

Route 9 Corridor Study

PARKVILLE + RIVERSIDE + MARC

MODOT + PLATTE COUNTY + PARK UNIVERSITY

ACKNOWLEDGEMENTS

We are grateful for the advisory contributions from the Project Steering Committee. We especially appreciate the wonderful support from the City of Parkville: Mayor Nan Johnston and City Administrator Lauren Palmer, who helped facilitate the study. The consulting team appreciates the detailed input from interactions with local citizens at public meetings and one-on-one meetings.

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Platte County
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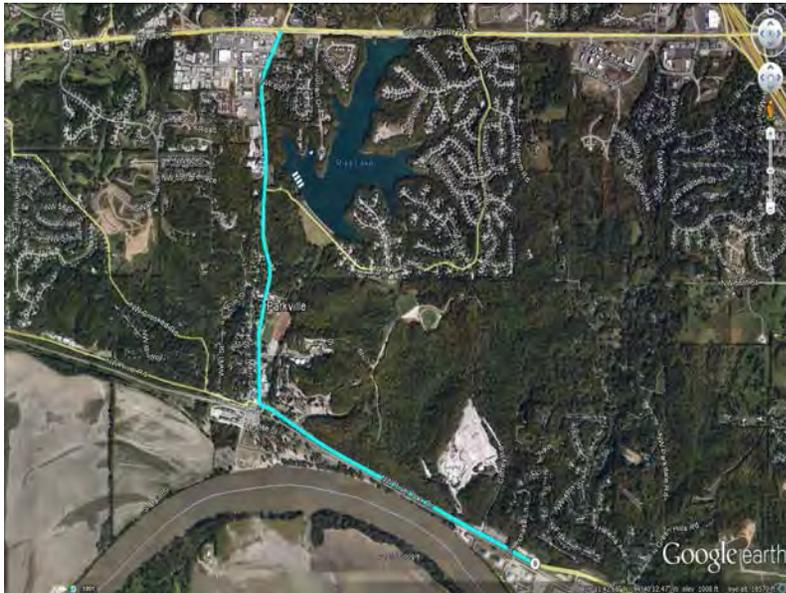
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ROUTE 9 CORRIDOR STUDY

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SECTION 1

Introduction

The Mid-America Regional Council (MARC), with financial support from MoDOT, the City of Parkville, the City of Riverside, Platte County, and Park University, sent out a request for a consultant team to analyze and make significant design improvements to Route 9 from Mattox Road to Route 45. The selected consultant team was lead by CFS Engineers (civil engineering firm) and included BNIM (architecture firm), Trekk Design Group (civil engineering firm), and MCD Associates (law firm). The team began work on April 22nd, 2015 and completed their corridor study consisting of design and recommendations on January 16th, 2016.

Missouri Route 9 begins in downtown Kansas City at Interstate 35, crosses the Missouri River using the Heart of America Bridge, follows along the river to downtown Parkville then heads north and ends at Interstate 29. Route 9 was established in 1922 under the jurisdiction of the Missouri Department of Transportation (MoDOT).

The Missouri Route 9 Corridor Study is a continuation of the efforts of the City of Parkville to transform their community in a visionary direction represented in Vision Downtown Parkville (2014) and Livable Communities Study (2013). The Route 9 corridor is the “Main Street” of the downtown from a transportation standpoint, and it’s the City’s goal to re-create the corridor in a way that it enhances all modes of transportation, including pedestrians, bicyclists and transit, while improving safety and mobility. The stated purpose of the Route 9 Corridor Study was to go beyond planning and into preliminary design of future improvements in which the City can plan and budget. The plans need to promote traffic safety, mitigate the growing congestion issues, include complete street design elements, provide multimodal facilities, incorporate future land use goals, and enhance the local aesthetics. The study condensed the 4-mile project into 12 prioritized project areas so sub-project costs and funding could be established.

The consultant team was provided with GIS Data, existing traffic data/studies, and existing plans for adjacent development. The consultant subsequently performed a LiDAR survey on Route 9 from the Park University Entrance Drive to Route 45 and at other major intersections along Route 9. Once the survey was scanned, the consultant created a CAD file base map from the topographic information and merged the survey DTM with the GIS LiDAR DTM.

Once a typical cross-section of Route 9 was determined from three alternative designs, preliminary drawings were based on the existing centerline and right-of-way boundaries. Based on one-on-one meetings with local business and property owners and two public meetings, concerns of the locals were established and the design was altered to accommodate these challenges.

This report is the culmination of more than 25 one-on-one meetings with local property owners and stakeholders, six steering committee meetings with input from civic organizations, several Board of Aldermen meetings, and two well attended public meetings. The technical work was integrated with the values and concerns of the public to meet the goals for the project.

GUIDING PRINCIPLES

Vision Downtown Parkville, adopted in August 2014, prompted the Route 9 Corridor Study to determine how best to improve highway safety and efficiently move traffic while providing improved pedestrian access from 45 Highway to Downtown. The Vision Downtown Parkville was developed with a tremendous amount of public involvement and support from many of the same stakeholders, business leaders and organizations involved in this study. It was clear these community leaders believed the best chance for adoption of any future improvement plans needed to be built on the vision already created.

THE THEME FOR THIS EFFORT IS:

“Preserving the character of Downtown, while capitalizing on opportunities to enhance commerce, economic activity, and community interaction is critical to the future success of Downtown Parkville.”

THIS IS ACCOMPLISHED BY:

- Focus on making connections in all directions and at multiple scales.
- Preserve and enhance the vitality of Downtown Parkville as the economic and community center of the City.
- Respect the character of Parkville.
- Emphasize the long-term vitality of all proposed improvements to the corridor.
- Minimize negative impacts on adjacent property owners.
- Appreciate the importance of parks and natural resources to Parkville.
- Create and support opportunities for compatible economic development.
- Balance the needs of commuters with local needs such as pedestrian access, aesthetics, and convenient access to commercial properties.



PROJECT GOALS

The goals and objectives established for the Missouri Route 9 Corridor Study were developed with the Steering Committee at the Kick-off meeting, held on May 4, 2015. It was the direction of the steering committee to establish goals and objectives that were specific and clear so as to guide the implementation of improvements well into the future.

- **Mitigate safety and capacity issues, and minimize traffic conflicts, on Route 9.**
- **Enhance aesthetics and pedestrian movements, particularly in proximity to Downtown Parkville and Park University.**
- **Accommodate compatible new development and redevelopment along the corridor.**
- **Reduce future construction costs by facilitating the reservation of right-of-way for future improvements.**
- **Position the participating public entities to compete in future transportation grant cycles for eligible improvements in the corridor.**

PREVIOUS STUDIES

The following pages outline the recommendations made from previous studies in Parkville. The previous studies include the 2009 Master Plan, the Regional Multimodal Access and Livable Community Study, and Vision Downtown Parkville. The Vision Downtown Parkville outlines future land use, future sidewalks and trails, and redevelopment scenarios of East Street.



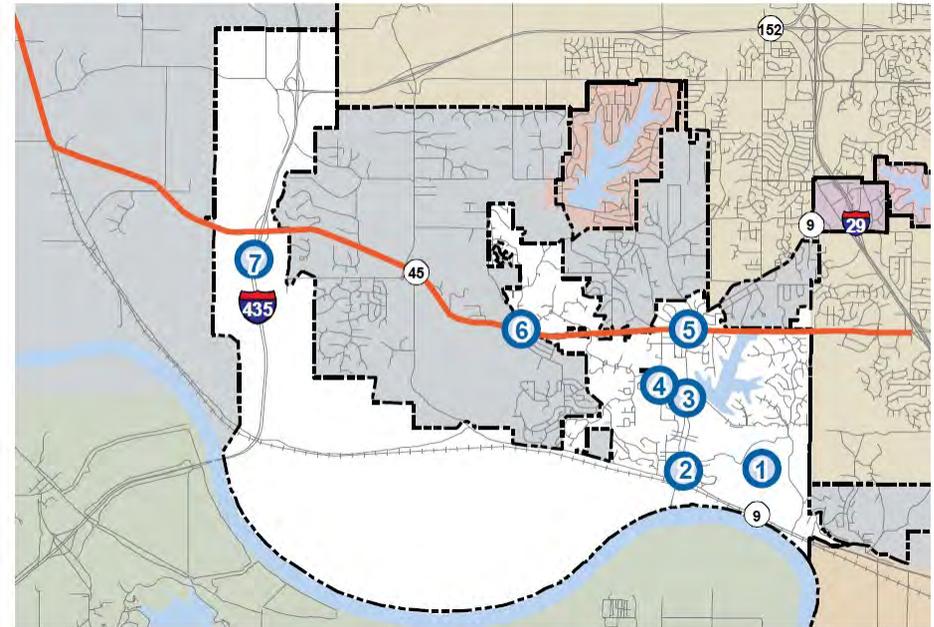
BUILDING ON THE 2009 MASTER PLAN

The 2009 Parkville Master Plan set the stage for improvements to the Route 9 Corridor, identifying focus areas for investment, outlining connectivity improvements for all modes of transportation, and recommending detailed analysis for Downtown, Route 9, and other strategic areas.

KEY RECOMMENDATIONS

- Promote a built environment through building form, scale, placement and architectural design to provide a sense of place and reinforce the street as civic space.
- Provide a well-designed and interconnected mix of vibrant neighborhoods, parks and green space, schools and civic institutions, businesses and employment centers.
- Enhance the character downtown through its built environment, pedestrian realm, streetscape, entrance gateways and intimate civic spaces.
- Strengthen the connectivity and relationship between downtown and surrounding neighborhoods, educational institutions and riverfront park spaces.
- Promote strategic residential development creating a critical mass for downtown businesses.
- Promote strategic reinvestment.
- Provide a balanced interconnected street network that provides connectivity between neighborhoods, provides multiple travel routes, reduces the number and length of automobile trips and conserves energy through fewer and shorter automobile trips.
- Provide alternative context-sensitive street design standards that respect local topography, minimize the amount of impervious surfaces, conserve open space and protect natural features and water quality.
- Provide convenient access to a framework of transportation alternatives, including pedestrian and bicycle systems, public transit and multi-modal transportation options that reduce dependence upon the automobile.

Development / Reinvestment Nodes



REGIONAL MULTIMODAL ACCESS AND LIVABLE COMMUNITY STUDY

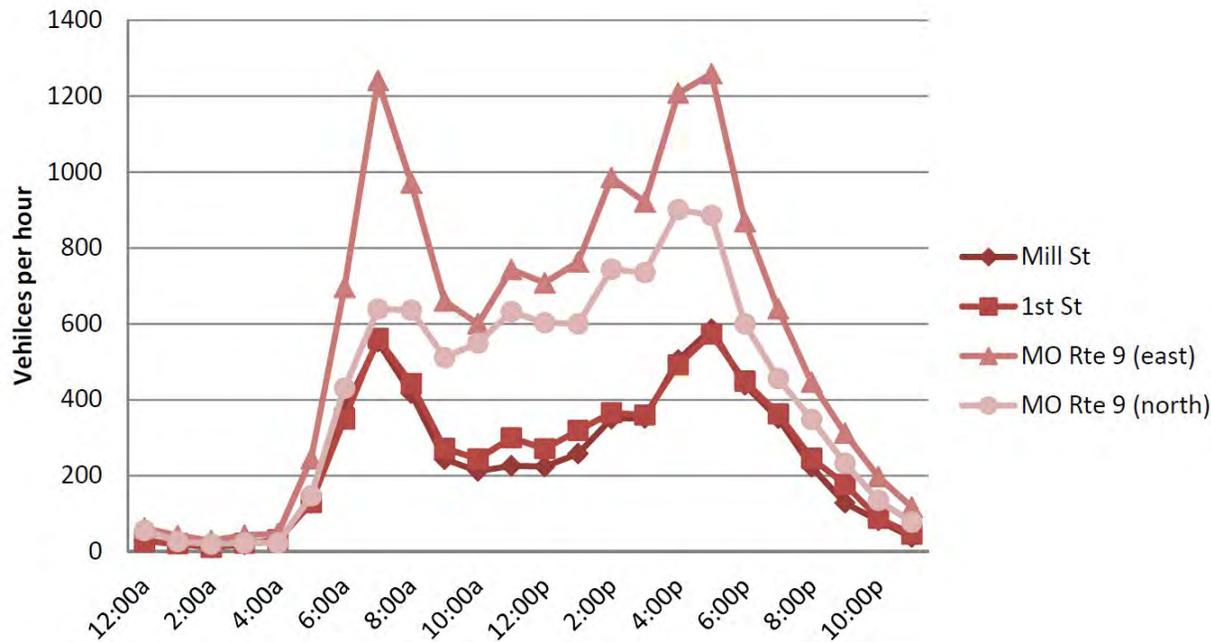
Completed in 2013, the Parkville Regional Multi-Modal Access and Livable Community Study was an effort to coordinate transportation and livability improvements in a strategic way and to identify solutions to traffic and other mobility challenges that detract from the livability of Parkville. The multimodal study identified recent investments in parks, trails, and Downtown Parkville and explored areas of concern related to traffic congestion, safety, and overall mobility.

In the development of a recommended roadway design, the Route 9 Corridor study builds upon the 2013 multimodal study including its analysis of existing and historic traffic volumes, speed data, accident data, and other information. Recommendations in the multimodal study for trail opportunities, sidewalk connections, community gateways, streetscape and public space improvements, and railroad enhancements also inform the ultimate design.



The Parkville Regional Multi-Modal Access and Livable Community Study identified the intersection of Route 9 / 1st Street / East Street at a location for a potential roundabout. Peak Hour traffic demand exceeded the capacity of a roundabout upon further analysis.

Exhibit 4. Hourly Traffic Volumes



The Community Study also identified the possibility of a potential squareabout to mitigate downtown congestion. Due to the frequency of trains through downtown, adding a traffic signal at the Route 9 / 1st Street / East Street intersection provided better results for reducing travel times.

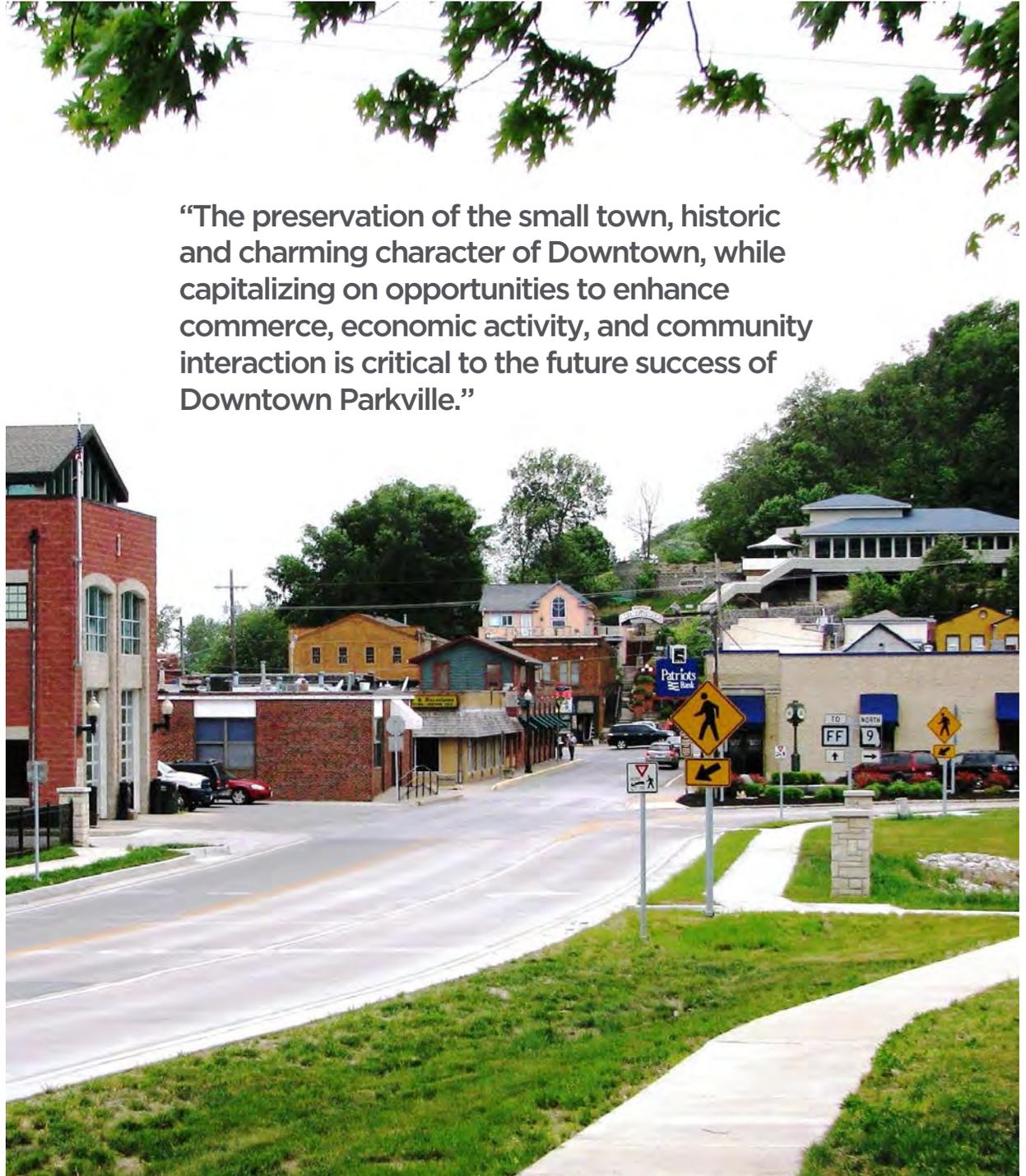
VISION DOWNTOWN PARKVILLE

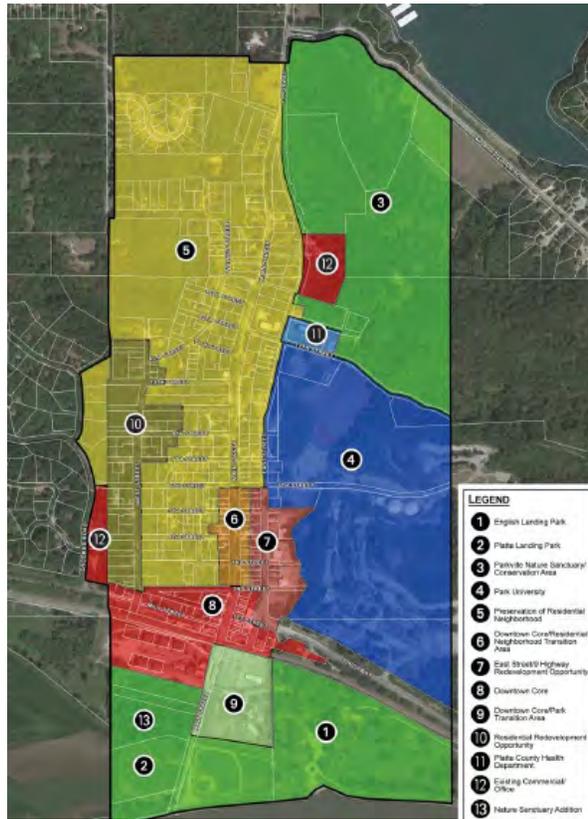
In 2014 the city continued to refine its' vision of what their beautiful downtown could ultimately become. The completion of Vision Downtown Parkville (VDP) further set the stage and direction for the work of the Route 9 Corridor study. The key points of VDP are:

KEY RECOMMENDATIONS

- Expand the boundaries of the Downtown commercial shopping district in a way that complements the character and mix of uses that already exist.
- Encourage the Downtown Commercial district to provide a more balanced mix of services that meet both the needs of the community and out-of-town visitors.
- Improve connectivity by enhancing the pedestrian environment in Downtown Parkville.
- Preserve and protect vehicular flow in and around Downtown.
- Prepare a Design Guideline that provides direction and guidance for the redevelopment of East Street so that it fits with the desired Downtown character.
- Evolve a streetscape redevelopment plan in the commercial core of Downtown to address the worn and tired existing streetscape.

