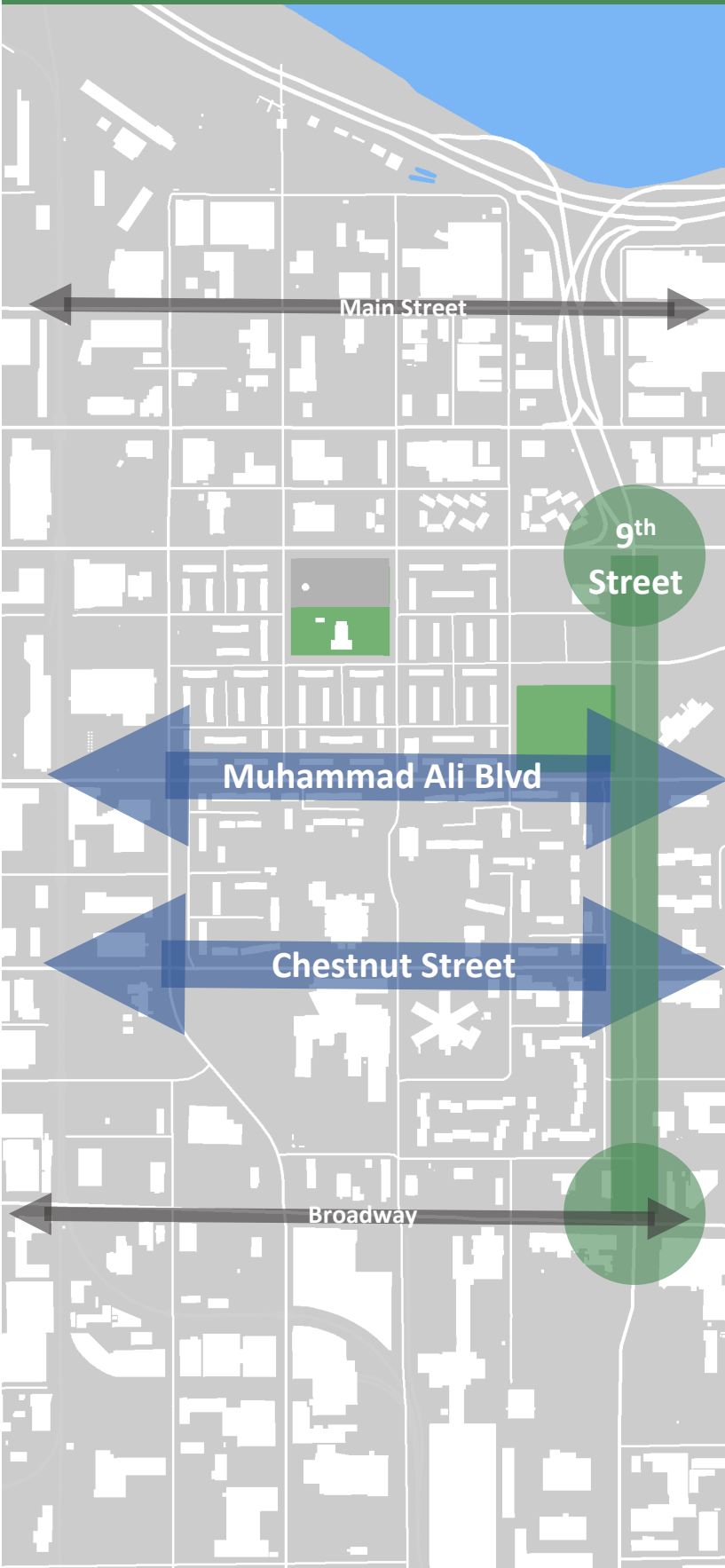
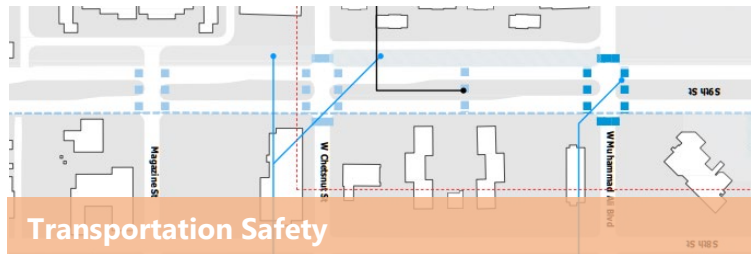


