| 10       | Base HMA-Commercial Grade (Class A) (8")    | 550      | Ton  | \$80.00     | \$44,000.00  |
| 11       | Concrete Curb & Gutter (Type B)             | 550      | LF   | \$30.00     | \$16,500.00  |
| 12       | Brick Median                                | 600      | SF   | \$55.00     | \$33,000.00  |
| 13       | Concrete Sidewalk (4")                      | 3200     | SF   | \$10.00     | \$32,000.00  |
| 14       | Guardrail, Steel Plate (MGS)                | 240      | LF   | \$50.00     | \$12,000.00  |
| 15       | Guardrail End Terminal (MGS-SRT)            | 4        | Each | \$3,500.00  | \$14,000.00  |
| 16       | RCB (Triple 9'x10')                         | 120      | LF   | \$3,500.00  | \$420,000.00 |
| 17       | Lighting in the RCB                         | 1        | LS   | \$38,000.00 | \$38,000.00  |
| 18       | Area Inlet (5'x5')                          | 4        | Each | \$5,500.00  | \$22,000.00  |
| 19       | Storm Sewer Pipe (30")(RCP)                 | 80       | LF   | \$100.00    | \$8,000.00   |
| 20       | End Section                                 | 1        | Each | \$1,000.00  | \$1,000.00   |
| 21       | Rip Rap                                     | 650      | SY   | \$75.00     | \$48,750.00  |
| 22       | Sod                                         | 500      | SY   | \$8.00      | \$4,000.00   |
| 23       | Pavement Marking Symbols                    | 2        | Each | \$350.00    | \$700.00     |
| 24       | Pavement Marking                            | 250      | LF   | \$2.00      | \$500.00     |

|                 |                       |
|-----------------|-----------------------|
| sub-total       | \$857,650.00          |
| 20% Contingency | \$171,530.00          |
| Total           | <u>\$1,029,180.00</u> |

**Trail Connection at Santa Fe**

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|---------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                    | 1        | LS   | \$18,000.00 | \$18,000.00 |
| 2        | Clearing and Grubbing           | 1        | LS   | \$5,000.00  | \$5,000.00  |
| 3        | Demolition and Removal          | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 4        | Contractor Construction Staking | 1        | LS   | \$3,000.00  | \$3,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$3,500.00  | \$3,500.00  |
| 6        | Subgrade Stabilization (Est.)   | 300      | SY   | \$12.50     | \$3,750.00  |
| 7        | Unclassified Excavation         | 950      | CY   | \$7.00      | \$6,650.00  |
| 8        | Compacted Embankment            | 250      | CY   | \$2.50      | \$625.00    |
| 9        | Concrete Sidewalk & Trail (4")  | 3500     | SF   | \$10.00     | \$35,000.00 |
| 10       | Large Block Retaining Wall      | 2000     | FF   | \$45.00     | \$90,000.00 |
| 11       | Rip Rap                         | 125      | SY   | \$75.00     | \$9,375.00  |
| 12       | Sod                             | 650      | SY   | \$8.00      | \$5,200.00  |
| 13       | Landscaping                     | 1        | LS   | \$15,000.00 | \$15,000.00 |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$205,100.00        |
| 20% Contingency | \$41,020.00         |
| Total           | <u>\$246,120.00</u> |