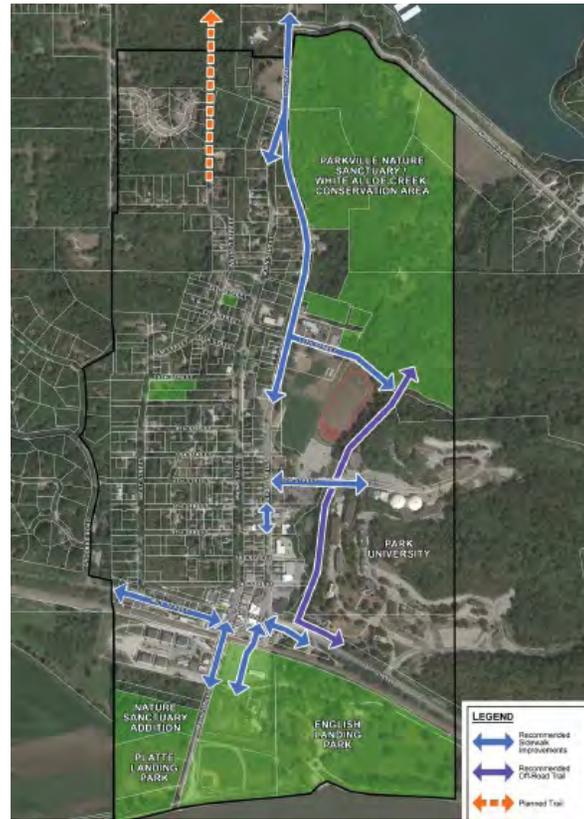
“The preservation of the small town, historic and charming character of Downtown, while capitalizing on opportunities to enhance commerce, economic activity, and community interaction is critical to the future success of Downtown Parkville.”





FUTURE LAND USE

Vision Downtown Parkville’s Future Land Use strategy “identifies the recommended land use patterns that should be used to guide future planning decisions as they relate to development, redevelopment and infill in the Downtown Parkville area.” Because Route 9 passes through and connects the Downtown Core, East Street redevelopment area, residential transition areas, Park University, and valued natural areas, it is critical to consider the opportunities and impacts of future roadway improvements on the ultimate land use vision for Downtown Parkville.



FUTURE SIDEWALKS AND TRAILS

Vision Downtown Parkville provides a number of recommendations for sidewalk and trail improvements for the Downtown area, including along Route 9. The recommended design for Route 9 incorporates these recommendations and others to create a functional, inviting corridor for all users. Specific recommendations of the Vision Downtown Parkville plan include enhanced sidewalk and streetscape connections along East Street, new sidewalks along Route 9 to the north connecting Parkville Commons and 45 highway, sidewalk connections on 6th street and 12th Street, and potential improvements along White Alloe Creek.



REDEVELOPMENT OF EAST STREET

Vision Downtown Parkville states that “the 9 Highway/East Street corridor, from 1st Street to 6th Street, represents an excellent redevelopment opportunity that could serve as a catalyst for future growth and investment in Downtown Parkville. Given its significance within the transportation network of Parkville, a reimagined East Street could improve community connectivity, create additional commercial critical mass by effectively doubling the Downtown commercial area, and safely and efficiently move vehicular and pedestrian traffic, while also helping 9 Highway fit better into the Downtown character desired by the community.”

PROCESS

When analyzing the Route 9 corridor, the Project Team recognized characteristics that varied through different sections of the 4-mile study area. In an effort to ensure the greatest opportunity for acceptance of proposed improvements, the Project Team utilized a tailored process which included numerous one-on-one meetings with property owners at the beginning of work so that their ideas for the corridor could be included in the first concepts developed. Also included in the project approach was the analysis of future development along Route 9, its economic benefits and growth impacts for the area. Lastly, within the project process was the creation of potential funding scenarios that might be utilized by the City to pay for corridor improvements.

PROJECT SCHEDULE

| PHASE | MAY 2015 | JUN 2015 | JUL 2015 | AUG 2015 | SEP 2015 | OCT 2015 | NOV 2015 | DEC 2015 | JAN 2016 |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Data Collection | Active |
| Stakeholder Meetings | Active |
| Concept Development | Active |
| Public Meeting #1 | Active |
| Preliminary Design | Active |
| Public Meeting #2 | Active |
| Final Report | Active |

ENGAGEMENT

Project engagement began with the On-site Kick-off Meeting, Wednesday, April 22, 2015 from 1:30 – 2:30 p.m. at the Parkville City Hall. With two public meetings, five steering committee meetings, and 17 one-on-one meetings, the consultant team was able to establish the needs for the project and to efficiently work within project constraints. Included in the appendix are meeting minutes, results from public meetings, and notes taken from one-on-one meetings.

PUBLIC MEETINGS

At the first public meeting, Wednesday, August 5, 2015 from 6:00 – 7:30 p.m. at the Parkville Presbyterian Church, several concept designs were displayed on poster sized boards. The 65 registered attendees were given green dot stickers to indicate a preferred option and red dot stickers to indicate an unwanted option. The attendees placed their stickers on the display board and the results were incorporated into the design.

At the second public meeting, Thursday, October 29, 2015 from 6:00 – 7:30 p.m. at the Parkville Presbyterian Church, one preliminary design was presented along with costs per the twelve project segments (see Section 4). The 37 registered attendees were given twelve marbles with each marble representing a vote for a preferred option. The attendees dropped their marbles in any amount into twelve jars representing the project segments. The preferences were then recorded and used as part of the segment rank prioritizing process.

Public meeting display boards were available on the City's website for those who could not attend the public meetings and feedback from the electronically submitted comments were incorporated into the design. Display boards, attendance lists, feedback voting graphs, and comments are included in Appendix 6 - Meetings.



STEERING COMMITTEE

Steering committee meetings took place in the Parkville City Hall Board Room on five different dates: May 4, 2015; July 16, 2015; August 26, 2015; October 9, 2015; and December 16, 2015. The committee had five voting members which represented either MoDOT, Parkville, Riverside, Park University, or Platte County Planning & Development, seven advisory members, and two staff. The city was tasked with approving the guiding principles for the project, identifying key property owners, identifying traffic and multi-modal needs, selecting Complete Street options, selecting design alternatives or change in alignment, and approving project segmentation.

BOARD OF ALDERMAN MEETINGS

Two meetings were held with the Parkville Board of Alderman during the Route 9 Corridor Study development. These meetings were held on August 4, 2015 and October 20, 2015.

In the first meeting, the project team presented the initial findings within the review of corridor conditions, the concerns that exist to improving the infrastructures, and some initial concepts that were going to be presented to the public.

The second meeting was necessary in order to share the potential improvements to Route 9 and the conceptual construction estimates. This meeting was also utilized to gain leadership feedback as we prepared for the second public meeting.



FACE-TO-FACE STAKEHOLDER MEETINGS

Key property owners were identified and scheduled for a face to face meeting. By presenting the property owners with preliminary design drawings, the constraints of the project and the impact of the project to the adjacent property was discussed. By understanding the current utility of the property and the owner's future intent, design alternatives could be narrowed down to the best choice for the property owner and the design of the roadway. In total, the consultant met with 17 property owners.



SECTION 2

Analysis

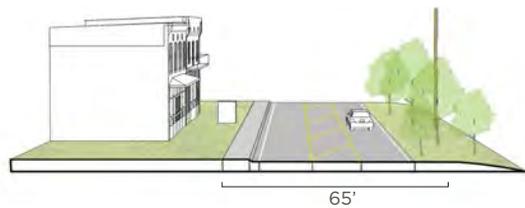
There have been a number of studies done within the Route 9 corridor for the City of Parkville in the last ten years. These studies were an excellent foundation for the Missouri Route 9 Corridor Study. The foundation for the study was based on the existing traffic studies, land use analysis, conceptual development scenarios and site specific plans. A LiDAR survey, traffic analysis at critical intersections, and local meetings with property owners supplemented the existing number of studies with a more complete concept. From this information, the team developed the most accurate preliminary design of “Complete Street” solutions.

EXISTING CONDITIONS

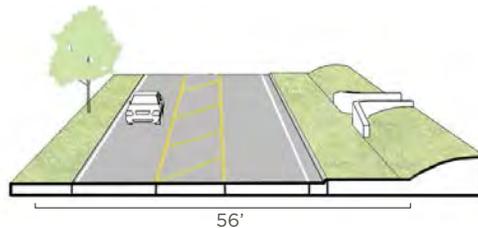
The design characteristics and functional role of Route 9 changed dramatically throughout the study area. The number of lanes, width of right-of-way, and proximity of adjacent development are all important factors informing recommendations for improvements.



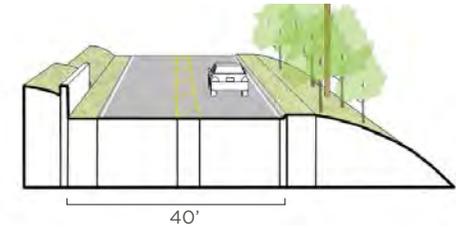
1: NEAR CLARK AVENUE



2: WALNUT GROVE CEMETERY

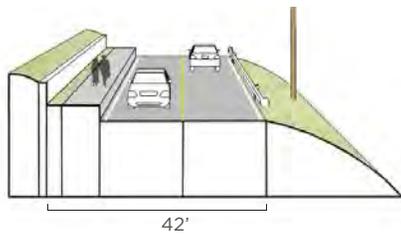


3: OLD PARKVILLE CEMETERY

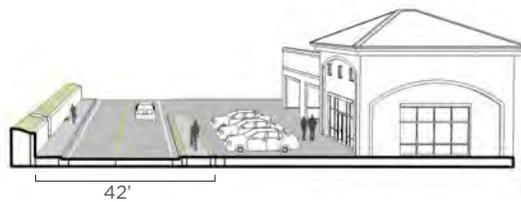




4: NEAR 7TH STREET



5: NEAR 4TH STREET



6: NEAR 3RD STREET



SITE CHALLENGES

In addition to the overall design and function of the roadway, there are a number of unique, site-specific design challenges that must be addressed in recommendations for the future design of Route 9. The project team identified the following site challenges through several sources including on-site survey and inspection, other recent studies, and most importantly from the conversations with corridor stakeholders, property owners, and users of the corridor.



1. DRAINAGE ISSUES

Today, most of Route 9 lacks curbs, which results in stormwater runoff that flows from the road directly onto adjacent properties. In some cases, this runoff creates drainage issues for property owners and can present a hazardous condition during winters.



2. TRAFFIC SIGNAL LOCATION

With commercial businesses, public facilities, residential neighborhoods, and expanding development all generating vehicle trips on northern sections of Route 9, traffic volumes create challenges at multiple intersections today in the area of Parkville Commons. For example, it can be difficult to make turns from side streets at peak traffic times. As growth continues, these challenges, delays, and conflicts will worsen.



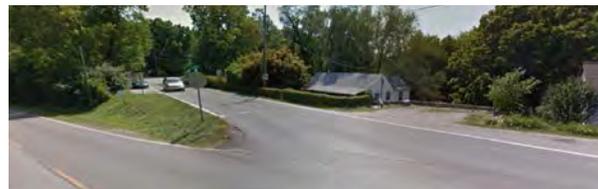
3. UNCONTROLLED ACCESS

Several portions of Route 9 have open access along the entire frontage, meaning that cars could drive onto or off of Route 9 from any point along the adjacent property. In one section of Route 9 between Clark Avenue and NW Lakeview Drive, there is over 700 feet of uncontrolled access. This condition impacts pedestrian safety and comfort, and also increases the potential for traffic accidents and conflicts.



4. WALNUT GROVE CEMETERY NEAR ROAD

Walnut Grove Cemetery is located close to the existing Route 9 roadway, providing limited space for additional infrastructure along the roadway.



5. MAIN STREET VISIBILITY & TURNING

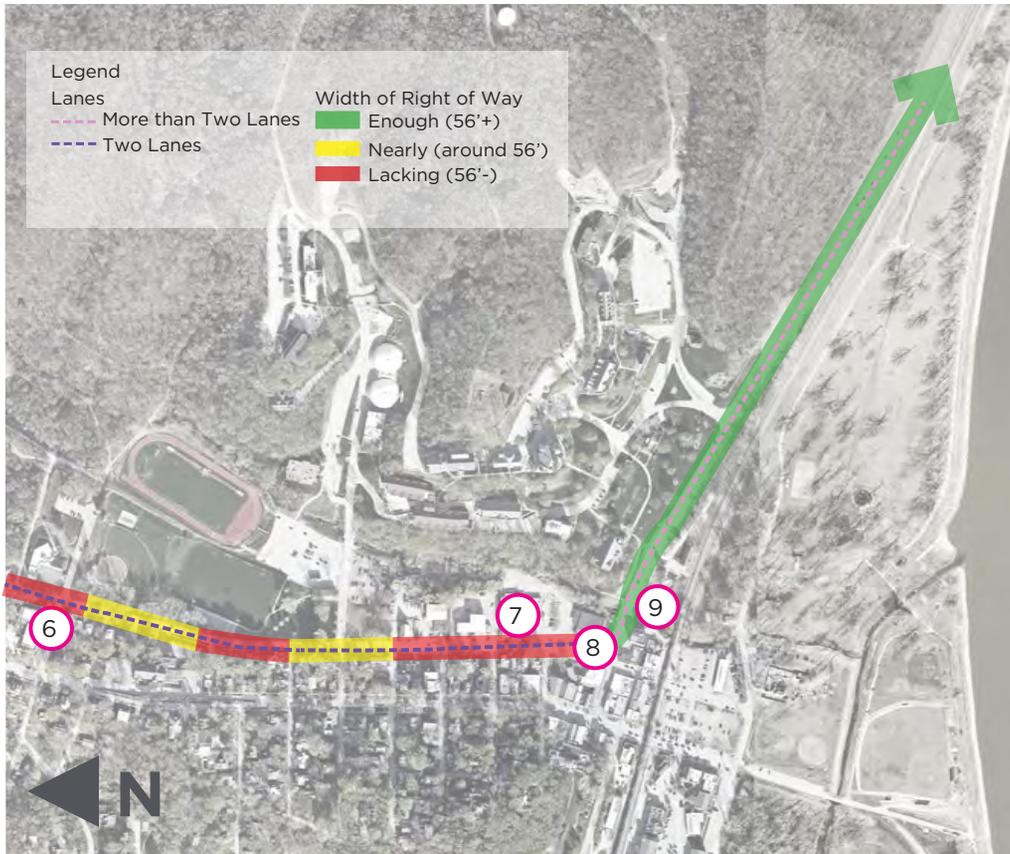
Today, Main Street intersects Route 9 at a shallow angle, which makes it difficult to turn and difficult to see approaching vehicles. Steep topography and adjacent homes limit options for realigning the roadway to intersect at a better angle.



6. 12TH STREET VISIBILITY

The existing retaining wall on the northwest corner of the intersection of Route 9 and 12th Street creates visibility challenges for drivers on 12th Street crossing or turning onto Route 9.

SITE CHALLENGES



7. NARROW ROADWAY WIDTH IN DOWNTOWN

Downtown Parkville is the location where pedestrian and bicycle activity is greatest, and where the existing roadway conditions are most narrow. Within the constrained limits of Route 9 in the Downtown area, improvements that support future development goals could be disruptive to existing property owners.



8. TRAFFIC BACKS UP AT 1ST STREET

The unusual configuration of the 1st Street intersection functions today, but does result in traffic backups in multiple directions when traffic is heavy. Downtown Parkville is a critical center of activity along Route 9, but the current configuration of the 1st Street intersection is not ideal for drivers or pedestrians.



9. ACCESS TO ENGLISH LANDING PARK/TRAIL

The railroad and other barriers prevent a clear connection to English Landing Park and the Missouri Riverfront Trail, which provides important regional connectivity for pedestrians and cyclists.

TRAFFIC MODEL SUMMARY

Rush hour traffic conditions along Route 9 suggest a considerable amount of time is wasted due to congestion. To minimize the delays felt by mainline traffic and traffic waiting to enter mainline traffic, traffic signals were evaluated at intersections with high volumes of vehicles. Intersections that met the signal warrants established by the Manual of Uniform Traffic Control Devices (MUTCD) were then analyzed with Synchro software. Synchro provided results showing which alternative produced the fewest delay times. Based on eight different options to improve downtown traffic, the best result occurred when a signal with vehicle detection was located at East Street & 1st Street. Locating a signal at East Street & 2nd Street or locating a roundabout east of East Street & 1st Street was not preferred when presented at the first public meeting. When comparing Synchro results between the intersections of Route 9 & Lewis Street, Route 9 & 63rd Street, Route 9 & 62nd Street, and Route 9 & Clark Avenue, a signal at Route 9 & Clark Avenue was the most beneficial.

Area Street and Highway Network

The existing roadways around the proposed development include:

- Missouri Route 9/NW River Park Drive/East Street – Four-lane, divided major freeway (west of Intercon Drive) and two-lane, undivided major arterial (east of Intercon Drive)
 - Speed limit of 55 mph (Mattox Road to Park University), 25 mph (Park University Entrance Drive to 7th Street), 35 mph elsewhere
- Horizons Parkway – Four-lane, divided minor freeway
 - Speed limit of 45 mph
- Mattox Road – Two-lane non-residential local road
 - Speed limit of 30 mph
- Intercon Drive/Farm Road – Two-lane non-residential local road
 - Speed limit of 30 mph
- Riverchase Lane – Two-lane residential local road
 - Speed limit of 25 mph
- Coffey Road – Two-lane non-residential local road
 - Speed limit of 25 mph
- Park University Entrance Drive – Two-lane non-residential local road
 - Speed limit of 25 mph
- S East Street – Two-lane non-residential local road
 - Speed limit of 25 mph
- E 1st Street – Two-lane non-residential local road
 - Speed limit of 25 mph
- E 2nd Street – Two-lane non-residential local road
 - Speed limit of 25 mph
- E 3rd Street – Two-lane residential local road
 - Speed limit of 25 mph
- E 4th Street – Two-lane residential local road
 - Speed limit of 25 mph
- E 5th Street – Two-lane residential local road
 - Speed limit of 25 mph
- E 6th Street – Two-lane residential local road
 - Speed limit of 25 mph
- E 7th Street – Two-lane residential local road
 - Speed limit of 25 mph Road -Two-lane non-residential local road
 - Speed limit of 30 mph
- E 12th Street – Two-lane residential local road
 - Speed limit of 25 mph
- E 13th Street – One-lane residential local road
 - Speed limit of 25 mph
- Main Street – Two-lane residential local road
 - Speed limit of 25 mph
- NW Lakeview Drive – Two-lane non-residential local road
 - Speed limit of 25 mph
- Clark Avenue – Two-lane non-residential local road
 - Speed limit of 25 mph
- NW 62nd Street – Two-lane residential local road
 - Speed limit of 25 mph
- NW 63rd Street – Two-lane non-residential local road
 - Speed limit of 25 mph
- Lewis Street – Two-lane non-residential local road
 - Speed limit of 25 mph
- Route 45/Tom Watson Parkway
 - Speed limit of 45 mph (east of Route 9) and 35 mph (west of Route 9)

The design for the Route 9 corridor did not include altering the existing speed limit segments.

Existing Traffic Volumes

Existing traffic volume counts were not recorded as part of this Route 9 Corridor Study. Existing traffic counts were provided from past traffic studies performed in the area, Downtown Traffic Study in June 2010, the Parkville Commons Traffic Impact Study in January 2012, and the Parkville Apartments Traffic Impact Study in March 2015. Using the provided turning movement volumes, Synchro was used to perform an analysis of the intersections of Route 9 & Mattox Road, 1st Street & East Street, Route 9 & Clark Avenue, Route 9 & 62nd Street, Route 9 & 63rd Street, and Route 9 & Lewis Street.