# Reimagine 9<sup>th</sup> Street



Green Infrastructure



Transportation Safety



Enhanced Mobility



Reconnecting Neighborhoods



Quality of Life



Linear Park

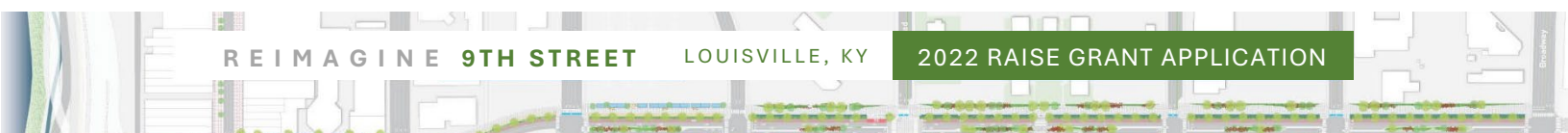


Economic Opportunity

**Safety | Sustainability | Quality of Life | Mobility**

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## I. Project Description

Louisville Metro Government’s (hereinafter referred to as LMG) project, *Reimagine 9<sup>th</sup> Street*, will transform three vital corridors: 9<sup>th</sup> Street/Roy Wilkins Avenue (hereinafter referred to as 9<sup>th</sup> Street), which runs north-south; and Muhammad Ali Boulevard and Chestnut Street/River Park Drive, which are paired one-way streets, running east-west.

<b>Project Type:</b>	
<b>Bicycle &amp; Pedestrian – Complete Streets</b>	
<b>Total Project Cost:</b>	<b>\$24,640,000</b>
<b>2022 RAISE Request:</b>	<b>\$15,584,000</b>
<b>Non-Federal Funds:</b>	<b>\$5,160,000</b>
<b>Other Federal Funds (STBG):</b>	<b>\$3,896,000</b>

### Transportation Challenges and Solutions

This project will solve several transportation challenges, including:

- Redesign the oversized right-of-way (up to 150-foot wide) as a human-scale corridor for pedestrians, bicyclists, transit riders micromobility users, and people with disabilities.
- Implement Complete Streets principles such as protected bike lanes, pedestrian boulevards, and bus-only lanes to accommodate non-motorized users and transit-riders.
- Convert one-way streets to two-way to slow vehicular speeds, improve traffic circulation, and increase visibility for local businesses.
- Improve safety for all modes by reducing the number of vehicle lanes from six to four, reducing pedestrian crossing distances, and creating raised intersections.
- Build a sustainable and resilient linear park to increase the tree canopy, improve stormwater drainage, and reduce greenhouse gas emissions.
- Promote human interaction and economic development by creating active public spaces that attract new businesses.
- Enhance health outcomes and economic opportunity for historically disenfranchised neighborhoods consisting of majority Black residents.
- Take a major step towards healing past injustices and racial segregation by removing a physical barrier that represents the divide between Louisville’s Black neighborhoods and the rest of the city.



Figure 1: Aerial view of 9th Street, looking south from Jefferson Street

## Previously Completed Project Components

### Planning Efforts

In 2016, LMG finalized its long-range transportation plan [Move Louisville](#), in which *Reimagine 9<sup>th</sup> Street* and these *One-Way to Two-Way Conversions* were identified as priorities.

In 2018, the [9<sup>th</sup> Street Corridor Plan](#) was completed. It identified challenges, defined possible solutions, and recommended design options based on robust community input. Public involvement is detailed on **page 26**. This RAISE Grant request will construct the preferred concepts in this corridor plan.

In 2020, Louisville Metro Council allocated \$1 million in the FY 2021 city budget for safety improvements on one-way streets, emphasizing on west Louisville. LMG leadership then identified Muhammad Ali Blvd and Chestnut St/River Park Drive as priority corridors for these improvements; public engagement and preliminary design began thereafter. Preliminary Design was completed in October 2021. This RAISE Grant proposal will also realize these vital upgrades.

LMG is combining the *Reimagine 9<sup>th</sup> Street* and *One-Way to Two-Way Conversion* projects for the 2022 RAISE Grant Application. Both projects focus on redressing historic barriers to prosperity for the disenfranchised residents of Louisville’s western neighborhoods.