\*\*\*ASSUMED 100 FEET NORTH AND SOUTH OF RCB TO CONNECT INTO PROPOSED TRAIL.\*\*\*

**#17 - LOULA ACTIVEWAY SIDEPATH****Kansas Ave. to Mill Creek****10/1/2019**

| Item No. | Item                            | Quantity | Unit | Unit Cost   | Total Cost   |
|----------|---------------------------------|----------|------|-------------|--------------|
| 1        | Mobilization                    | 1        | LS   | \$40,000.00 | \$40,000.00  |
| 2        | Clearing and Grubbing           | 1        | LS   | \$10,000.00 | \$10,000.00  |
| 3        | Demolition and Removal          | 1        | LS   | \$50,000.00 | \$50,000.00  |
| 4        | Contractor Construction Staking | 1        | LS   | \$10,000.00 | \$10,000.00  |
| 5        | Traffic Control                 | 1        | LS   | \$25,000.00 | \$25,000.00  |
| 6        | Subgrade Stabilization (Est.)   | 480      | SY   | \$15.00     | \$7,200.00   |
| 7        | Unclassified Excavation         | 500      | CY   | \$14.00     | \$7,000.00   |
| 8        | Concrete Curb & Gutter (Type B) | 450      | LF   | \$30.00     | \$13,500.00  |
| 9        | Aggregate Base under Paving     | 100      | Ton  | \$20.00     | \$2,000.00   |
| 10       | 10' Asphalt Side Path           | 120      | Ton  | \$80.00     | \$9,600.00   |
| 11       | Concrete Sidewalk (4")          | 660      | SF   | \$10.00     | \$6,600.00   |
| 12       | Concrete Driveway               | 125      | SY   | \$85.00     | \$10,625.00  |
| 13       | Landscaping                     | 1        | LS   | \$30,000.00 | \$30,000.00  |
| 14       | Storm Inlet Top Adjustments     | 6        | Each | \$1,500.00  | \$9,000.00   |
| 15       | Sod                             | 475      | SY   | \$8.00      | \$3,800.00   |
| 16       | Cycle Track "Green" Marking     | 13330    | SF   | \$12.00     | \$159,960.00 |
| 17       | Pavement Marking Solid White    | 3500     | LF   | \$2.00      | \$7,000.00   |
| 18       | Pavement Marking Dashed White   | 1500     | LF   | \$1.50      | \$2,250.00   |
| 19       | Pavement Marking Arrows         | 4        | Each | \$500.00    | \$2,000.00   |
| 20       | Pavement Marking X-Walk         | 10       | Each | \$600.00    | \$6,000.00   |
|          |                                 |          |      |             |              |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$411,535.00        |
| 20% Contingency | \$82,307.00         |
| Total           | <u>\$493,842.00</u> |

**#21 - KC ROAD SIDEPATH****Nelson Rd to Cherry (4800')****10/1/2019**

| Item No. | Item                                            | Quantity | Unit | Unit Cost   | Total Cost  |
|----------|-------------------------------------------------|----------|------|-------------|-------------|
| 1        | Mobilization                                    | 1        | LS   | \$50,000.00 | \$50,000.00 |
| 2        | Clearing and Grubbing                           | 1        | LS   | \$10,000.00 | \$10,000.00 |
| 3        | Demolition and Removal                          | 1        | LS   | \$50,000.00 | \$50,000.00 |
| 4        | Contractor Construction Staking                 | 1        | LS   | \$15,000.00 | \$15,000.00 |
| 5        | Traffic Control                                 | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 6        | Subgrade Stabilization (Est.)                   | 4300     | SY   | \$15.00     | \$64,500.00 |
| 7        | Unclassified Excavation                         | 180      | CY   | \$14.00     | \$2,520.00  |
| 8        | Compacted Embankment                            | 700      | CY   | \$5.00      | \$3,500.00  |
| 9        | Concrete Curb & Gutter (Type B)                 | 480      | LF   | \$80.00     | \$38,400.00 |
| 10       | Aggregate Base under Paving                     | 900      | Ton  | \$20.00     | \$18,000.00 |
| 11       | 8' Asphalt Side Path                            | 1000     | Ton  | \$80.00     | \$80,000.00 |
| 12       | Guardrail, Steel Plate (MGS)                    | 50       | LF   | \$50.00     | \$2,500.00  |
| 13       | Guardrail End Terminal (MGS-SRT)                | 1        | Each | \$3,500.00  | \$3,500.00  |
| 14       | Large Block Retaining Wall                      | 500      | FF   | \$50.00     | \$25,000.00 |
| 15       | Decorative Lighting (Between Cherry & Woodland) | 10       | Each | \$6,000.00  | \$60,000.00 |
| 16       | Concrete Sidewalk (4")                          | 600      | SF   | \$10.00     | \$6,000.00  |
| 17       | Concrete Driveways (6")                         | 800      | SY   | \$85.00     | \$68,000.00 |
| 18       | Storm Sewer Top Adjustments                     | 15       | Each | \$1,200.00  | \$18,000.00 |
| 19       | Landscaping                                     | 1        | LS   | \$20,000.00 | \$20,000.00 |
| 20       | Sod                                             | 3500     | SY   | \$8.00      | \$28,000.00 |
| 21       | Pavement Marking X-Walk                         | 6        | Each | \$600.00    | \$3,600.00  |
|          |                                                 |          |      |             |             |