Determining Future Growth Rate

The Average Annual Daily Traffic (AADT) along the portion of Route 9 was provided by Kansas City District Traffic Volume and Commercial Vehicle Count Map published by MoDOT on an annual basis. A summary of the AADT for each year is provided in the following table:

MoDOT Average Annual Daily Traffic Volumes on Route 9

| Year | AADT (vehicles/day near Horizons Parkway) | AADT (vehicles/day near Route 45) |
|------|---|--------------------------------------|
| 2005 | 16,461 | 11,094 (including 660 Trucks) |
| 2006 | 16,675 | 11,239 (including 783 Trucks) |
| 2007 | 16,675 (same as 2006) | 11,239 (including 787 Trucks) |
| 2008 | 16,752 | 11,244 (including 1,352 Trucks) |
| 2009 | 16,211 | 10,881 (including 992 Trucks) |
| 2010 | 16,373 | 10,990 (including 1,013 Trucks) |
| 2011 | 13,821 | 10,550 (including 908 Trucks) |
| 2012 | 14,644 | 10,717 (including 1,088 Trucks) |
| 2013 | 14,025 | 10,696 (including 846) Trucks) |
| | | |

According to the traffic volume maps, the growth rate near Horizons Parkway between 2005 and 2013 was -15.0% or -2.0% per year. The growth rate near Route 45 between 2005 and 2013 was -3.6% or -0.5% per year.

The population in the City of Riverside was 3,077 according to the 2000 Census and was 2,937 according to the 2010 Census. This is a decrease of 4.5%. However, the annually updated Population Estimates Program managed by U.S. Census Bureau showed that the City of Riverside population in 2013 was 3,046, an increase of 3.7% from 2010 or 1.2% per year.

The population in the City of Parkville was 5,223 according to the 2000 Census and was 5,554 according to the 2010 Census which indicated an increase of 6.3% or 0.6% per year. However, the annually updated Population Estimates Program managed by U.S. Census Bureau showed that the City of Parkville population in 2013 was 5,928, an increase of 6.7% from 2010 or 2.2% per year.

The traffic growth rates were examined from the Downtown Traffic Study in June 2010, the Parkville Commons Traffic Impact Study in January 2012, and the Parkville Apartments Traffic Impact Study in March 2015. In the “Future Traffic Volumes” of the Downtown Traffic Study, it states that “traffic should be expected to grow by about 50% over the next 20 years.” In both the Parkville Commons and the Parkville Apartments studies, a 1% annual growth rate was applied.

Considering the traffic growth for 2040, the population growth, the previously used growth rates, and the available developable land, a 1.0% growth rate for 25 years was applied to the Synchro models for detailed analysis. The growth factor constant based on the 1.0% growth rate was determined as follows:

$$\begin{aligned}\text{Growth Factor used in Synchro} &= (1 + \text{Constant \% Growth}) ^ \text{Projected Years} \\ &= (1 + 0.01) ^ 25 \\ &= 1.28, \text{ for 25 years growth at 1.0\%}\end{aligned}$$

Explanation of Performance Measures

Two performance measures commonly used for Traffic Impact Studies are vehicle delay and level-of-service (LOS). Vehicle delay is the average delay, in seconds, experienced by one vehicle passing through the intersection. The quality of traffic operation at an intersection is defined through level-of-service (LOS) which consists of assignments of ‘A’ for free-flowing conditions through ‘F’ for congested conditions. The procedures and methodology for determining the LOS are outlined in the Highway Capacity Manual (HCM 2010), produced by the Transportation Research Board. LOS ‘A’ through ‘C’ is considered acceptable.

ALTERNATIVE TRANSPORTATION MODE CHOICES

Pedestrian: There are several existing concrete sidewalk segments along Route 9 and the surrounding streets. From White Alloe Creek Trail to 6th Street, there is sidewalk on both sides of Route 9. From 6th St to past Parkville Presbyterian Church, there is a sidewalk on the western side of Route 9. Some businesses to the north on Route 9 have sidewalks adjacent to Route 9 including the YMCA, a Law Firm, Mosaic Life Care, Kwik Kar Wash & Detail, Sonic, Gomer's, and Bank Liberty. The proposed Route 9 design is planned to connect the Southern Platte Pass trail along Route 45 to English Landing Park by having a 5 ft sidewalk on the west side and a 10 ft trail along the east side. The 10 ft trail design includes reopening the White Alloe Creek Trail through Park University campus, a new connection from Park University to the White Alloe Creek Trail, an extension of the trail system within English Landing Park to the Missouri Riverfront Trail, a connection from the Missouri Riverfront Trailhead parking facility to the sidewalks along Horizons Parkway, and a trail along the bluff on the northern side of Route 9 from Park University campus to Horizons Parkway. Existing sidewalks that have adequate width, are ADA compliant, and do not interfere with the corridor design will remain in use; otherwise, existing sidewalks will be removed and replaced. Several street crossings are planned at the following intersections:

- | | |
|---|---|
| • Route 9 & Horizons Parkway (with pedestrian signal) | Crossing South and East sides |
| • 1st Street & East Street (with pedestrian signal) | Crossing North, South, East, and West sides |
| • 1st Street & Main Street | Crossing North, South, and East sides |
| • Route 9 & 6th Street (with pedestrian signal) | Crossing North, South, East, and West sides |
| • Route 9 & 12th Street (with pedestrian signal) | Crossing North, South, East, and West sides |
| • Route 9 & Lakeview Drive (with pedestrian signal) | Crossing North, South, East, and West sides |
| • Route 9 & Clark Avenue (with pedestrian signal) | Crossing North, South, East, and West sides |
| • Route 9 & Route 45 (with pedestrian signal) | Crossing North, South, East, and West sides |

Curb bulb outs are planned for the 1st Street & Main Street intersection to decrease the time it takes for pedestrian crossing to occur and to increase the visibility of pedestrians. With a signal placed at 1st Street & East Street, the stop sign configuration was changed for 1st Street & Main Street. The stop sign for the westbound traffic will be removed and replaced with a yield to pedestrian sign. Stop signs will be added to the northbound and southbound approaches to 1st Street & Main Street which is a departure from the current configuration. Stopping the northbound and southbound will allow the heavy congested westbound movement priority which means that traffic will not back up into the 1st Street & East Street intersection. The curb bulb outs will also allow the new stop signs to be placed closer to the travel lane to improve visibility. The on-street parking spaces will be removed which do not meet the required spacing of 20 ft of clearance between a parking stall and a crossing.

Bicycle: Currently there are no bike lanes or bike paths along Route 9. Due to size constraints and the preference of both the steering committee and the public meeting attendees. Bike lanes were not included in the design of the corridor. It was important to separate casual bike traffic from the travel lanes due to the steep topography of Route 9 and to maintain pedestrian walkability on both sides of Route 9, therefore a 10 ft shared-use path was included in the design. 10 ft is the minimum width for a shared-use path. Commuter bikers will retain access to the 10 ft wide shoulder on either side of the east-west portion of Route 9.

On a supplemental note, for the portion of the trail connecting from the Missouri Riverfront Trailhead parking facility to the sidewalks along Horizons Parkway that is along the top of the levee, the gravel size, consistency, and compaction needs to match the gravel of the English Landing Park trail system. "Sharrows", which are painted chevrons indicating shared-use of bicycle and motor vehicles within the roadway, were not included in the design's pavement markings. Bike racks along the north-south portion of Route 9 should be installed, and appropriate safeguards should be added to parked bicycles in order to increase ridership.

Transit Buses: Transit buses are not currently in service for Route 9. Adding transit service to Parkville and Riverside would be a benefit for Park University students, Platte County Health Department patrons, the local population, and on festival days when a large influx of tourists make their way to Parkville. The locations for future bus stops are determined by the population density, the employment density, activity centers like Downtown and Park University, and future land use. After reviewing population data for the Parkville area, the key locations for potential bus stops are at Route 9 & 1st Street, Route 9 & 5th Street, Route 9 & 12th Street, and a loop including Route 9, Clark Avenue, Lewis Street, and either 63rd Street or Route 45.

Bus stops could be designed to have turnouts which would keep travel lanes clear; however, bus turnouts may not be possible in locations with limited right-of-way, topography constraints, or building constraints. Turnouts were not included in the design drawings.

Transit stops oriented near Route 9 & 1st Street and 6th Street would serve downtown with the buffer/amenity zone designed to accommodate transit facilities such as benches, shelters, signage, etc. The Route 9 & 6th Street stop would serve people attending sports events at Park University. A downtown stop is constrained mostly by heavy AM southbound traffic and the retaining wall. The only likely location for a southbound pull out appears to be the parking area near 5th Street. Transit headed northbound could make use of the on-street parking spaces as necessary. Another option for an additional or alternative Downtown Stop is near the pedestrian entrance to Park University.

The transit stop at Route 9 & 12th Street would serve the Park University sporting events, the Health Center, and the trailhead for the nature sanctuary. Of the several options for a bus stop in this location, having a bus turnout south of the intersection would be ideal while a turnout north of the intersection is constrained by the retaining wall to the west and the proximity of the Health Center facility and steep topography to the east. The existing parking layout and road conditions for making a bus route loop around 13th Street and 12th Street would require significant infrastructure and site modifications and would greatly increase the bus travel time. Although the Route 9 & 6th Street stop would be 1/4 mile away from the Route 9 & 12th Street stop, the clientele of the Health Center, a vast portion consisting of mothers with toddlers, may not be able to easily walk this distance.

A loop including Route 9, Clark Avenue, Lewis Street, and either 63rd Street or Route 45 would put transit users closer to commercial destinations in this activity area. A bus stop not directly on Route 9 would have ample room for cars to pass or for construction of a bus turnout, and transit buses would not significantly impact Route 9 mainline travel time.

Bus Route Loop Including Route 9, Clark Avenue, Lewis Street and either 63rd Street or Route 45



FLOODING INTERFERENCE WITH TRAFFIC

Due to the close proximity of Parkville and Riverside to the Missouri River, flooding occasionally occurs which make segments of the road impassible and can alter traffic patterns as a result. The streams and creeks which connect to the Missouri River by passing under Route 9 include Burlington Creek and Burlington Creek Tributary 2 which crosses under Route 9 at the NW Intercon Drive intersection and White Branch which crosses under Route 9 200 ft to the east of East Street & 1st Street. A small stream running parallel to Route 9 from about 400 ft to 1200 ft off of its western side runs from north of Clark Ave to the Missouri River but does not interfere with Route 9.

A Flood Protection Study, December 2013, was performed for the City of Parkville which made recommendations for improving flood protection to downtown and Route 9. For the downtown district, a 7-10 foot permanent concrete barrier wall was recommended in the location shown in Figure RS-1 Recommended Flood Protection Technology Placement. For English Landing Park, setting aside funds to clean up after a flood event or construction of a 3-6 foot berm along the Missouri River were recommended. These recommendations could be incorporated in tandem with other Route 9 improvements if desired.

Flooding limits were checked using three Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps each dated April 2, 2015. Light blue dots denote the 100 year annual flood while black dots denote other flood areas like the 500 year annual flood or areas protected by a levee. The map, 29165C0383D, showed Route 9 is in the 1% annual chance flood (essentially the water level increases to the height of a flood which would only occur every 100 years) from about 300 ft to the north of East Street & 1st Street and 450 ft to the east of East Street & 1st Street. The map, 29165C0391D, showed Route 9 is in the 1% annual chance flood from about 2000 ft to the east of East St & 1st St and continues to the east. The map, 29165C0392D, showed Route 9 is in the 1% annual chance flood from the western edge of the map to about 950 ft to the west of Route 9 & Intercon Drive and Route 9 is within the 500 year flood area from this point to the levee. Although a significant portion of Route 9 near the river can be flooded, the Route 9 Corridor Study did not make any recommendations to eliminate the chance of flooding along Route 9. The study is adding curb and gutter to improve the drainage along Route 9 but not for the road segment along the river because a simple 10 ft wide shoulder is needed for the 55 mph speed limit.

During a 100 year flood event, several business would receive substantial flood damage and the homes at Riverchase Lane would be temporarily isolated. During this event, traffic could be detoured to local roads like NW Crooked Road and connected to highways like Route 45, Interstate 29, Interstate 635 to avoid the flooded segments. Since the Average Annual Daily Traffic (AADT) on Route 9 along the river is 14,025 vehicles per day (From 2013 MoDOT Traffic Volume map), rerouting all of these vehicles could cause higher demand on local streets; however, since the AADT of I-29 is 75,789 vpd and I-635 is 52,667 vpd, the excess demand on state routes is comparatively small.



Figure RS-1 Recommended Flood Protection Technology Placement, as shown in the Flood Protection Study, December 2013



SECTION 3

Design Recommendations

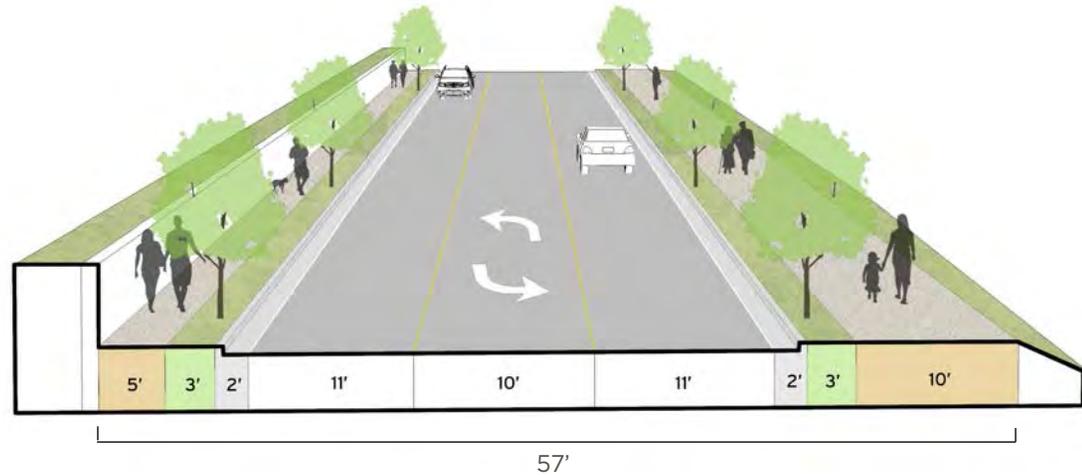
After review of all available existing reports, studies and data, meetings with individuals and organizations in Parkville, and extensive on-site field analysis, the Project Team moved forward with development of multiple alternatives for complete streets typical sections. These typical sections were also developed to deal with the unique challenges identified within the different sections of the corridor. The Route 9 corridor has different characteristics throughout the 4-mile length. The section south of Missouri Route 45 functions more like an urban arterial, the downtown section has more of the feel of an urban “Main Street” and the eastern section operates like an expressway. The design recommendations integrated these functions into the analysis thus creating twelve individual sections, or projects that the community can begin to focus on as they begin to transform the Route 9 corridor to meet the goals and objectives of this study.

GENERAL DESIGN RECOMMENDATIONS

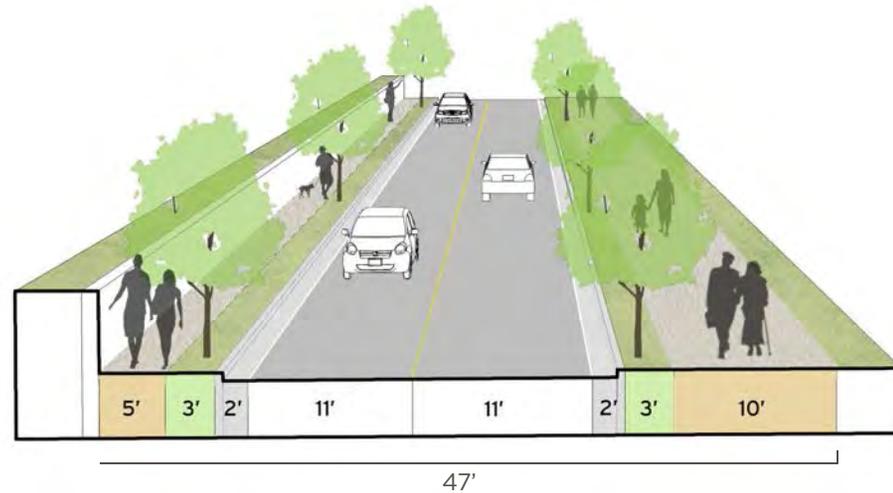
The goals of the Route 9 Corridor Study include addressing capacity and traffic flow issues. At the same time, improvements are intended to enhance aesthetics and accommodations for pedestrians and cyclists. All of these needs must be met within a constrained road right-of-way.

Based on an analysis of the various benefits and tradeoffs provided, as well as the preferences identified at the first public meeting, the project team recommends a roadway configuration that includes a sidewalk on the west side of the street and a ten foot wide multi-use path on the east. In some locations three lanes are recommended, while two lanes are proposed for locations with fewer turn movements.

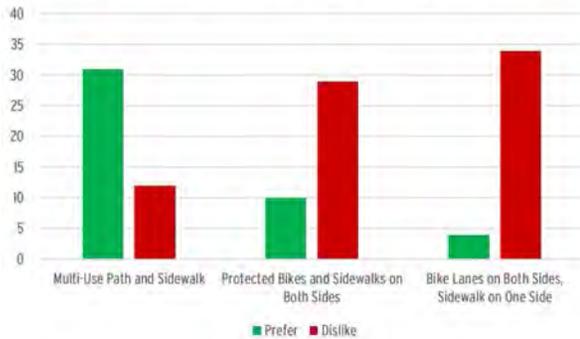
3 LANES, SHARED MULTI-USE PATH & SIDEWALK



2 LANES, SHARED MULTI-USE PATH & SIDEWALK



Roadway Alternatives - Public Meeting Results



LOOKING NORTH NEAR CLARK AVENUE - EXISTING CONDITIONS



LOOKING NORTH NEAR CLARK AVENUE - POTENTIAL IMPROVEMENTS



SITE SPECIFIC DESIGN RECOMMENDATIONS

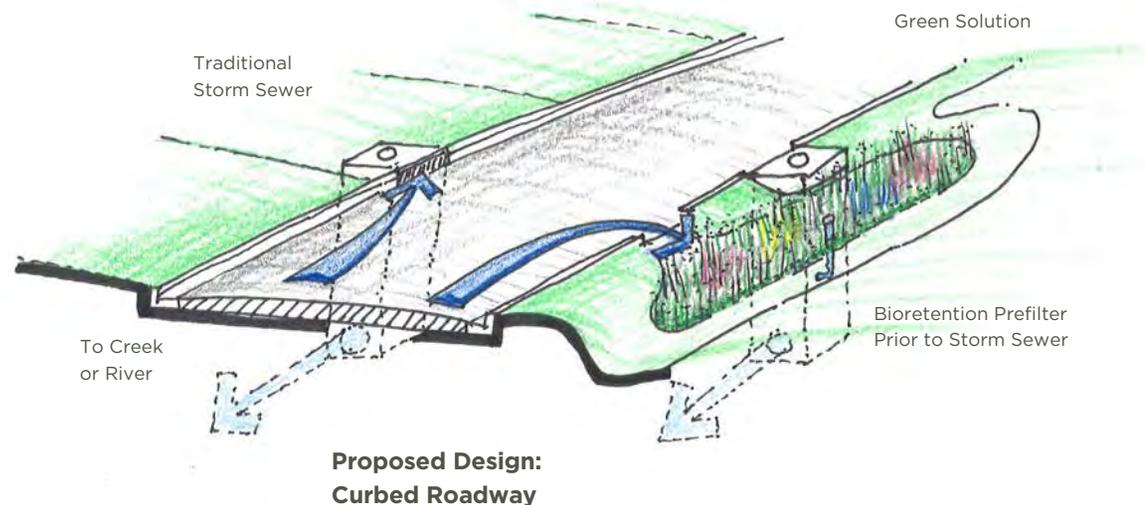
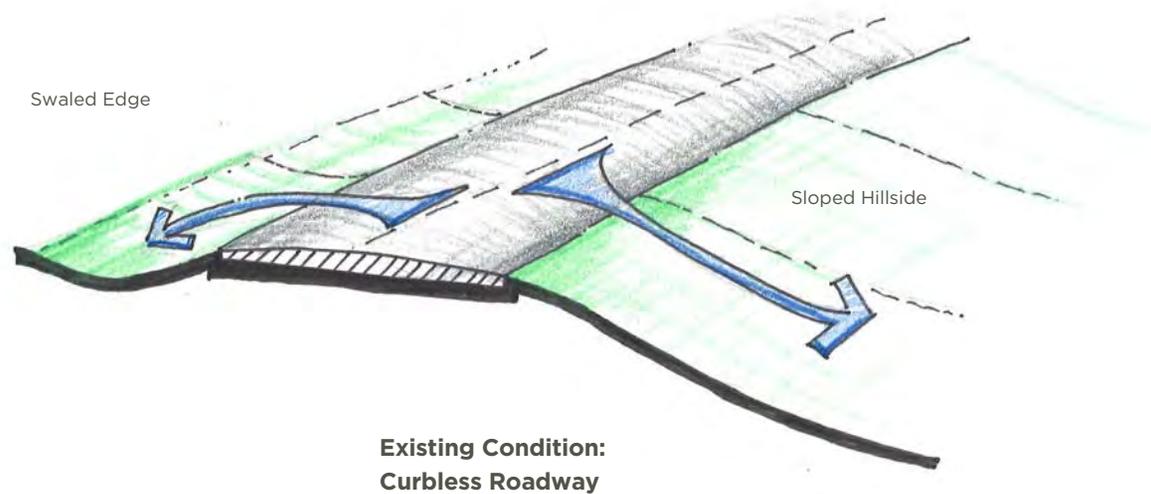
The following recommendations respond to the unique, site-specific issues identified along the Route 9 corridor. In some cases, these recommendations represent adaptations of the overall roadway design. In other cases, these recommendations are additional considerations or project elements that are essential for the project to achieve its goals of enhanced connectivity and livability. Throughout the Route 9 Corridor Study process, the project team met with property owners along the length of the corridor to identify and resolve various design challenges. The recommendations in the following section represent the outcomes of those conversations as well as community feedback during public meetings.