By capitalizing on the engineering need to redesign 9<sup>th</sup> Street before converting Muhammad Ali Blvd. and Chestnut Street, clear synergies exist and support their combination into a single, transformative project.

The project is supported by numerous planning initiatives, including [Vision Louisville \(2014\)](#), [Move Louisville \(2016\)](#), [Vision Russell Transformation Plan \(2017\)](#), [Louisville Central Community Center’s \(LCCC\) Arts and Cultural Master Plan \(2018\)](#), and the Congress for the New Urbanism (CNU) Legacy Project - [East Portland Connectivity Project \(2019\)](#).

In addition, *Reimagine 9<sup>th</sup> Street* supports LMG’s [Complete Streets ordinance](#), [Dockless Vehicle Policy](#), and [Vision Zero Louisville safety initiative](#). These policies and initiatives play an important role in increasing multi-modal connectivity and improving safety, especially for vulnerable roadway users.,

Elected representatives and city leadership passionately support the project, as demonstrated by the included letters of support ([Appendix A: Letters of Support](#)).

## Broader Context of Project

### Relation to Other Transportation Infrastructure Investments

Louisville Metro Government is investing in a multitude of significant transportation projects in and around the 9<sup>th</sup> Street corridor. These projects include:

#### [Transforming Dixie Highway Bus Rapid Transit \(BRT\):](#)

- A USDOT TIGER Grant-funded project (awarded in 2015). The BRT, dubbed the “Rapid,” began operating in December 2019 and runs along the 9<sup>th</sup> Street corridor.



Figure 2: TARC Rapid bus

Broadway All the Way:

- A visionary plan to expand Bus Rapid Transit, connecting to the Dixie Highway Rapid bus service, that will run east-west through the heart of the city. It also includes Complete Streets improvements and is a catalytic project for the city. LMG is submitting this project for a [RAISE Planning Grant in 2022](#).

One-Way to Two-Way Street Conversions:

- Many Louisville streets were converted from two-way to one-way during Urban Renewal to accommodate automobile movement. LMG is in process of reversing these dangerous designs in order to increase safety, especially for non-motorized travelers.

River Road Extension and River Road Multi-Modal Project:

- LMG will extend River Road from 7<sup>th</sup> Street to 13<sup>th</sup> Street, providing a new connection to Waterfront Park Phase IV and the Portland neighborhood to the west. The multi-modal project will complement the extension with new pedestrian and bicycle facilities, connected to amenities such as the Louisville Loop, a 100+ mile shared-use path.

**Relation to Other Community Investments**

Over \$1 billion is being invested in the neighborhoods of west Louisville, driving an unprecedented renaissance. However, this investment comes with gentrification and displacement risks. To address this, LMG has partnered with [Russell: A Place of Promise](#), a justice-based initiative focused on Black wealth-building and investment without displacement. Community investments in the built environment include:

Beecher Terrace, a HUD Choice Neighborhoods Initiative:

- Immediately adjacent to 9<sup>th</sup> Street, this redevelopment is expected to be complete in 2025 and includes 620 mixed-income rental units and 20 homeownership units. This was partially funded by three separate HUD Choice Neighborhood Initiative grants totaling \$31 million. Louisville was the first city to secure all three grant awards for a single project (**Figure 3**).



*Figure 3: Ribbon-cutting on June 9, 2021 celebrating the completion of Beecher Terrace Phases I and II*

Quinn Chapel and Bourgard College of Music & Art:

- LMG was awarded multiple grants from the National Park Service: two African American Civil Rights Grants totaling \$950,000 for Quinn Chapel and a \$500,000 History of Equal Rights grant for Bourgard. These grants are helping to stabilize and preserve these historic buildings for adaptive reuse (**Figure 4**).



*Figure 4: Quinn Chapel AME (African Methodist Episcopal) Church, circa 1920*

Norton Healthcare Sports and Learning Center:

- This 24-acre, multi-sport complex was built on a former brownfield site located at 30<sup>th</sup> Street and Muhammad Ali Blvd. It was a \$53M investment and opened in February 2021.

Waterfront Park Phase IV:

- This \$35 million, 22-acre expansion of Waterfront Park, between 10<sup>th</sup> and 15<sup>th</sup> Streets, will connect downtown to west Louisville neighborhoods along the Ohio River waterfront.