|                 |                     |
|-----------------|---------------------|
| sub-total       | \$586,520.00        |
| 20% Contingency | \$117,304.00        |
| Total           | <u>\$703,824.00</u> |

**#2 & #3 - PARK AVE. BIKE TRACK & UNDERPASS****Walnut to Kansas****10/1/2019**

| Item No. | Item                            | Quantity | Unit | Unit Cost    | Total Cost     |
|----------|---------------------------------|----------|------|--------------|----------------|
| 1        | Mobilization                    | 1        | LS   | \$150,000.00 | \$150,000.00   |
| 2        | Demolition and Removal          | 1        | LS   | \$80,000.00  | \$80,000.00    |
| 3        | Contractor Construction Staking | 1        | LS   | \$65,000.00  | \$65,000.00    |
| 4        | Traffic Control                 | 1        | LS   | \$30,000.00  | \$30,000.00    |
| 5        | Subgrade Stabilization (Est.)   | 2100     | SY   | \$15.00      | \$31,500.00    |
| 6        | Unclassified Excavation         | 725      | CY   | \$14.00      | \$10,150.00    |
| 7        | Concrete Curb & Gutter (Type B) | 440      | LF   | \$30.00      | \$13,200.00    |
| 8        | Aggregate Base under Paving     | 450      | Ton  | \$20.00      | \$9,000.00     |
| 9        | 10" Asphalt Surface & Base      | 850      | Ton  | \$80.00      | \$68,000.00    |
| 10       | Concrete Sidewalk (4")          | 3250     | SF   | \$10.00      | \$32,500.00    |
| 11       | Concrete Driveway               | 660      | SY   | \$85.00      | \$56,100.00    |
| 12       | Concrete Paving (Trail)         | 750      | SY   | \$85.00      | \$63,750.00    |
| 13       | Landscaping                     | 1        | LS   | \$20,000.00  | \$20,000.00    |
| 14       | Lighting                        | 1        | LS   | \$25,000.00  | \$25,000.00    |
| 15       | Sod                             | 300      | SY   | \$8.00       | \$2,400.00     |
| 16       | 10'x9' Underpass                | 100      | LF   | \$22,000.00  | \$2,200,000.00 |
| 17       | Concrete Retaining Wall         | 5000     | FF   | \$50.00      | \$250,000.00   |
| 18       | Covered Trail Entrance          | 4000     | SF   | \$100.00     | \$400,000.00   |
| 19       | Pavement Marking Solid White    | 350      | LF   | \$2.00       | \$700.00       |
| 20       | Pavement Marking Dashed White   | 650      | LF   | \$1.50       | \$975.00       |
| 21       | Permanent Signage               | 10       | Each | \$1,000.00   | \$10,000.00    |
| 22       | Pavement Marking X-Walk         | 4        | Each | \$600.00     | \$2,400.00     |
|          |                                 |          |      |              |                |

|                 |                       |
|-----------------|-----------------------|
| sub-total       | \$3,520,675.00        |
| 20% Contingency | \$704,135.00          |
| Total           | <u>\$4,224,810.00</u> |

## SECTION 2: TRAFFIC COUNTS

Traffic Impact Study