CHALLENGE: DRAINAGE ISSUES

Today, most of Route 9 lacks curbs, which results in stormwater runoff that flows from the road directly onto adjacent properties. In some cases, this runoff creates drainage issues for property owners.

RECOMMENDATION: CAPTURE RUNOFF

The proposed design of Route 9 will include curbs, drains, bioswales, and other stormwater infrastructure along its entire length, ensuring that stormwater is captured, treated, and conveyed without negative impacts to adjacent properties. These improvements should virtually eliminate drainage issues related to runoff from Route 9.

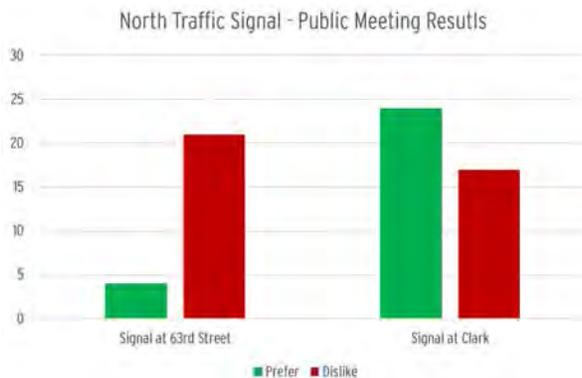


CHALLENGE: TRAFFIC SIGNAL LOCATION

With commercial businesses, public facilities, residential neighborhoods, and expanding development all generating vehicle trips on northern sections of Route 9, traffic volumes create challenges at multiple intersections today in the area of Parkville Commons. For example, it can be difficult to make turns from side streets at peak traffic times. As growth continues, these challenges, delays, and conflicts will worsen.

RECOMMENDATION: PROVIDE NEW SIGNAL AT CLARK AVENUE

The project team analyzed traffic volume data and crash data for four intersections to explore the viability of a new traffic signal. A new signal at Clark Avenue is warranted based on future traffic volumes and also the preferred location based on feedback at the first public meeting. The recommended design includes a street stub for future connection to the east to serve future potential development or if a connection to 62nd street becomes desirable. Traffic calming measures along 63rd street can help to guide traffic through Parkville Commons to the new signal and reduce traffic speeds within the retail area.



SIGNAL OPTIONS

Lewis Street

- Future traffic warrants signal
- Spacing too close to Route 45

62nd Street

- Not warranted for signal
- Only connection for 69 houses

63rd Street

- Future traffic warrants signal
- Connects to many businesses and houses

Clark Avenue

- Future traffic warrants signal
- Connects to many businesses and houses

SITE SPECIFIC DESIGN RECOMMENDATIONS



CHALLENGE: UNCONTROLLED ACCESS

Several portions of Route 9 have open access along the entire frontage, meaning that cars could drive onto or off of Route 9 from any point along the adjacent property. In one section of Route 9 between Clark Avenue and NW Lakeview Drive, there is over 700 feet of uncontrolled access. This condition impacts pedestrian safety and comfort, and also increases the potential for traffic accidents and conflicts.

RECOMMENDATION: FOCUS ACCESS ON EXISTING DRIVEWAYS

The recommended design for Route 9 focuses access on existing driveways. This configuration is simpler for pedestrians and clearer for motorists. The recommended design preserves all existing driveways and most existing parking. The project team has worked with adjacent property owners to identify design solutions that improve Route 9 while maintaining the function of adjacent properties. The recommended design reflects the outcomes of those conversations.

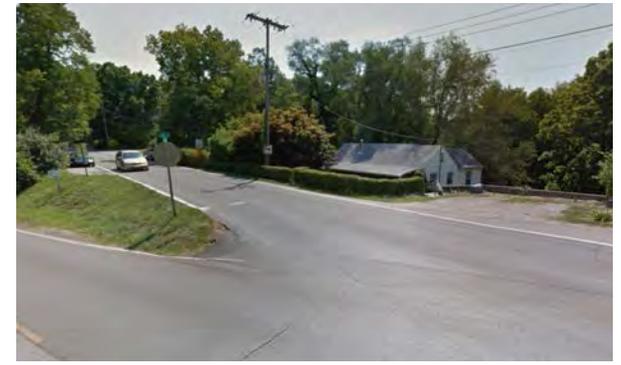


CHALLENGE: WALNUT GROVE CEMETERY IS CLOSE TO THE ROAD

Walnut Grove Cemetery is located close to the existing Route 9 roadway, providing limited space for additional infrastructure along the roadway.

RECOMMENDATION: NO IMPACT ON WALNUT GROVE CEMETERY

The recommended design for Route 9 fits within the existing right-of-way adjacent to Walnut Grove Cemetery. All proposed improvements will be located outside of the line of the existing retaining wall, and there will be no impacts on the adjacent cemetery.



CHALLENGE: MAIN STREET INTERSECTION VISIBILITY AND TURN MOVEMENTS

Today, Main Street intersects Route 9 at a shallow angle, which makes it difficult to turn and difficult to see approaching vehicles. Steep topography and adjacent homes limit options for realigning the roadway to intersect at a better angle.

RECOMMENDATION: MODIFY EXISTING MAIN STREET INTERSECTION

The recommended design for Route 9 modifies the Main Street intersection through paint, curbs, and a slightly straightened approach to improve visibility and make it simpler to navigate the intersection. These improvements are located within existing right-of-way. In the future, a reconfiguration of Main Street is possible that would align Main Street parallel to Route 9 until intersecting with new development further north. In this future configuration, Main Street could route south of Parkville Cemetery and connect to a new intersection at Lakeview Drive. This long term solution would require additional grading work and some property acquisition.



CHALLENGE: 12TH STREET INTERSECTION VISIBILITY

The existing retaining wall on the northwest corner of the intersection of Route 9 and 12th Street creates visibility challenges for drivers on 12th Street crossing or turning onto Route 9.

CHALLENGE: 12TH STREET INTERSECTION VISIBILITY

Rebuilding the existing retaining wall to improve visibility around the corner addresses the safety challenges at this intersection without requiring a realignment of the roadway.



CHALLENGE: NARROW ROADWAY WIDTH IN DOWNTOWN

Downtown Parkville is the location where pedestrian and bicycle activity is greatest, and where the existing roadway conditions are most narrow. Within the constrained limits of Route 9 in the Downtown area, improvements that support future development goals could be disruptive to existing property owners.

RECOMMENDATION: NEW FEATURES WITHIN EXISTING CONSTRAINTS

The project team recommends a design for Route 9 in the Downtown area that achieves long term project goals to improve traffic flow, pedestrian and bicycle amenities, and future development potential while minimizing impacts on existing properties. The recommended design incorporates a new signal at 1st Street, and turn lanes at 2nd, 5th, and 6th Streets to significantly improve the flow of traffic through the area. By maintaining two lanes between 2nd and 5th Street, the design is able to incorporate a new sidewalk and multi-use pathway with minimal impact to adjacent properties. The proposed design also includes improvements to White Aloe Creek Trail.

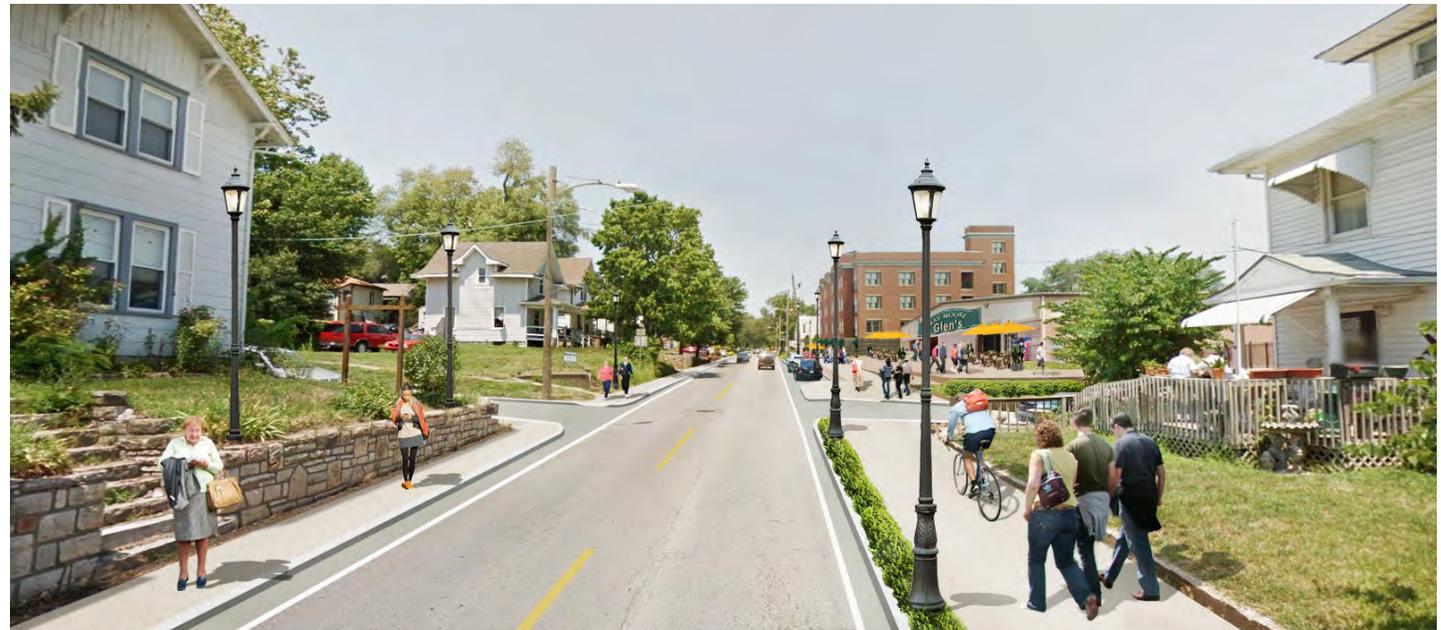


**SITE SPECIFIC DESIGN
RECOMMENDATIONS**

LOOKING NORTH AT 2ND STREET - EXISTING CONDITIONS



LOOKING NORTH AT 2ND STREET - POTENTIAL IMPROVEMENTS



LOOKING SOUTH AT 5TH STREET - EXISTING CONDITIONS



LOOKING SOUTH AT 5TH STREET - POTENTIAL IMPROVEMENTS



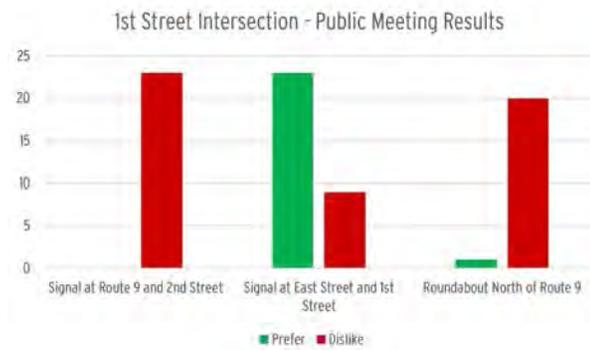
SITE SPECIFIC DESIGN RECOMMENDATIONS

CHALLENGE: TRAFFIC BACKS UP AT 1ST STREET AT PEAK TIMES

The unusual configuration of the 1st Street intersection functions today, but does result in traffic backups in multiple directions when traffic is heavy. Downtown Parkville is a critical center of activity along Route 9, but the current configuration of the 1st Street intersection is not ideal for drivers or pedestrians.

RECOMMENDATION: NEW SIGNAL AT 1ST STREET

The project team conducted travel time analysis of several intersection options for Route 9 in Downtown Parkville based on 2010 and forecast 2035 conditions. A new signal at 1st street is recommended based on the anticipated travel time savings in both the AM and PM peak travel times today and in the future. A signal at East Street and 1st Street is also the preferred configuration based on feedback at the first public meeting.



A new signal at 1st Street would function best in coordination with other improvements. The proposed design would include separate lanes for westbound and northbound traffic as far east as Coffey Road. Northbound traffic approaching from the east would continue to move freely through the intersection without having to stop. Two left turn lanes would be provided for southbound traffic. At the intersection of 1st and Main Streets, stop signs would be modified to give traffic on 1st Street priority movement.

TRAVEL SAVINGS WITH 1ST STREET TRAFFIC SIGNAL

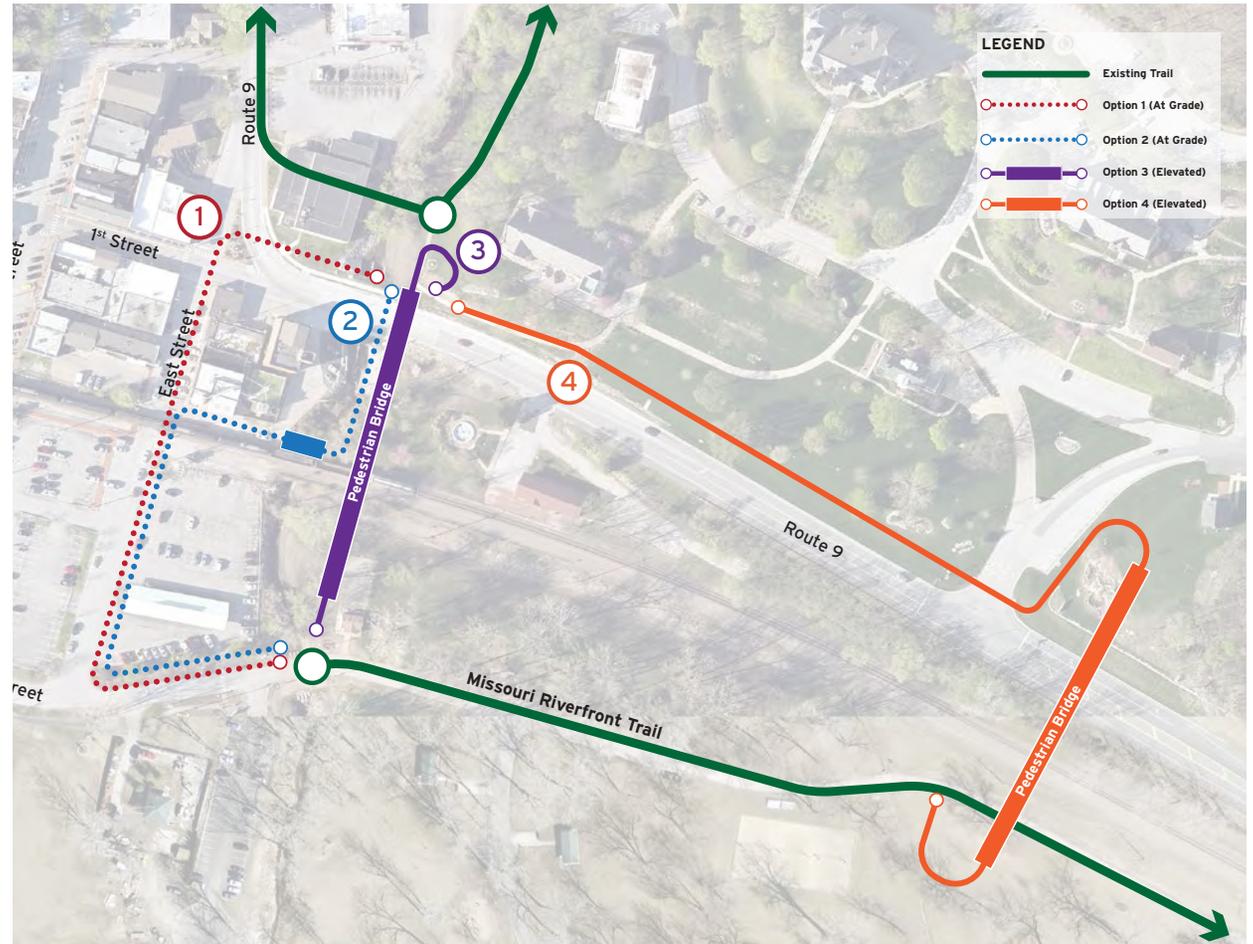
| | Time Savings |
|-------------|--------------|
| A.M. (2010) | - 1.2 min |
| A.M. (2035) | - 5.2 min |
| P.M. (2010) | - 0.5 min |
| P.M. (2035) | - 2.3 min |

CHALLENGE: ACCESS TO ENGLISH LANDING PARK & EXISTING TRAIL

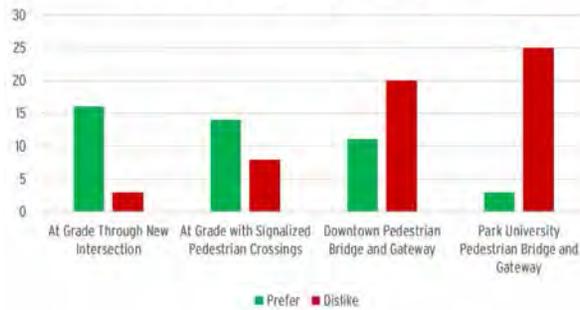
The railroad and other barriers prevent a clear connection to English Landing Park and the Missouri Riverfront Trail, which provides important regional connectivity for pedestrians and cyclists.

RECOMMENDATION: CONNECTION THROUGH NEW 1ST STREET INTERSECTION

The project team explored several options for at-grade crossings and pedestrian bridges to connect pedestrian and bicycle facilities along Route 9 to the Missouri Riverfront Trail. Because it is a lower-cost option, and because it directs activity through Downtown Parkville, the project team recommends at-grade connections through a new intersection at 1st Street. This recommendation also reflects feedback provided at the first public meeting.



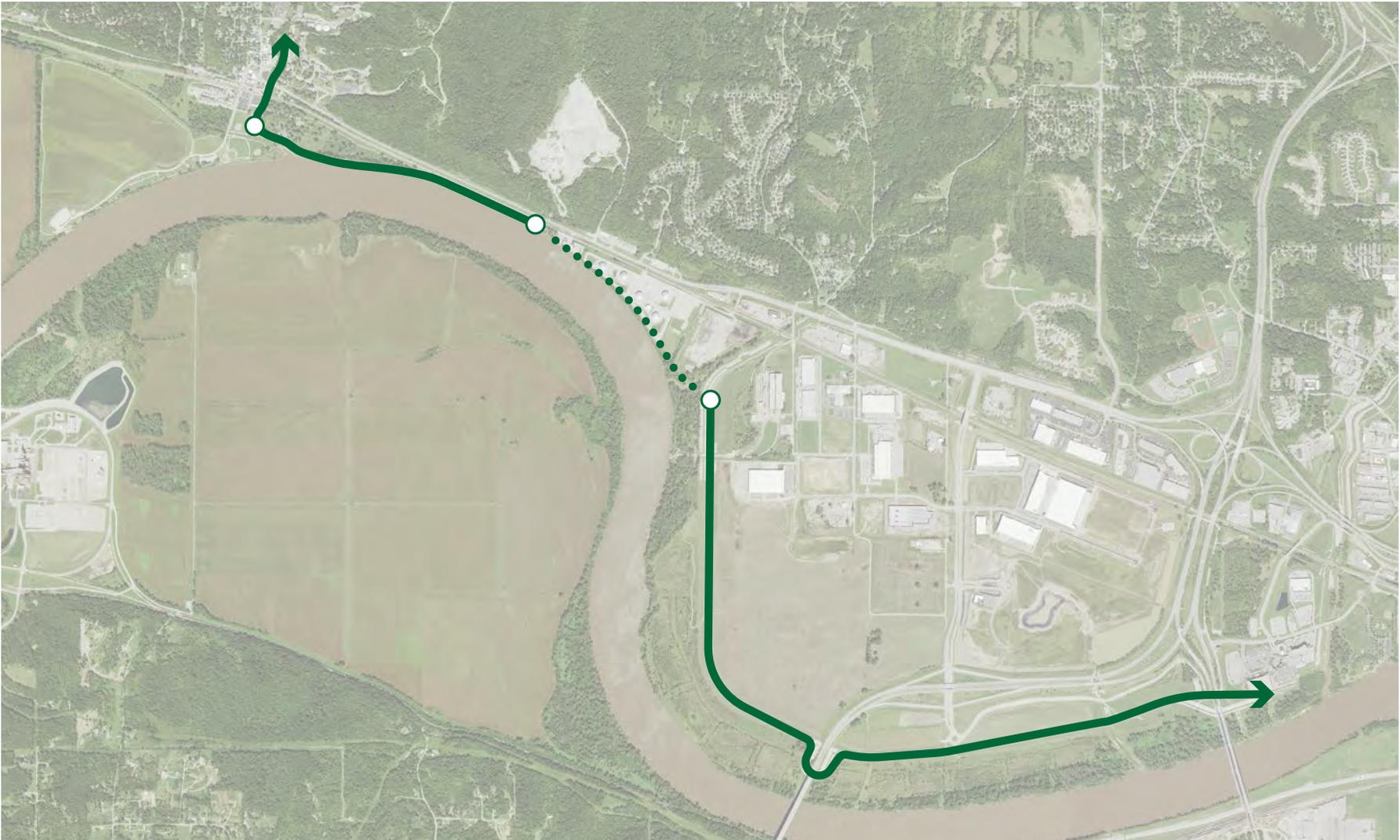
Pedestrian Crossing - Public Meeting Results



SITE SPECIFIC DESIGN RECOMMENDATIONS

TRAIL CONNECTIONS TO RIVERSIDE AND BEYOND

Regional connectivity is critical to the success of trail infrastructure. Connecting these two segments of the Missouri Riverfront Trail will help implement the regional MetroGreen plan, which will ultimately connect the Parkville and Riverside trails to Downtown Kansas City and other Northland trails, such as the Line Creek Trail or the planned Vivion Road Trail. Negotiations to obtain trail easements are currently underway, which will help advance this trail connection.



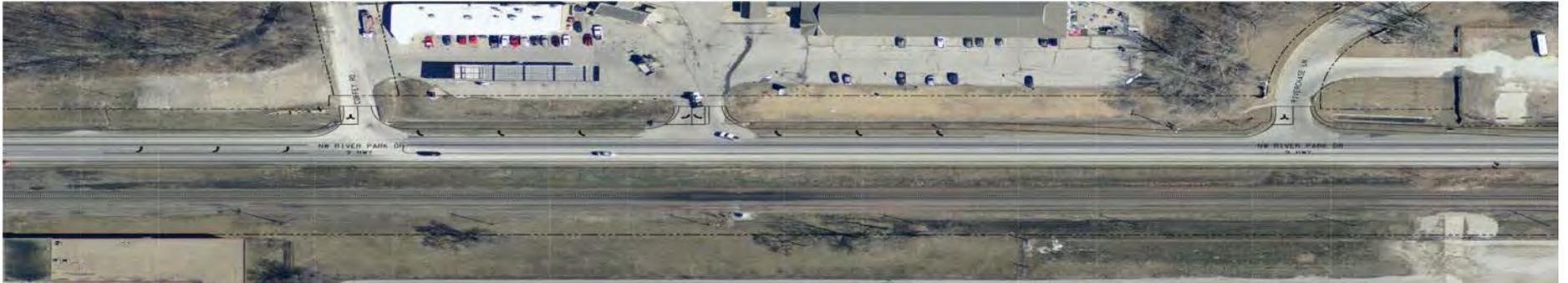


CHALLENGE: VEHICLE DELAY AT MATTOX ROAD

The main challenge at Route 9 & Mattox Road was to relieve delays and increase safety for traffic entering mainline traffic.

RECOMMENDATION: NEW SIGNAL AT MATTOX ROAD

A detailed survey and study was performed by Trekk Design Group, LLC for the intersection of Route 9 & Mattox Road. See Appendix for “Route 9 at Mattox Intersection Study.” Based on the Manual on Uniform Traffic Control Devices (MUTCD), a signal is warranted to be installed as well as a new eastbound right-turn bay with a length of 188 ft plus a taper of 180 ft. The distance from the proposed signal meets the required spacing between intersections with signalization since Horizons Parkway is 2,125 ft away and the minimum distance required is 1,320 ft.



CHALLENGE: CONGESTION RELIEF AT COFFEY ROAD

The main challenge at Route 9 & Coffey Road was to relieve delays caused by mainline traffic turning onto Coffey Road or the nearby businesses parking area.

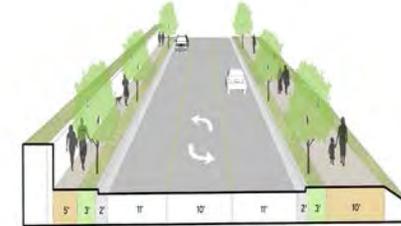
RECOMMENDATION: COFFEY ROAD TURN LANES

Turning lanes are planned for Route 9 at Coffey Road and for Route 9 at the parking access point to the east of Coffey Road. At Coffey Road, the eastbound traffic will have at minimum a 190 ft left-turn bay and a 90 ft taper. While the minimum taper length for 55 mph is 180 ft, the 90 ft taper would not interfere with the access drive to the west for the Missouri River Boating Association. Westbound traffic will have a 215 ft right-turn bay which will continue past the parking access point for 208 ft and include a 180 ft taper. A center turn lane is planned for Route 9 from Coffey Road to past Riverchase Lane. Riverchase Lane is not planned to have a right-turn lane installed due to right-of-way restrictions but the planned 180 ft taper for westbound Route 9 right-turning traffic will help relieve the congestion at this site.

A: ROADWAY ALTERNATIVES & RECOMMENDATIONS

LANE WIDTH

- Should be 11 ft wide on either side with a 10 ft wide two-way left-turn lane (TWLTL)
- Exceptions:
 - Travel lanes should match existing from Route 45 to Sta. 1485+33 with left turn lanes 11 ft wide at Route 9 & Route 45
 - Travel lanes should be 10 ft wide from 1548+00 to 1555+50
 - Southbound left turn lane at East Street & 1st Street should be 11 ft wide
 - Eastbound left turn lane at Route 9 & Park University Entrance Drive should be 11 ft wide
 - All lanes should be 12 ft wide from 1569+00 to past Mattox Road
- Side street lane width should be 11 ft wide or match existing



SPEED

- Route 45 to 6th Street (SB) and Route 45 to 7th Street (NB)
 - 300 ft difference between 25 mph and 35 mph signs
 - Relocate SB 25 mph sign to line up with 35 mph sign at 7th or
 - Relocate NB 35 mph sign to line up with 25 mph sign at 6th
- 6th Street to 250 ft west of Park University Entrance Drive (SB) and 7th Street to 250 ft west of Park University Entrance Drive (NB)
- 250 ft west of Park University Entrance Drive to 500 ft east of Park University Entrance Drive//35 mph
- 500 ft east of Park University Entrance Drive to Mattox Road//55 mph

BIKE LANES

- Not recommended

SHOULDER

- Should be 10 feet wide

SIDEWALKS

- Should be 5 ft wide on the western side and 10 ft wide on the eastern side
- Exceptions:
 - Aesthetic sidewalk with variable from 1503+00 to 1506+20
 - Transition from 5 ft wide to 6 ft wide from 1512+96.98 to 1513+72.50
 - Variable segment at cemetery retaining wall > 4.44 ft wide from 1514+07.69 to 1514+29.72 = 22.03 ft
 - Transition from 6 ft wide to 5 ft wide from 1514+43.21 to 1515+03.6
 - 6 ft wide from 1543+86.95 to start of the shoulder 1560+26.85

RETAINING WALL is spaced 1 ft away from the outside edge of sidewalk

- Exceptions:
 - Use integral wall and sidewalk on west side from 1412+32.23 to 1513+46.68
 - Use integral wall and sidewalk on west side from 1537+05.95 to 1537+38.95

CURB

- Should be 2 feet wide and include storm sewer

CURB RETURNS

- Should have a radius of 30 feet and 10 feet for driveway
- Exceptions:
 - At Route 9 & 62nd Street use a 25 ft radius
 - At the southern School of Rock entrance & Route 9 use a 18 ft radius
 - At Route 9 & 13th Street use a 10 ft radius
 - At Route 9 & 12th Street use a 10 ft radius for the eastbound approach
 - At Route 9 & 7th Street use a 10 ft radius
 - At Route 9 & 6th Street use a 10 ft radius for the eastbound approach
 - At Route 9 & 5th Street use a 10 ft radius
 - At Route 9 & 4th Street use a 10 ft radius
 - At Route 9 & 3rd Street use a 10 ft radius
 - At Route 9 & 2nd Street use a 10 ft radius
 - At East Street & 1st Street use a 8 ft radius for the northwest corner, 3 ft radius for the northeast corner, 5 ft radius for the southeast corner, and use a 90 ft radius for the westbound right-turn lane
 - At Route 9 & Park University Drive use 40 ft radius
 - At Route 9 & Mattox Road use a 65 ft radius for the southwest corner

CROSSWALK LOCATIONS

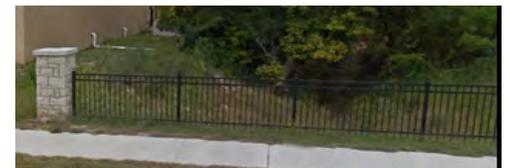
- Route 9 & Mattox Road
- East Street & 1st Street
- Route 9 & 6th Street
- Route 9 & 12th Street
- Route 9 & Lakeview Drive
- Route 9 & Clark Avenue
- Route 9 & Route 45

SIDEWALK SEPARATION

- Grassy area between the back of the curb and the sidewalks is 3 ft wide
- Exceptions:
 - West side from 1512+96.98 to 1515+03.64, width varies from 3 ft to 0 ft to avoid cemetery retaining wall
 - West side from 1543+86.95 to start of the shoulder at 1560+26.85, width of 0 ft to avoid returning wall reconstruction
 - East side from 1541+34.72 to 1544+80.24, width varies from 3 ft to 0 ft to avoid stadium seating
 - East side from 1548+24.82 to 1549+38.47, width of 0 ft due to on-street parking
 - East side from 1549+99.65 to 1550+89.30, width of 0 ft due to on-street parking
 - East side from 1555+87.40 to start of the shoulder, width varies from 2 ft to 0 ft to avoid Post Office building corner and to account for 10 ft NB left turning lane at 2nd Street

HANDRAILS on retaining walls

- Match metal railing on White Alloe Creek Bridge:
 - Height at least 42 inch (FHWA Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide 14.7), 54 inch on bridges
 - Gripping surface from 1.25 inch - 1.5 inch wide (ADA Accessibility Guidelines for Buildings and Facilities 4.26)



LIGHTING

- Within grassy area between the back of curb and sidewalk

POTENTIAL DUCT BANK UNDER 10 FT TRAIL

- At least 4 ft wide
- Include 3 ft wide vaults within grassy area between curb and sidewalk

ADDITIONAL RIGHT-OF-WAY TO ACQUIRE

- 3486.53 sq ft (0.08 ac) from 1482+61.34 to 1485+34.64
- 2266.77 sq ft (0.05 ac) from 1493+12.79 to 1494+10.18
- 2981.48 sq ft (0.07 ac) from 1500+67.07 to 1506+59.94
- 8792.95 sq ft (0.20 ac) from 1511+40.73 to 1512+53.61

EXISTING RIGHT-OF-WAY

- Cross Section of 57 ft in 60 ft Right-of-Way



B: SITE SPECIFIC DESIGN RECOMMENDATIONS

CHANGES TO INTERSECTIONS

- Route 9 & Route 45:
 - Adjust Route 9 northbound lanes approaching intersection since 1 thru lanes turns into 2 thru lanes after the intersection
- Route 9 & Lewis Street
 - Restripe and add eastbound left-turn bay
- Route 9 & 63rd Street
 - Remove channelization island and restripe to add EB left-turn bay
- Route 9 & Clark Avenue
 - Add signal
- Route 9 & Lakeview Drive
 - Match geometry and island for new construction
- Route 9 & Main Street
 - Issue: Approach angle is 15 degrees and unsafe
 - Constraints: Right-of-way, topography, elevation changes, bordered by Missouri Conservation land and houses, cemetery retaining walls on either side of the road
 - Of the options examined, the recommended approach is to adjust the approach angle of Main Street to Route 9 to 75 degrees (Option 1). This is the minimal cost option and would not interfere with possible future configurations of Route 9 and Main Street. Option 5 is the ultimate build to meet the needs of the City; however, there are currently no plans to construct Option 5.

Option 1 - Adjust approach angle of Main Street to Route 9 to 75 degrees

Advantage

Better visibility for Main Street

Lowest Cost

Disadvantage

Increase in grade

No change in access

Option 2 - Adjust approach angle of Main Street to Route 9 to 90 degrees

Advantage

Better visibility for Main Street

Full Access

Disadvantage

Cost of removing 3 houses

Tight Curves

Option 3 - Connect Main Street to 57th Street, add access to Route 9, add access to Lakeview Drive

Advantage

Better visibility for Main Street

Full access

Access to Signal

Access for 57th Street and West Street

Disadvantage

Cost of removing 3 homes

Short distance for Main Street/Route 9 connection

Option 4 - Keep Main Street connection, reroute Route 9 to intersect with 57th Street, add access to Lakview Drive

Advantage

Better visibility for Main Street

Full Access

Access to signal

Access for 57th Street and West Street

Disadvantage

Cost of removing 1 house

Route 9 must curve into conservation (510 ft min radius)

Traffic issue for southbound lefts

Grade across intersection is issue

Option 5 - Connect Main Street to Lakeview Drive, connect 57th Street to Route 9

Advantage

Better visibility for Main Street

Full Access

Access to signal

Access for 57th Street and West Street

Greater distance for Main Street/Route 9 connection

Disadvantage

Cost of removing 3 houses

- Route 9 and 12th Street
 - Add left-turn bay for northbound and southbound approaches
- Route 9 & 6th Street
 - Add left-turn bay for northbound, southbound, and westbound approaches
- East Street & 1st Street
 - Reconstruct intersection to remove stop signs and add signal
- Main Street & 1st Street
- Reconstruct intersection to add curb turnouts, replace westbound stop sign with yield to ped sign, add northbound and southbound stop signs

SHOULDER REMOVAL

- Remove southbound shoulder to replace with curb and gutter and sidewalk from 1479+00 to 1483+00

TRAIL

- Reconstruct White Alloe Creek Trail and add pavement along existing path from 6th Street to Route 9
- Construct sidewalk connection from Route 9 to Nature Sanctuary along south side of 12th Street

MAILBOXES

- 9 mailboxes total
 - Location 1: One grouped pick-up / drop-off location at 1345 MO Route 9
 - Southbound side, 500 ft north of Lakeview Drive
 - Spacing from intersection = OK
 - Location 2: One mailbox near 1345 MO Route 9
 - Southbound side, 170 ft north of Lakeview Drive
 - Spacing from intersection = NOT OK, 170 ft < 200 ft min
 - Location 3: One mailbox at 1345 MO Route 9
 - Southbound side, 90 ft north of Lakeview Drive
 - Spacing from Intersection = NOT OK, 90 ft < 200 ft min
 - Location 4: One mailbox at 1356 Mo Route 9
 - Southbound side, 150 ft south of Lakeview Dr
 - Spacing from intersection = OK
 - Location 5: One mailbox near 1301 East Street
 - Northbound side, 310 ft north of 13th St
 - Spacing from Intersection = OK
 - Causes unsafe Pedestrian Crossing
 - Location 6 - One mailbox near 1301 East Street
 - Northbound side, 65 ft north of 13th St
 - Spacing from Intersection = NOT OK, 65 ft < 100 ft min
 - Causes unsafe Pedestrian Crossing
 - Location 7: One mailbox near Quarry on MO Route 9
 - Westbound side, 860 ft west of Coffey Rd
 - Spacing from Intersection = OK
- Spacing requirements based on AASHTO Roadside Design Guide, Figure 11-4
 - Assumed AADT of 15000 vpd for Route 9
 - Assumed AADT of 500 vpd for cross streets

NECESSARY ADDITIONAL RIGHT-OF-WAY

- Project Segment 1 - Route 45 to 62nd Street
 - Farley State Bank 3,437,3460 sq ft (0.0789 acre)
 - Burn, Alan J & Tracey S 49,1844 sq ft (0.0011 acre)
- Project Segment 2 - 62nd Street to Parkville Athletic Complex
 - SKG LLC 2,266,76668 sq ft (0.0520 acre)
- Project Segment 3 - Parkville Athletic Complex to Lakeview Dr.
 - Don Julian Builder Inc 2,981,4827 sq ft (0.0684 acre)
 - Tuf Flight Industries 8,792,9483 sq ft (0.2019 acre)

UTILITY CONFLICTS

Several utility poles will need to be relocated along Route 9. There are two recommended concepts; Relocate poles to within the grassy area between the back of curb and sidewalks or construct a 4 ft wide duct bank underneath the 10 foot trail and periodically place 3 foot wide access vaults with the grassy area. For the relocation of the poles, the utility companies will be required to cover the costs of reinstallation. For the duct bank, the utilities will be more weather resistant and the streetscape will be more aesthetically pleasing; however, construction costs will be excessive and would most likely exceed the 30% contingency applied to each project. Depending on the unit cost of the duct bank, the construction cost could nearly double for each project segment if a duct bank was added to the scope.

- Project Segment 1 - Route 45 to 62nd Street
Poles to be relocated - 6
- Project Segment 2 - 62nd Street to Parkville Athletic Complex
Poles to be relocated - 8
- Project Segment 3 - Parkville Athletic Complex to Lakeview Dr.
Poles to be relocated - 16
- Project Segment 4 - Lakeview Drive to 13th Street
Poles to be relocated - 10
- Project Segment 5 - 13th Street to 12th Street
Poles to be relocated - 7
- Project Segment 6 - 12th Street to 7th Street
Poles to be relocated - 6
- Project Segment 7 - 7th Street to 5th Street
Poles to be relocated - 5
- Project Segment 8 - 5th Street to 2nd Street
Poles to be relocated - 5
- Project Segment 9 - 2nd Street to White Alloe Creek
Poles to be relocated - 5
- Project Segment 10 - White Alloe Creek to Park University Entrance Drive
Poles to be relocated - 1
- Project Segment 11 - Park Univeristy Entrance Drive to Coffey Rd.
Poles to be relocated - 0
- Project Segment 12 - Coffey Road to Mattox Road
Poles to be relocated - 0

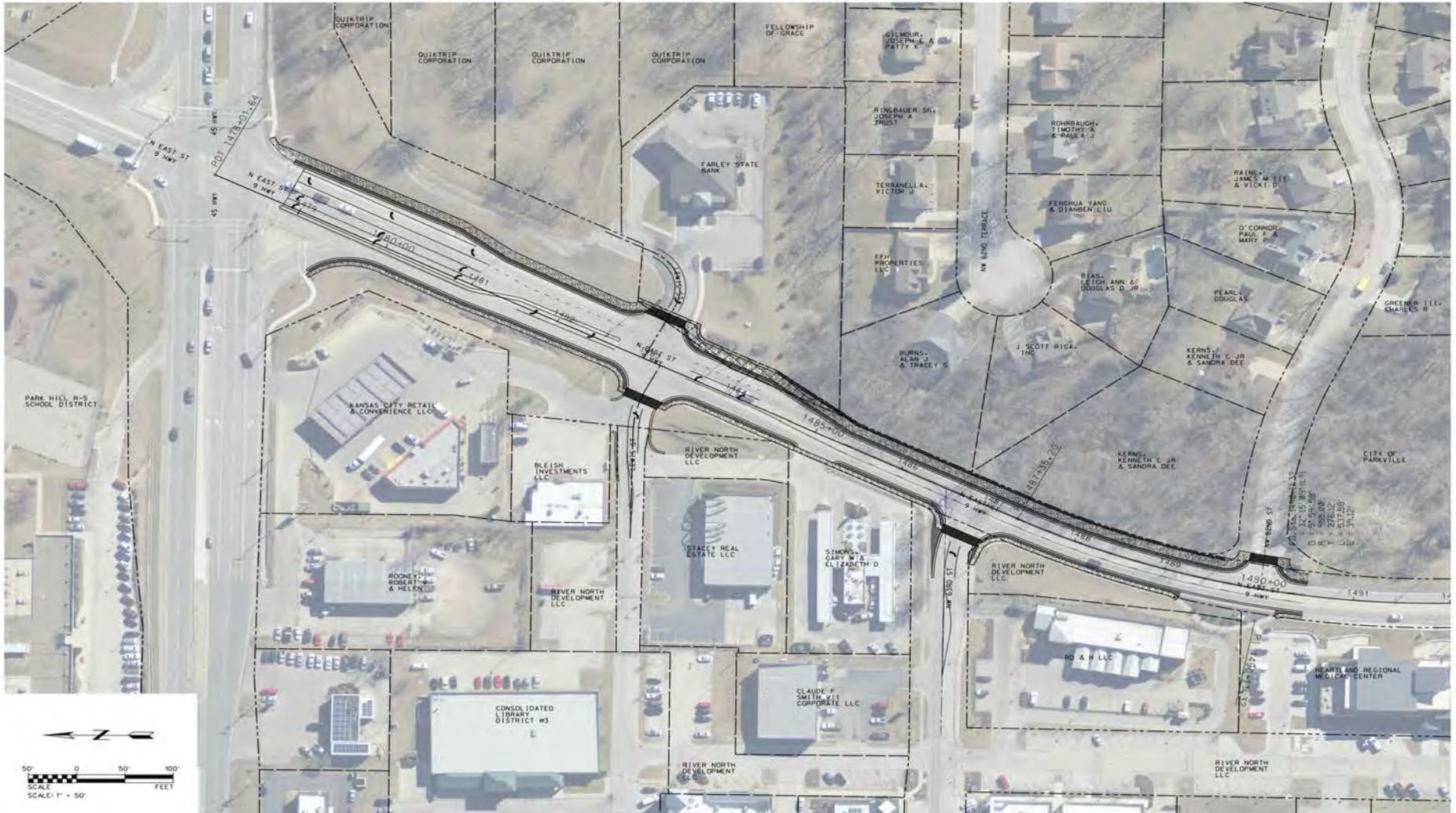


SECTION 4

Project Segments

One of the primary outcomes to be accomplished within the Route 9 Corridor Study was to deliver preliminary plans for improvements through the 4-mile corridor. Additionally, these preliminary plans were broken into logical project segments so the City could ultimately create a plan to design and construct improvements over time, or if new development was occurring, the City would be able to work closely with the development partner to incorporate the proposed Route 9 design. This section of the report illustrates the twelve project segments, the proposed ideas for each and construction estimates (2015 dollars).

SEGMENT 1: ROUTE 45 TO 62ND STREET



SEGMENT 1 DETAILS: FIXING DRAINAGE ISSUES

- Pavement, 78 Tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 2,472 feet
- Storm Sewer, 2,000 feet
- Sidewalk, 1,667 square yards
- Retaining Wall, 1836 square feet

ESTIMATED COST:

\$750,353.85

SEGMENT 2: 62ND STREET TO PARKVILLE ATHLETIC COMPLEX



SEGMENT 2 DETAILS: ADDING TRAFFIC SIGNAL AT CLARK AVE.

- Pavement, 126 Tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 1,973 feet
- Storm Sewer, 2,000 feet
- Sidewalk, 1,272 square yards
- Retaining Wall, 0 square feet
- Traffic Signal Installation

ESTIMATED COST:
\$550,076.57

SEGMENT 3: PARKVILLE ATHLETIC COMPLEX TO LAKEVIEW DRIVE



SEGMENT 3 DETAILS: IMPROVING PARKING ACCESS

- Pavement, 2,611 tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 5,258 feet
- Storm Sewer, 2,750 feet
- Sidewalk, 2,292 square yards
- Retaining Wall, 3,699 square feet

ESTIMATED COST:

\$1,518,450.81

SEGMENT 4: LAKEVIEW DRIVE TO 13TH STREET



SEGMENT 4 DETAILS: IMPROVE VISION AT MAIN STREET

- Pavement, 282 tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 3,590 feet
- Storm Sewer, 4,000 feet
- Sidewalk, 3,143 square yards
- Retaining Wall, 10,341 square feet

ESTIMATED COST:
\$2,031,710.41

SEGMENT 5: 13TH STREET TO 12TH STREET



SEGMENT 5 DETAILS: REPLACING RETAINING WALL

- Pavement, 192 tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 993 feet
- Storm Sewer, 1,200 feet
- Sidewalk, 1,255 square yards
- Retaining Wall, 4,725 square feet

ESTIMATED COST:

\$908,953.32

SEGMENT 6: 12TH STREET TO 7TH STREET



SEGMENT 6 DETAILS: TRAIL BEHIND PARK UNIVERSITY STANDS

- Pavement, 200 tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 1,231 feet
- Storm Sewer, 1,500 feet
- Sidewalk, 1,177 square yards
- Retaining Wall, 4,104 square feet

ESTIMATED COST:
\$785,360.36

SEGMENT 7: 7TH STREET TO 5TH STREET



SEGMENT 7 DETAILS: 6TH STREET TURN LANES

- Pavement, 249 tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 1,616 feet
- Storm Sewer, 1,800 feet
- Sidewalk, 1,896 square yards
- Retaining Wall, 270 square feet

ESTIMATED COST:

\$603,511.79

SEGMENT 8: 5TH STREET TO 2ND STREET

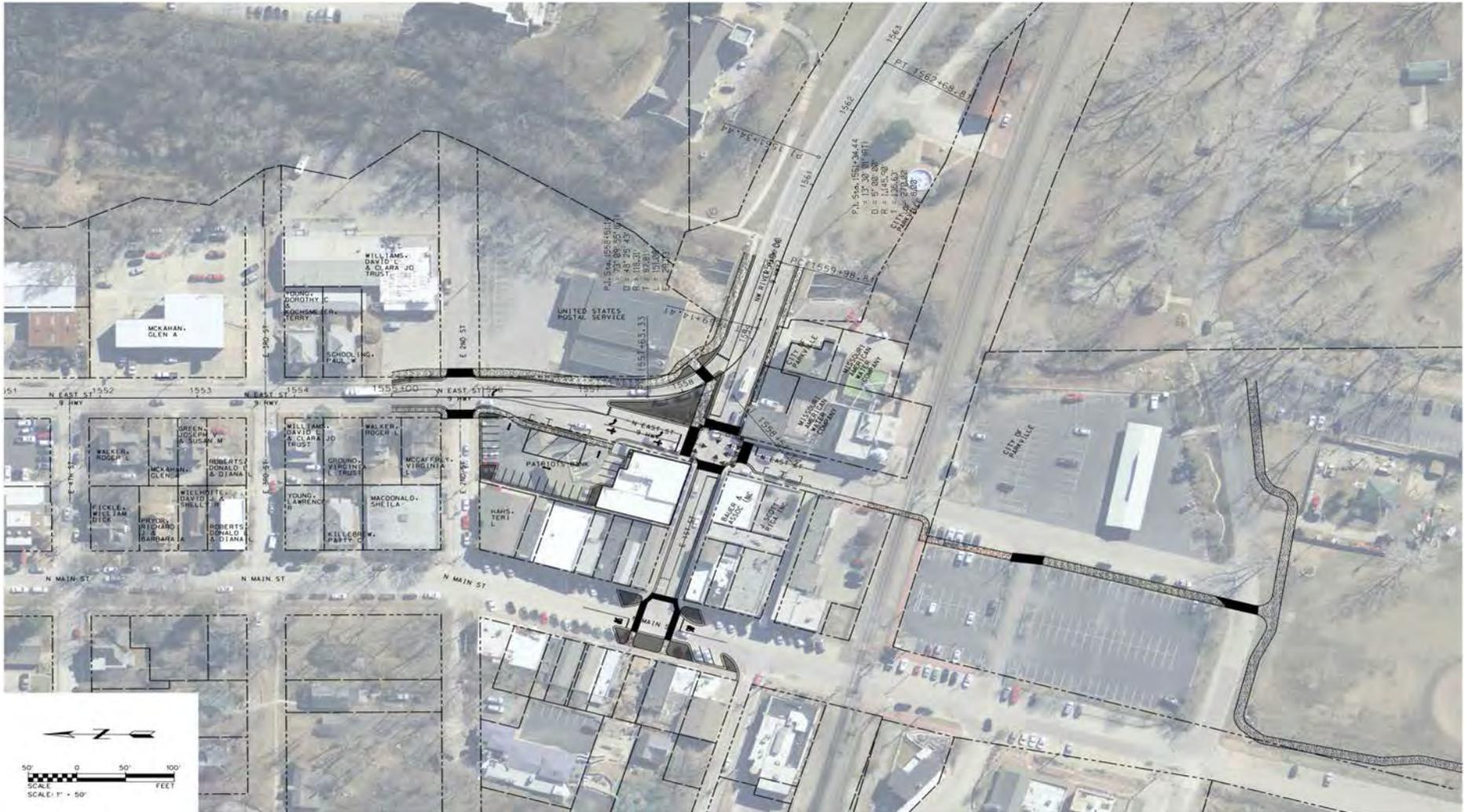


SEGMENT 8 DETAILS: 2-LANE SECTION

- Pavement, 24 tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 538 feet
- Storm Sewer, 750 feet
- Sidewalk, 554 square yards
- Retaining Wall, 189 square feet

ESTIMATED COST:
\$198,542.52

SEGMENT 9: 2ND STREET TO WHITE ALLOE CREEK



SEGMENT 9 DETAILS: ADDING TRAFFIC SIGNAL AT EAST ST. & 1ST ST.

- Pavement, 161 tons
- Shoulder, 0 square yards
- Concrete Curb and Gutter, 2,419 feet
- Storm Sewer, 1,200 feet
- Sidewalk, 1,020 square yards
- Retaining Wall, 59 square feet
- Traffic Signal Installation

ESTIMATED COST:

\$537,728.65

SEGMENT 10: WHITE ALLOE CREEK TO PARK UNIVERSITY ENTRANCE DRIVE



SEGMENT 10 DETAILS: ADDED EASTBOUND LANE

- Pavement, 479 tons
- Shoulder, 973 square yards
- Concrete Curb and Gutter, 885 feet
- Storm Sewer, 1,000 feet
- Sidewalk, 1,239 square yards
- Retaining Wall, 0 square feet

ESTIMATED COST:
\$414,886.40

SEGMENT 11: PARK UNIVERSITY ENTRANCE DRIVE TO COFFEY ROAD



SEGMENT 11 DETAILS: ADDED WEST BOUND LANE

- Pavement, 1,881 tons
- Shoulder, 6,741 square yards
- Concrete Curb and Gutter, 0 feet
- Storm Sewer, 0 feet
- Sidewalk, 11,300 square yards
- Retaining Wall, 0 square feet

ESTIMATED COST:

\$1,560,160.95

SEGMENT 12: COFFEY ROAD TO MATTOX ROAD



SEGMENT 12 DETAILS: INTERSECTION & TURN LANE IMPROVEMENTS

- Pavement, 1,242 tons
- Shoulder, 3,682 square yards
- Concrete Curb and Gutter, 76 feet
- Storm Sewer, 0 feet
- Sidewalk, 15,090 square yards
- Retaining Wall, 0 square feet
- Traffic Signal Installation

ESTIMATED COST:

\$1,554,555.40

SEGMENT 12A: MATTOX ROAD INTERSECTION ONLY

ESTIMATED COST:

\$400,000.00

PROJECT SUMMARY

The Missouri Route 9 project segments are listed below. The construction estimates are in 2015 dollars. As mentioned earlier, the project segments have been identified based on corridor challenges, technical analysis and logical project limits for transportation management. The estimated cost includes the optional street lighting costs, an added 30% contingency, and an added 15% for engineering design and inspection.

| Route 9 Project Segments | Estimated Cost |
|---|----------------|
| Route 45 to 62nd Street | \$890,995.92 |
| 62nd St. To Parkville Athletic Complex | \$657,569.01 |
| PAC to Lakeview Drive | \$1,752,739.80 |
| Lakeview Drive to 13th Street | \$2,343,711.96 |
| 13th Street to 12th Street | \$1,047,731.58 |
| 12th Street to 7th Street | \$913,307.14 |
| 7th Street to 5th Street | \$708,802.58 |
| 5th Street to 2nd Street | \$247,065.39 |
| 2nd Street to White Alloe Creek | \$630,408.73 |
| White Alloe Creek to Park University Entrance Drive | \$506,779.98 |
| Park University Entrance Drive to Coffey Rd | \$1,740,179.52 |
| Coffey Road to Mattox Road | \$1,733,927.17 |
| | |



SECTION 5

Project Outcomes

Improvements to Route 9 will not only enhance connectivity and address traffic challenges, but also hold the opportunity to catalyze new private investment along the corridor. Parkville has long standing goals to make its downtown more inviting, comfortable, and attractive, and to focus on Route 9 as a strategic corridor for economic development. Investment in infrastructure and amenities along Route 9 helps to make development sites more desirable and functional. Likewise, new development along the corridor helps to position roadway improvements to realize their full potential.

DEVELOPMENT ANALYSIS

The project team has identified several specific development opportunities along the corridor. While these are not the only locations where new investment and development is possible, they are sites that have some history of development planning, either through the City's recent planning efforts or the efforts of private partners. The project team is using these sites to explore the potential economic development benefits and opportunities associated with improvements to Route 9.

- ① Convenience Retail
- ② Parkville Commons Infill
- ③ Parkville Connections
- ④ SKG LLC Property
- ⑤ Riss Lake Frontage
- ⑥ East Street Redevelopment
- ⑦ Downtown Infill
- ⑧ American Water Site





1: CONVENIENCE RETAIL



2: PARKVILLE COMMONS INFILL



3: PARKVILLE CONNECTIONS



4. SKG LLC PROPERTY



5: RISS LAKE FRONTAGE



6: EAST STREET REDEVELOPMENT



7: DOWNTOWN INFILL



8. AMERICAN WATER SITE

DEVELOPMENT ANALYSIS

For each development opportunity along Route 9, the project team reviewed proposed development plans, site conditions, and market information to estimate development capacity for the site. This development capacity analysis provided a breakdown of residential units and non-residential square footage for each identified opportunity. The breakdown of uses and development capacity then informed a high level cost estimate for development.

Three development scenarios were explored: modest development, moderate development, and major development. The Modest Development represents near term opportunities that have potential to be immediately leveraged or coordinated with Route 9 improvements. The Major Development scenario represents the full capacity of the identified development sites (but not necessarily the full development potential of the entire corridor). The Moderate Development Scenario falls somewhere in between. The analysis also identified existing development in the opportunity areas to understand the net impacts of new development. The development analysis has a variety of uses, including determining the potential fiscal benefits to the City of new development and for exploring different infrastructure funding scenarios.

| EXISTING CONDITIONS | SINGLE FAMILY UNITS | ATTACHED UNITS | MULTI-FAMILY UNITS | RETAIL SQ. FEET | OFFICE SQ. FEET | INDUSTRIAL SQ. FEET | PUBLIC/CIVIC SQ. FEET | EDUCATIONAL SQ. FEET | HIGH LEVEL COST ESTIMATES |
|-------------------------------------|----------------------------|-----------------------|---------------------------|------------------------|------------------------|----------------------------|------------------------------|-----------------------------|----------------------------------|
| 1. Convenience Retail | | | | | | | | | |
| 2. Parkville Commons Infill | | | | | | | | | |
| 3. Parkville Connections | 1 | | | 4,200 | 1,350 | 25,270 | | | |
| 4. SKG LLC Property | | | | | | | | | |
| 5. Riss Lake Frontage | | | | | | | | | |
| 6. East Street Redevelopment | 2 | | | 13,350 | | 12,500 | 11,250 | | |
| 7. Downtown Infill | | | | | | | | | |
| 8. American Water Site | | | | | | | 11,200 | | |
| Total | 3 | 0 | 0 | 17,550 | 1,350 | 37,770 | 22,450 | 0 | |

| MODEST DEVELOPMENT | SINGLE FAMILY | ATTACHED | MULTI-FAMILY | RETAIL | OFFICE | INDUSTRIAL | PUBLIC/CIVIC | EDUCATIONAL | HIGH LEVEL COST ESTIMATES |
|------------------------------|---------------|----------|--------------|---------------|--------------|----------------|----------------|---------------|---------------------------|
| | UNITS | UNITS | UNITS | SQ. FEET | SQ. FEET | SQ. FEET | SQ. FEET | SQ. FEET | |
| 1. Convenience Retail | | | | 5,858 | | | | | \$1,054,440 |
| 2. Parkville Commons Infill | | | | | | | | | |
| 3. Parkville Connections | | | | | | | | | |
| 4. SKG LLC Property | | | | | | | | | |
| 5. Riss Lake Frontage | | | | | | | | | |
| 6. East Street Redevelopment | 2 | | 55 | 11,950 | | | 11,250 | 28,800 | \$20,913,000 |
| 7. Downtown Infill | | | | | | | | | |
| 8. American Water Site | | | | 4,050 | 4,125 | | | | \$1,226,250 |
| Total | 2 | 0 | 55 | 21,858 | 4,125 | 0 | 11,250 | 28,800 | \$23,193,690 |
| Net | -1 | 0 | 55 | 4,308 | 2,775 | -37,770 | -11,200 | 28,800 | |

| MODERATE DEVELOPMENT | SINGLE FAMILY | ATTACHED | MULTI-FAMILY | RETAIL | OFFICE | INDUSTRIAL | PUBLIC/CIVIC | EDUCATIONAL | HIGH LEVEL COST ESTIMATES |
|------------------------------|---------------|----------|--------------|----------------|---------------|----------------|----------------|---------------|---------------------------|
| | UNITS | UNITS | UNITS | SQ. FEET | SQ. FEET | SQ. FEET | SQ. FEET | SQ. FEET | |
| 1. Convenience Retail | | | | 5,858 | | | | | \$1,054,440 |
| 2. Parkville Commons Infill | | | | 14,000 | 11,200 | | | | \$4,200,000 |
| 3. Parkville Connections | | | 170 | 86,000 | 10,000 | | | | \$42,000,000 |
| 4. SKG LLC Property | | | | | 28,000 | | | | \$3,920,000 |
| 5. Riss Lake Frontage | | | | 6,000 | | | | | \$900,000 |
| 6. East Street Redevelopment | 2 | | 55 | 11,950 | | | 11,250 | 28,800 | \$20,913,000 |
| 7. Downtown Infill | | | | 2,000 | | | | | \$300,000 |
| 8. American Water Site | | | | 4,050 | 4,125 | | | | \$1,226,250 |
| Total | 2 | 0 | 225 | 129,858 | 53,325 | 0 | 11,250 | 28,800 | \$74,513,690 |
| Net | -1 | 0 | 225 | 112,308 | 51,975 | -37,770 | -11,200 | 28,800 | |

| MAJOR DEVELOPMENT | SINGLE FAMILY | ATTACHED | MULTI-FAMILY | RETAIL | OFFICE | INDUSTRIAL | PUBLIC/CIVIC | EDUCATIONAL | HIGH LEVEL COST ESTIMATES |
|-------------------------------------|----------------------|-----------------|---------------------|----------------|----------------|-------------------|---------------------|--------------------|----------------------------------|
| | UNITS | UNITS | UNITS | SQ. FEET | SQ. FEET | SQ. FEET | SQ. FEET | SQ. FEET | |
| 1. Convenience Retail | | | | 5,858 | | | | | \$1,054,440 |
| 2. Parkville Commons Infill | | | 66 | 14,000 | 11,200 | | | | \$13,704,000 |
| 3. Parkville Connections | 46 | 65 | 170 | 96,000 | 20,000 | | | | \$60,784,000 |
| 4. SKG LLC Property | | | | | 56,000 | | | | \$7,840,000 |
| 5. Riss Lake Frontage | | | | 6,000 | 12,000 | | | | \$2,700,000 |
| 6. East Street Redevelopment | | | 112 | 15,500 | | | 10,500 | 28,800 | \$32,456,000 |
| 7. Downtown Infill | | | | 2,000 | 2,000 | | | | \$600,000 |
| 8. American Water Site | | | 44 | 5,250 | | | | | \$8,127,000 |
| Total | 46 | 65 | 392 | 144,608 | 101,200 | 0 | 10,500 | 28,800 | \$127,265,440 |
| Net | 43 | 65 | 392 | 127,058 | 99,850 | -37,770 | -11,950 | 28,800 | |

DOWNTOWN DEVELOPMENT

Both the 2009 Parkville Master Plan and the Vision Downtown Parkville discuss the benefits of future redevelopment on the east side of East Street. Despite its ideal locations between Downtown Parkville and Park University, this area is not utilized to its highest potential today. Infill and redevelopment opportunities can extend the experience of the Downtown area, incorporate higher-intensity, higher-value development, enhance the aesthetics and walkability along Route 9, and better serve the current and future needs of Park University. The community's vision for future development of this area informs how Route 9 will look and function in the future. Below are two scenarios that highlight different development opportunities.

One approach to investment and development east of East Street is to maintain the existing buildings and building lines where possible, and strategically develop in the available spaces in between. As businesses move or evolve, new uses could reposition existing buildings to better support Downtown's vision. New development would be focused on smaller parcels and occur incrementally.

Another approach to investment and development east of East Street is to pursue a coordinated development strategy for the entire site. While this concept could still be developed in phases over time, each component would support an overall concept for integrated uses, access, parking, and amenities.



The above diagram illustrates just one possible scenario for how existing uses and new infill development could integrate with improvements to Route 9 and other amenities, including a restored trail along White Aloe Creek.



SECTION 6

Implementation Strategy

The Missouri Route 9 Corridor Study must be a study that goes beyond advancing the planning process; it must create an implementation strategy and a financial strategy. City leadership and community supporters can then seek the funding necessary to complete the projects. The components include: 1) the identification of funding sources available for the projects from local, state and federal sources, 2) project financing scenarios to assist community leaders in their decision-making process, and 3) a project prioritization matrix that includes criteria that is specifically tailored for the projects within the Route 9 Study.

FUNDING OPTIONS

The Project Team has designed a comprehensive Plan of Finance. The Mayor, the Board of Aldermen and the public will be able to discuss the recommended strategy for each of the project segments. While certain revenue sources are not as economically desirable or politically palatable as others, all sources will be discussed to inform the decision-making process in the future. A Sources & Uses analysis was used to marry project costs to secured or potential revenue sources as well as a timeline. The project will approximately cost \$13.2 million. The construction time horizon is 25 years.

REVENUES AND FINANCING OPTIONS

COMMUNITY IMPROVEMENT DISTRICT

A Community Improvement District (CID) may be either a political subdivision or a not-for-profit corporation. CID's are organized for the purpose of financing a wide range of public-use facilities and establishing and managing policies and public services relative to the needs of the district.

SUPPORTING ORGANIZATIONS

A CID is a separate legal entity, and is distinct and apart from the municipality that creates the district. A CID is, however, created by ordinance of the governing body of the municipality in which the CID is located and may have other direct organizational or operational ties to the local government, depending upon the charter of the CID.

TYPICAL BUDGET ITEMS AND RESPONSIBILITIES

A CID may finance new facilities or improvements to existing facilities that are for the use of the public.

Such public-use facilities include:

- Convention centers, arenas, meeting facilities, pedestrian or shopping malls and plazas
- Paintings, murals, fountains or kiosks
- Parks, lawns, gardens, trees or other landscapes
- Streetscapes, lighting, benches, marquees, awnings, canopies, trash receptacles, walls
- Lakes, dams and waterways
- Sidewalks, streets, alleyways, bridges, ramps, tunnels, traffic signs and signals utilities, drainage works, water, storm and sewer systems and other site improvements
- Parking lots, garages
- Childcare facilities and any other useful, necessary or desired improvement

A CID may also provide a variety of public services, some of which may be:

- Operating or contracting for the operation of parking facilities, shuttle bus services
- Leasing space for sidewalk café tables and chairs
- Providing trash collection and disposal services
- With consent of the municipality, prohibiting, or restricting vehicular and pedestrian traffic and vendors on streets
- Within a designated "blighted area", contract with any private property owner to demolish, or rehabilitate any building or structure owned by such property owner
- Providing or contracting for security personnel, equipment or facilities

FINANCIAL RESOURCES

Funding of CID projects and services must be set forth in the requesting petition that is presented to the local governing body of the municipality in which the CID is located. Funding may be accomplished by district-wide special assessment, rents, fees, and charges for the use of CID property or services, grants, gifts or donations. If the CID is organized as a political subdivision, property and sales taxes may also be imposed within the boundaries of the CID.

ORGANIZING A CID

By request petition, signed by property owners owning at least 50% of the assessed value of the real property and more than 50% per capita of all owners of real property within the proposed CID, presented for authorizing ordinance to the governing body of the local municipality in which the proposed CID would be located. Language contained in the petition narrative must include a five year plan, describing the purposes of the proposed district, the services it will provide, the improvements it will make and an estimate of the costs of those services and improvements and the maximum rates of property taxes and special assessments that may be imposed within the proposed district. Other information must state how the CID would be organized and governed and whether the governing board would be elected or appointed. There are specific rules that provide the required elements of a CID petition, and the procedures for publication, public hearings, etc.

ADVANTAGES

Broader Use of Funds than TDD
Ease of creation, formed by the City
Locally Driven
Board could be appointed by City

CHALLENGES:

Tax Increase
Political exposure to City
Limited to public improvements unless blighted

TRANSPORTATION DEVELOPMENT DISTRICT

A Transportation Development District (TDD) may be created to act as the entity responsible for developing, improving, maintaining, or operating one or more “projects” relative to the transportation needs of the area in which the District is located. A TDD may be created by request petition filed in the circuit court of any county partially or totally within the proposed district.

The district has the authority to finance the project through special assessments; property tax, sales tax, or toll roads. In addition, they can liquidate any and all of the above methods through debt financing. Special Assessments must either be approved by a majority vote of district voters, if any, or by the district property owners, who will indicate their approval by signing a special assessment petition. There may be one or more assessments, which must apply to project improvements that specially benefit district properties.

TYPICAL BUDGET ITEMS

A TDD serves to fund, promote, plan, design, construct, improve maintain or operate one or more “projects” or to assist in such activity. “Projects may include:

- Streets, highways, roads, interchanges, intersections, bridges, traffic signal lights or signage;
- Bus stops, terminals, stations, wharves, docks, rest areas or shelters;
- Airports, river, or lake port, railroad, light rail or other mass transit improvements and any similar or related improvement or infrastructure.

FINANCIAL RESOURCES

Funding of TDD projects may be accomplished through the creation of District-wide special assessments or property or sales taxes with a required majority voter or petition approval. Other funding sources requiring voter majority approval may include establishing tolls or fees for the use of the project. The TDD may also issue bonds, notes, and other obligations in accordance with the authority granted to the entity for such issuance.

ORGANIZING A TDD

At least 50 registered voters from each county within the proposed district, or the governing body of any local transportation authority within any county where the proposed project is to be located, all of the property owners within the proposed district, if no district residents are eligible to be registered voters, or two or more local transportation authority's adopting resolutions to form a district; with one, subsequently filing.

ADVANTAGES

Most allowable spending matches up
Multiple ways to form (property owners, voters or City)
Multiple ways to approve sales tax (registered voters or property owners)
Can be noncontiguous

CHALLENGES:

Use of fund restricted to transportation only
Formed by Court
Tax requires and election
Political exposure to City
Tax increase

TAX INCREMENT FINANCING

Tax Increment Financing (TIF) allows for the capture of 100% of incremental local property tax and 50% of incremental local sales tax for 23 years to be spent on the redevelopment of a Blighted Area as defined by Statute.

The focus of the funding opportunities for the Route 9 Project centers on the redevelopment of specific locations. The City of Parkville could consider the use of TIF to accelerate that redevelopment and share a portion of the captured revenues with the specific location and use a portion to advance the Route 9 Project

TYPICAL BUDGET ITEMS

TIF may be used to pay certain costs incurred with a redevelopment project. Such costs may include, but are not limited to:

- Professional services such as studies, surveys, plans, financial management, legal counsel;
- Land acquisition and demolition of structures;
- Rehabilitating, reparigin existing buildings on site;
- Building necessary new infrastructure in the project area such as streets, sewers, parking, lighting; and
- Relocation of resident and business occupants located in the project area.

APPROVAL OF TIF

TIF begins with the establishment of a TIF Commission by the City consisting of specific members to represent the impacting taxing jurisdiction. A plan with specific statutory requirements is submitted for recommendation by the TIF Commission to the governing body of the City. Next the City takes up the TIF Plan and approves it by Ordinance. A TIF plan is usually implemented by a Redevelopment Agreement.

ADVANTAGES

All allowable spending matches up
Local Control
Spurs Redevelopment
A plan can cover a large Redevelopment Area but active specific projects as they begin

CHALLENGES:

Impacts other taxing districts
Political exposure to the City

CAPITAL IMPROVEMENT SALES TAX

The City of Parkville has the statutory authority to seek voter approval for a ½% Capital Improvement Sales Tax. The revenues created from this sales tax can be used to fund capital improvements, operation and maintenance of capital improvements, as well as the retirement of bonds issued to fund capital improvements.

TYPICAL BUDGET ITEMS

Capital Improvement Sales Tax can be used to fund a broad range of Capital Improvement Expenses:

- Pay-as-you-go expenses for capital improvements city-wide;
- Debt service on obligations issued to fund capital improvements;
- Operation and maintenance of capital improvements

APPROVAL OF A CAPITAL IMPROVEMENT SALES TAX

The City approves an ordinance to seek voter approval of a Capital Improvement Sales Tax. Voter approval requires a simple majority vote within the City.

ADVANTAGES

All allowable spending matches up
Local Control
Spurs Redevelopment
Can be used City Wide

CHALLENGES:

Tax increase
Political exposure to the City

MODOT COST SHARE

Current Missouri state budget forecasts for transportation infrastructure are significantly less than prior years. This has caused the Missouri Department of Transportation (MODOT) to suspend applications for their Cost Share Program. However, long range budget forecasts are improving and the Cost Share Program has proven enormously popular and efficient in enhancing the financial viability of MODOT and, therefore, the Project Team believes it will eventually be restored and potentially enhanced. The financial needs of state transportation will eventually be addressed. The Project Team believes that it is important to position Parkville to take full advantage of whatever solution presents itself. Positioning the Route 9 Project for MODOT funding includes identifying the items in the project budget that would qualify for the cost share program. It is imperative that the Parkville project be staged and developed to a point that the full benefit of whatever available funds can be secured. Under the currently suspended Cost Share Program, MODOT is allowed to match up to \$20 million, consequently, the Project Team is evaluating sources for the local match. If secured, this could fully fund the project.

MODOT TRANSFERS CONTROL OF ROUTE 9 TO THE CITY

An additional option for the City to consider is potentially taking over this section of Route 9 from MoDOT. This option should only be considered by the City under the following circumstances: 1) the proposed improvements to Route 9 would be most effectively implemented under City leadership, 2) MoDOT agrees to provide funds (in addition to the Cost Share Program) to cover maintenance expenditures for a 20-year period. Once the scope of coverage from MODOT is ascertained, the next likely source of funding would be a loan through the Missouri Transportation Finance Corporation (MTFC). It is anticipated that the Project will liquidate an annual revenue stream through the Missouri Transportation Finance Corporation who offer subsidized loans for transportation infrastructure. The Project Team is evaluating and sizing various annual revenue sources inclusive of special taxing district revenues (Benefit District) and other sources.

LOCAL GROWTH

The following tables show local growth of businesses along Route 9. Modest growth, moderate growth and major growth are all compared and used in the financial analysis.

MODEST DEVELOPMENT

| | Single Family | Attached | Multi-Family | Retail | Office | Industrial | Public/Civic | Educational | Hotel |
|---------------------------|----------------------|-----------------|---------------------|---------------|---------------|-------------------|---------------------|--------------------|--------------|
| | Units | Units | Units | Sq. Feet | Sq. Feet | Sq. Feet | Sq. Feet | Sq. Feet | Rooms |
| Convenience Retail | | | | 5,858 | | | | | |
| Parkville Commons InFill | | | | | | | | | |
| Parkville Connections | 1 | | | 4,200 | 1,350 | 25,270 | | | |
| SKG LLC Property | | | | | | | | | |
| Riss Lake Frontage | | | | | | | | | |
| East Street Redevelopment | 2 | | 55 | 11,950 | | | 11,250 | 28,800 | |
| Downtown Infill | | | | | | | | | |
| American Water Site | | | | 4,050 | 4,125 | | | | |
| TOTAL | 3 | 0 | 55 | 26,058 | 5,475 | 25,270 | 11,250 | 28,800 | 0 |
| NET | 0 | 0 | 55 | 8,508 | 4,125 | -12,500 | -11,200 | 28,800 | 0 |

MODERATE DEVELOPMENT

| | Single Family | Attached | Multi-Family | Retail | Office | Industrial | Public/Civic | Educational | Hotel |
|---------------------------|---------------|----------|--------------|----------------|---------------|----------------|----------------|---------------|----------|
| | Units | Units | Units | Sq. Feet | Sq. Feet | Sq. Feet | Sq. Feet | Sq. Feet | Rooms |
| Convenience Retail | | | | 5,858 | | | | | |
| Parkville Commons InFill | | | | 14,000 | 11,200 | | | | |
| Parkville Connections | | | 170 | 86,000 | 10,000 | | | | |
| SKG LLC Property | | | | | 28,000 | | | | |
| Riss Lake Frontage | | | | 6,000 | | | | | |
| East Street Redevelopment | 2 | | 55 | 11,950 | | | 11,250 | 28,800 | |
| Downtown Infill | | | | 2,000 | | | | | |
| American Water Site | | | | 4,050 | 4,125 | | | | |
| TOTAL | 2 | 0 | 225 | 129,858 | 53,325 | 0 | 11,250 | 28,800 | 0 |
| NET | -1 | 0 | 225 | 112,308 | 51,975 | -37,770 | -11,250 | 28,800 | 0 |

MAJOR DEVELOPMENT

| | Single Family | Attached | Multi-Family | Retail | Office | Industrial | Public/Civic | Educational | Hotel |
|---------------------------|---------------|-----------|--------------|----------------|----------------|----------------|----------------|---------------|----------|
| | Units | Units | Units | Sq. Feet | Sq. Feet | Sq. Feet | Sq. Feet | Sq. Feet | Rooms |
| Convenience Retail | | | | 5,858 | | | | | |
| Parkville Commons InFill | | | 66 | 14,000 | 11,200 | | | | |
| Parkville Connections | 46 | 65 | 170 | 96,000 | 20,000 | | | | |
| SKG LLC Property | | | | | 56,000 | | | | |
| Riss Lake Frontage | | | | 6,000 | 12,000 | | | | |
| East Street Redevelopment | | | 112 | 15,500 | | | 10,500 | 28,800 | |
| Downtown Infill | | | | 2,000 | 2,000 | | | | |
| American Water Site | | | 44 | 5,250 | | | | | |
| TOTAL | 46 | 65 | 392 | 144,608 | 101,200 | 0 | 10,500 | 28,800 | 0 |
| NET | 43 | 65 | 392 | 127,058 | 99,980 | -37,770 | -11,950 | 28,800 | 0 |

LOCAL ECONOMIC DRIVERS

An initial sizing of economic drivers (real estate value and retail sales base) are summarized in the table below. The value is based on projected construction cost and the sales are based on \$100 per square foot. While some of these users will create more sales than others this is a good base line point for analysis.

Modest Level Economic Drivers

| | Fair Market Value (FMV) | Assessed | FMV TIF | Sales |
|---------------------------|-------------------------|--------------------|---------------------|--------------------|
| Convenience Retail | \$1,054,440 | \$337,421 | \$1,054,440 | \$585,800 |
| Parkville Commons InFill | \$66,500 | \$21,280 | \$0 | \$0 |
| Parkville Connections | \$518,321 | \$41,336 | \$999,000 | \$420,000 |
| SKG LLC Property | \$312,000 | \$99,840 | \$0 | \$0 |
| Riss Lake Frontage | \$60,750 | \$17,100 | \$60,750 | \$0 |
| East Street Redevelopment | \$20,913,000 | \$5,490,960 | \$11,673,000 | \$1,195,000 |
| Downtown Infill | \$381,000 | \$21,920 | \$0 | \$0 |
| American Water Site | \$1,226,250 | \$470,880 | \$1,226,250 | \$405,000 |
| TOTAL | \$24,532,261 | \$6,669,737 | \$15,013,440 | \$2,605,800 |
| NET | \$7,777,783 | \$1,443,810 | -\$402,467 | \$850,800 |

Moderate Level Economic Drivers

| | Fair Market Value (FMV) | Assessed | FMV TIF | Sales |
|---------------------------|-------------------------|---------------------|---------------------|---------------------|
| Convenience Retail | \$1,054,440 | \$337,421 | \$1,054,440 | \$585,800 |
| Parkville Commons InFill | \$4,200,000 | \$1,344,000 | \$4,536,000 | \$1,400,000 |
| Parkville Connections | \$42,000,000 | \$10,180,800 | \$17,280,000 | \$8,600,000 |
| SKG LLC Property | \$3,920,000 | \$1,612,800 | \$3,920,000 | \$0 |
| Riss Lake Frontage | \$900,000 | | \$900,000 | \$600,000 |
| East Street Redevelopment | \$20,913,000 | \$2,193,120 | \$2,151,000 | \$1,195,000 |
| Downtown Infill | \$300,000 | \$115,200 | \$300,000 | \$200,000 |
| American Water Site | \$1,226,250 | \$470,880 | \$0 | \$405,000 |
| TOTAL | \$74,513,690 | \$16,254,221 | \$30,141,440 | \$12,985,800 |
| NET | \$57,759,212 | \$10,998,294 | \$13,386,962 | \$11,230,800 |

Major Level Economic Drivers

| | Fair Market Value (FMV) | Assessed | FMV TIF | Sales |
|---------------------------|-------------------------|---------------------|---------------------|---------------------|
| Convenience Retail | \$1,054,440 | \$337,421 | \$1,054,440 | \$585,800 |
| Parkville Commons InFill | \$13,704,000 | \$4,35,280 | \$4,536,000 | \$1,400,000 |
| Parkville Connections | \$60,784,000 | \$14,263,360 | \$20,880,000 | \$9,600,000 |
| SKG LLC Property | \$7,840,000 | \$3,225,600 | \$7,840,000 | \$0 |
| Riss Lake Frontage | \$2,700,000 | \$1,036,800 | \$2,700,000 | \$600,000 |
| East Street Redevelopment | \$32,456,000 | \$3,957,120 | \$2,790,000 | \$1,550,000 |
| Downtown Infill | \$600,000 | \$230,400 | \$600,000 | \$200,000 |
| American Water Site | \$8,127,000 | \$1,506,240 | \$0 | \$525,000 |
| TOTAL | \$127,265,440 | \$28,942,221 | \$40,400,440 | \$14,460,800 |
| NET | \$110,510,962 | \$26,686,294 | \$23,645,962 | \$12,705,800 |

ANNUAL REVENUE SCENARIOS

An initial sizing of possible revenue sources is summarized in the table below.

Annual Revenue Streams

| | Modest Development | Moderate Development | Major Development |
|--|--------------------|----------------------|-------------------|
| New City Revenue (NCR) Property | 9,405 | 71,643 | 154,293 |
| New City Revenue (NCR) Sales | 12,762 | 168,462 | 190,587 |
| TIF Revenue | - | 473,521 | 747,255 |
| City Revenue after TIF | - | 84,231 | 95,294 |
| Special District Revenue | 8,508 | 112,308 | 127,058 |
| City Wide Capital Improvement Tax | 459,254 | 511,154 | 518,529 |

Sample Missouri Transportation Finance Corporation (MTFC) Project Funds

| | Modest Development | Moderate Development | Major Development |
|---|--------------------|----------------------|-------------------|
| New City Revenue (NCR) | 131,959 | 1,996,858 | 2,868,227 |
| TIF | - | 3,126,806 | 4,592,062 |
| NCR and TIF | 131,959 | 5,123,664 | 7,460,288 |
| NCR, TIF & Special District (SD) | 167,787 | 6,758,201 | 9,309,498 |
| NCF, TIF, SD & CIT | 3,969,757 | 11,009,267 | 13,621,899 |

CONCLUSION OF FUNDING OPTIONS

From reviewing the table above the Mayor, the Board of Alderman and the public can understand the current financial situation. Revenue can be generated from new businesses in the form of property or sales taxes, Tax Increment Finance Area (TIF), Special District (SD), and City Wide Improvement Tax. Based on the current local taxes, the City could collect between \$16,000 and \$345,000 annually, depending on the amount of new development. Another revenue producer could be the use of Tax Increment Financing (TIF). Projections suggest that an annual revenue stream between \$0 and \$552,000 could be produced from a TIF. Current projections in revenue from new businesses along the corridor that could be part of a special taxing district [either a Community Improvement District (CID) or a Transportation Development District (TDD)] suggest that an annual revenue between \$4,000 and \$127,000 could be produced from a 1% Special District Sales Tax. The Project Corridor already includes a number of Special Districts (Transportation Development District (TDD) or Community Improvement District (CID)). Given the current lay of the land in Parkville it is not possible to simply overlay a corridor wide Special District to garner project funding since most of the area is already covered by Special District. A City-wide sales tax is an additional funding mechanism that could be employed. Revenue projections suggest that annual revenue of \$457,154 could be produced from a ½% City-wide sales tax (either Economic Development or Capital Improvement). These funding methods could be blended in any manner that the Mayor and Board of Alderman think would be advisable.

No discussion of a new sales tax is complete without reviewing the impact on the overall tax rate. The project corridor already includes a number of special districts with a sales tax. The total sales rate ranges from 7.1% to 9.1% depending on location. Forming new special districts with a 1% sales tax will put the corridor at 8.1% thus on a level playing field with the rest of the city. As for a city wide sales tax, the metropolitan area has sales tax rates in areas with special districts that vary from 8.725% – 10.15% so an all in sales tax rate of 8.6% with a 1% special district and ½% City Wide Sales tax would be marketable.

As the project progresses, it is possible that other MODOT programs could add additional funds for the project segments, and the City of Parkville could take control of maintenance and operations of Route 9. In addition, there remains discussion of a new funding solution for MODOT and should the voters decide to support it, it could provide a significant infusion of match or unmatched funds.

Using this report, the City of Parkville can move towards their “Grand Vision” for their community. This financial section explained the various funding options for Route 9 and, while some options may be more favorable than others, this report will arm the City with the knowledge to make firm financial decisions.

MID-AMERICA REGIONAL COUNCIL (MARC) GRANT CRITERIA

As the metropolitan areas designated planning organization the Mid-America Regional Council (MARC) provides funding grants for transportation projects with similar goals to the Route 9 Corridor improvements. These are three categories the city may submit projects to for funding: 1.) the Surface Transportation Program (STP), 2.) the Transportation Alternatives Program (TAP), and 3.) the Congestion Mitigation & Air Quality Program (CMAQ). Projects can be submitted into each of these categories, making it possible for any one project to receive funding from multiple categories. To be considered for funding, the City must submit their selected project(s) to MARC during the “call for projects” period, which will take place from January 2016 to March 2016. Projects must be submitted using MARC’s criteria for project types. As a part of the Route 9 Corridor Study, the project team scored each project segment using the MARC criteria. Each of the project segments score very high in each of the 3 possible grant funds; Transportation Alternatives Program, Congestion Mitigation and Air Quality Improvement Program, and Surface Transportation Program. If a MARC grant is awarded, each of the submitted projects will require a 20% match of funds. To be competitive in the pool of projects asking for funds, a viable option is to submit two or more projects to MARC. The multiple projects to be submitted could each be a combination of two adjacent project segments. Another option is to have multiple local authorities submit for a MARC grant. Grants are awarded based on a scoring system. The scoring breakdown is detailed below and is based on the best possible scores per segment.

A. Transportation Alternatives Program (100 Points Maximum)

TAP Project Eligibility

- 1) Relate to surface transportation in terms of function, proximity, and impact.
- 2) Include at least one of the federally designated TAP activities that MARC has condensed into five categories:

Category I. Active Transportation Infrastructure Projects

Infrastructure projects — both on-road and off-road — related to bicycle, pedestrian and other non-motorized forms of transportation

TAP Project Deductions

(All Projects)

-5 points because the area is not in an EJ tract

Environmental Justice tracts are census tracts with minority populations above average and > 20% of the population is in poverty.

See Environmental Justice document for details

(Category I)

-4 points if project serves any activity center higher development intensity and walkability

(-0 points if highest development intensity)

The intersection at Route 9 and Hwy 45 is a higher-intensity and more-walkable center

OR

-6 points if project serves any activity centers

Downtown Parkville near Park University is a basic activity center

OR

-10 points if project serves no activity centers

-5 points because project excludes elements that use renewable energy sources, recycled materials, or other green technologies

-6 points because Parkville’s population is 5,928 (2013), and the population residents & employees w/in 1-mi radius ranges from 5,000 to 9,999

B. Congestion Mitigation and Air Quality Improvement Program (100 Points Maximum)

CMAQ Project Eligibility

1) All federal eligibility, based on the most recent guidance of the CMAQ Program, must be met.

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

2) Must be a transportation project that meets the federally designated CMAQ activity that MARC has categorized as:

Bicycle Pedestrian Projects. Construction of bicycle/pedestrian facilities (paths, bike racks, support facilities, etc.) that are not exclusively recreational and provide a reduction in single-occupant vehicle travel.

3) Must generate an emissions reduction.

4) Must be located in or benefit a nonattainment or maintenance area within the Kansas City region.

CMAQ Project Deductions

0 points deducted without details on each segment's emissions

C. Surface Transportation Program

STP Project Eligibility

In general, the location of STP projects is not limited. However, STP projects may not be undertaken on roads functionally classified as local or rural minor collectors unless the roads were on a Federal-aid highway system on January 1, 1991, except—

1) for Bridges Not on Federal-aid Highways,

2) for projects described in paragraphs (2), (4), (6), (7), (11), (20), (25), and (26), of 23 U.S.C. 133(b) (described below under “Eligible Activities”),

3) as approved by the Secretary, and

4) for areas of 5,000 or less population (described below under “Special Rule for Areas of 5,000 or less population (23 U.S.C. 133(h))”).

STP Project Deductions

(All Projects)

-5 points because the area is not in an EJ tract

Environmental Justice tracts are census tracts with minority populations above average and > 20% of the population is in poverty.

See Environmental Justice document for details.

(Bridge Restoration, Rehabilitation, & Replacement)

N/A

(Bicycle/Pedestrian, Livable Communities Pilot Projects & Other Eligible Projects)

-6 points if project serves any activity center higher development intensity and walkability

(-0 points if highest development intensity)

The intersection at Route 9 and Hwy 45 is a higher-intensity and more-walkable center

OR

-9 points if project serves any activity centers

Downtown Parkville near Park University is a basic activity center

OR

-15 points if project serves no activity centers

-14 points because Parkville's population is 5,928 (2013), and the population residents & employees w/in 1-mi radius ranges from 5,000 to 9,999

(Public Transportation)

N/A

(Roadway Capacity)

-4 points if project serves any activity center higher development intensity and walkability
(-0 points if highest development intensity)

The intersection at Route 9 and Hwy 45 is a higher-intensity and more-walkable center

OR

-6 points if project serves any activity centers

Downtown Parkville near Park University is a basic activity center

OR

-10 points if project serves no activity centers

-3 points because project is not on the Central Monitoring System (CMS)

-2 points because the current AADT/Lane on Route 9 is between 5,001 10,000

Route 9 traffic near Horizons Pkwy is 14,025 vpd. Route 9 traffic near R45 is 10,696 vpd.

(Transportation Operations and Management)

-4 points if project serves any activity center higher development intensity and walkability
(-0 points if highest development intensity)

The intersection at Route 9 and Hwy 45 is a higher-intensity and more-walkable center

OR

-6 points if project serves any activity centers

Downtown Parkville near Park University is a basic activity center

OR

-10 points if project serves no activity centers

-4 points because project is not on the Central Monitoring System (CMS)

-5 points because project does not include a bridge replacement

-2 points because the current AADT/Lane on Route 9 is between 5,001 10,000

Route 9 traffic near Horizons Pkwy is 14,025 vpd. Route 9 traffic near R45 is 10,696 vpd.

-2 points because the future AADT/Lane on Route 9 is between 5,001 10,000

Route 9 traffic near Horizons Pkwy is 14,025 vpd. Route 9 traffic near R45 is 10,696 vpd.

(Transportation Safety)

-4 points if project serves any activity center higher development intensity and walkability
 (-0 points if highest development intensity)

The intersection at Route 9 and Hwy 45 is a higher-intensity and more-walkable center
 OR

-6 points if project serves any activity centers
 Downtown Parkville near Park University is a basic activity center
 OR

-10 points if project serves no activity centers

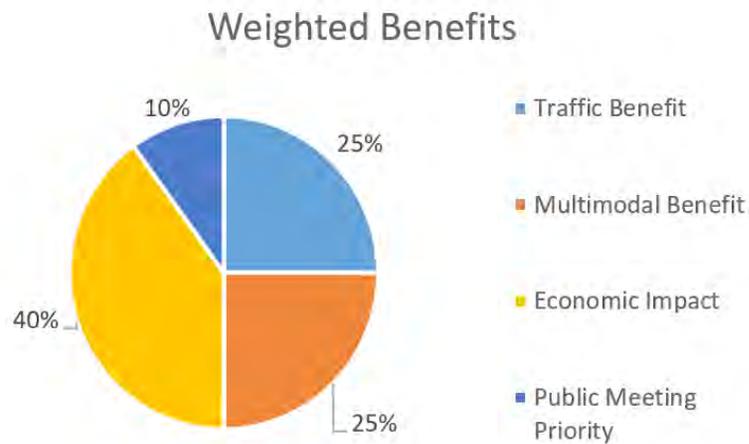
-4 points because the current AADT/Lane on Route 9 is between 5,001 10,000
 Route 9 traffic near Horizons Pkwy is 14,025 vpd. Route 9 traffic near R45 is 10,696 vpd.

-4 points because the future AADT/Lane on Route 9 is between 5,001 10,000
 Route 9 traffic near Horizons Pkwy is 14,025 vpd. Route 9 traffic near R45 is 10,696 vpd.

| Segment | TAP All Projects + Category I (30 Max + 70 Max) | CMAQ (100 Max) | STP All Projects (30 Max) | STP Bicycle / Pedestrian Livable Communities Pilot Projects & Other Eligible Projects (100 Max) | STP Roadway Capacity (100 Max) | STP Transportation Operations & Management (100 Max) | STP Transportation Safety (90 Max) |
|---|---|-------------------|---------------------------------|---|---|--|---|
| Route 45 to 62nd Street | 80 | 100 | 25 | 80 | 89 | 83 | 78 |
| 62nd Street to Parkville Athletic Complex (PAC) | 80 | 100 | 25 | 80 | 89 | 83 | 78 |
| PAC to Lakview Drive | 80 | 100 | 25 | 80 | 89 | 83 | 78 |
| Lakeview Dr. to 13th St. | 74 | 100 | 25 | 71 | 83 | 77 | 72 |
| 13th St. to 12 St. | 74 | 100 | 25 | 71 | 83 | 77 | 72 |
| 12 St. to 7th St. | 74 | 100 | 25 | 71 | 83 | 77 | 72 |
| 7th St. to 5th St. | 78 | 100 | 25 | 77 | 87 | 81 | 76 |
| 5th St. to 2nd St. | 78 | 100 | 25 | 77 | 87 | 81 | 76 |
| 2nd to White Alloe Creek | 78 | 100 | 25 | 77 | 87 | 81 | 76 |
| White Alloe Creek to Park University Entrance Dr. | 78 | 100 | 25 | 77 | 87 | 81 | 76 |
| Park University Entrance Dr. To Coffee Rd. | 74 | 100 | 25 | 71 | 83 | 77 | 72 |
| Coffey Rd to Mattox Rd. | 74 | 100 | 25 | 71 | 83 | 77 | 72 |

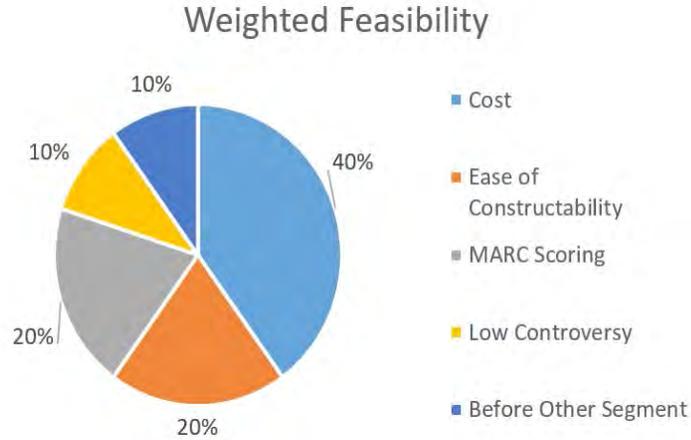
PROJECT PRIORITIZATION

Throughout the process of completing the Route 9 Corridor Study, it was critical that one of the most important outcomes needed to be a project prioritization matrix that would provide specific direction for community decision makers as to what order projects should move forward towards construction. Several categories of criteria were included within this matrix, which were developed over the multiple months of work with the Steering Committee and City leaders. Criteria included within the matrix includes: traffic benefit, multimodal benefit, economic benefit, public meeting priority, construction costs, ease of constructability, MARC scoring, low controversy, and requiring other segments to be built first. The scoring system applies a value of 0, 0.5, or 1 to each of the resultant categories which is multiplied by the weighted factor. Also of importance to have in the matrix is the scoring of every project segment using the Mid-America Regional Council Surface Transportation Program (STP) project scoring criteria. This MARC scoring is a significant category particularly if the City decides to submit Route 9 projects for federal funding. As one can see in the Prioritization Matrix, all of the Route 9 projects score very well within the MARC system, therefore the projects should receive strong consideration if submitted for funding.



Benefits in Addition to Safety

| Project Segment | Traffic Benefit | Multimodal Benefit | Economic Benefit | Public Meeting Priority | Score (/50) | Rank |
|---|-----------------|--------------------|------------------|-------------------------|-------------|------|
| Route 45 to 62nd Street | Good | Best | Med | 1 | 27.5 | 5 |
| 62nd St. to PAC | Better | Best | Med | 2 | 33.75 | 2 |
| PAC to Lakeview | Best | Best | High | 4 | 50 | 1 |
| Lakeview Dr to 13th St | Better | Best | Low | 5 | 21.25 | 8 |
| 13th Street to 12th St | Better | Best | Low | 8 | 21.25 | 8 |
| 12th St to 7th St. | Good | Better | Low | 9 | 6.25 | 12 |
| 7th St 5th St | Better | Good | High | 11 | 26.25 | 6 |
| 5th St to 2nd St | Good | Good | High | 6 | 22.5 | 7 |
| 2nd St to White Alloe Creek | Best | Good | High | 9 | 32.5 | 4 |
| White Alloe Creek to Park University Entrance Drive | Better | Better | Low | 11 | 12.5 | 11 |
| Park University Entrance Dr to Coffey Road | Best | Better | Low | 6 | 21.25 | 8 |
| Coffey Rd to Mattox Rd | Best | Better | Med | 3 | 33.75 | 2 |



Feasibility

| Project Segment | Cost | Ease of Constructability | MARC Scoring | Low Controversy | Require Other Segment | Score (/50) |
|---|-------------|--------------------------|--------------|-----------------|-----------------------|-------------|
| Route 45 to 62nd Street | \$750,354 | Easy | Best | Y | N | 40.0 |
| 62nd St. to PAC | \$550,077 | Easy | Best | N | N | 45.0 |
| PAC to Lakeview | \$1,518,451 | Hard | Best | Y | N | 20.0 |
| Lakeview Dr to 13th St | \$2,031,710 | Easy | Good | Y | Y | 15.0 |
| 13th Street to 12th St | \$908,953 | Hard | Good | Y | N | 20.0 |
| 12th St to 7th St. | \$785,360 | Easy | Good | Y | Y | 25.0 |
| 7th St 5th St | \$603,512 | Easy | Better | Y | N | 35.0 |
| 5th St to 2nd St | \$198,543 | Easy | Better | N | N | 40.0 |
| 2nd St to White Alloe Creek | \$537,729 | Hard | Better | N | Y | 25.0 |
| White Alloe Creek to Park University Entrance Drive | \$414,886 | Hard | Better | Y | Y | 30.0 |
| Park University Entrance Dr to Coffey Road | \$1,560,161 | Hard | Good | Y | N | 20.0 |
| Coffey Rd to Mattox Rd | \$1,554,555 | Hard | Good | Y | N | 20.0 |

Benefits Ranking

| | | |
|----|--|--|
| 1 | PAC to Lakeview Dr | 62nd to PAC |
| 2 | 62nd St to PAC | PAC to Lakeview Dr |
| 3 | Coffey Rd to Mattox Rd | Route 45 to 62nd |
| 4 | 2nd St to White Alloe Creek | 5th St to 2nd St |
| 5 | Route 45 to 62nd St | 7th St to 5th St |
| 6 | 7th St to 5th St | 2nd St to White Alloe Creek |
| 7 | 5th St to 2nd St | Coffey Rd to Mattox Rd |
| 8 | 13th St to 12th St | White Alloe Creeek to Park University Entrance Drive |
| 8 | 12th St to 7th St | Park University Entrance Dr to Coffey Rd |
| 8 | Park University Entrance Dr to Coffey Rd | 13th St to 12 St |
| 11 | White Alloe Creek to Park University Entrance Dr | Lakeview Dr to 13th St |
| 12 | 12th St to 7th St | 12th St to 7th St |

Feasibility Ranking

| | |
|----|--|
| 1 | 62nd St to PAC |
| 2 | Route 45 to 62nd St |
| 3 | 5th St to 2nd St |
| 4 | 7th St to 5th St |
| 5 | White Alloe Creek to Park University Entrance Dr |
| 6 | 2nd St to White Alloe Creek |
| 7 | 12th St to 7th St |
| 8 | PAC to Lakeview Dr |
| 8 | 13th St to 12th St |
| 8 | Park University Entrance Dr to Coffey Rd |
| 8 | Coffey Rd to Mattox Rd |
| 12 | Lakeview Dr to 13th St |

Overall Ranking

| | |
|----|--|
| 1 | 62nd St to PAC |
| 2 | PAC to Lakeview Dr |
| 3 | Route 45 to 62nd St |
| 4 | 5th St to 2nd St |
| 5 | 7th St to 5th St |
| 6 | 2nd St to White Alloe Creek |
| 7 | Coffey Rd to Mattox Rd |
| 8 | White Alloe Creek to Park University Entrance Dr |
| 9 | Park University Entrance Dr to Coffey Rd |
| 10 | 13th St to 12th St |
| 11 | Lakeview Dr to 13th St |
| 12 | 12th St to 7th St |



SECTION 7

Appendices

DETAILED TRANSPORTATION ANALYSIS

- Appendix 1 - Executive Summary of New Signals
- Appendix 2 - Roundabout Capacity Check
- Appendix 3 - Route 9 at Mattox Intersection Study

ENVIRONMENTAL SCORING

- Appendix 4 - MARC Scoring Criteria
- Appendix 5 - Environmental Justice

MEETING MINUTES

- Appendix 6 - Meeting Minutes

DETAILED DESIGN DOCUMENTS

- Appendix 7 - Design Plan and Profile Sheets



ROUTE

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CORRIDOR
STUDY