**Statement of Work**

**Current Design Status**

For the 9<sup>th</sup> Street corridor, this will be a Design-Bid-Build construction project. The only design work completed to date is the conceptual [9th Street Corridor Plan \(2018\)](#) and an environmental overview to help determine the level of NEPA analysis that will be required.

For the one-way to two-way conversions on Muhammad Ali Blvd and Chestnut St./River Park Dr., Preliminary Design was completed in February 2022 with an environmental overview (see [Appendix K: Preliminary Design Plans for OWTW Muhammad Ali-Chestnut-River Park](#)).

Both environmental overviews followed the Kentucky Transportation Cabinet’s process for non-federally funded projects. LMG recognizes that with the introduction of federal funds to the project, both environmental overviews will have to be reevaluated to determine the level of Categorical Exclusion (CE); however, some level of CE is anticipated.

**Project to be Constructed**

This project will realize the concepts and recommendations of the [9th Street Corridor Plan \(2018\)](#). The preferred concept from that plan is “Alternative 3: Urban Parkway.” **Figure 5** compares the existing conditions to the preferred concept. As we begin Preliminary Engineering, additional traffic analysis will be needed to refine the design and affirm the details of the concepts included in Alternative 3. The Final Design and NEPA processes will fully inform how each component from the concept will be included; assuming all concept elements are feasible. The cost estimates discussed herein were based on Alternative 3: Urban Parkway.

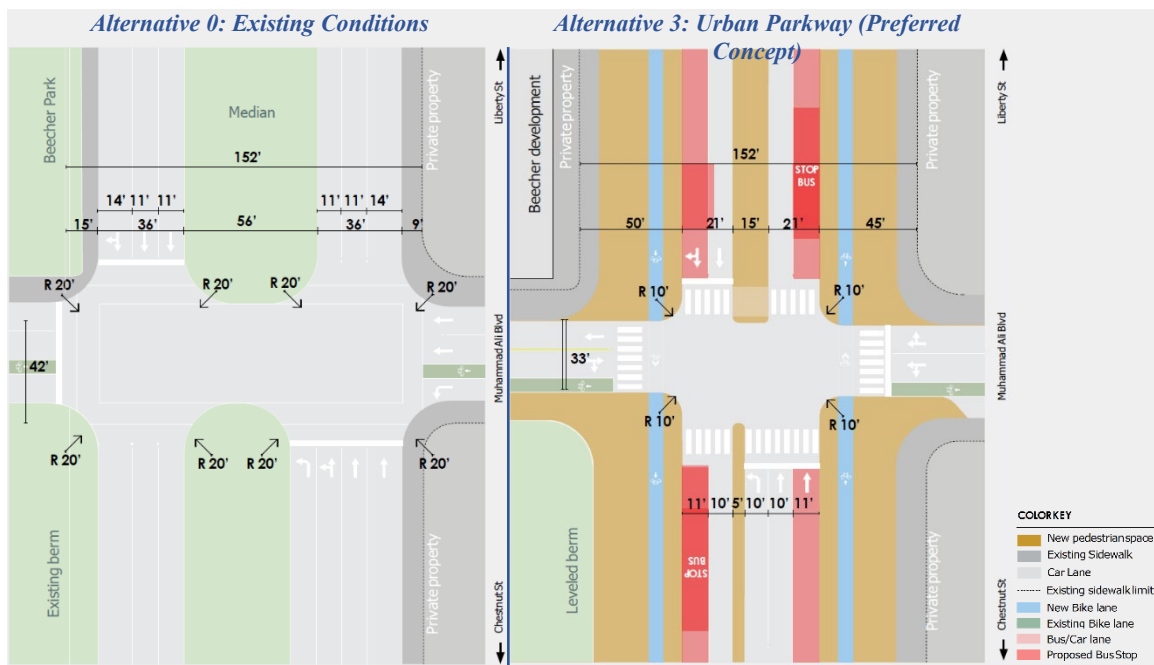


Figure 5: Reimagine 9<sup>th</sup> Street Corridor Plan – Existing Conditions compared to the Preferred Concept

**Table 1** details the numerous technical and engineering aspects that will be evaluated during Final Design and the NEPA process. These concepts are being considered for possible construction with this RAISE Grant request and each concept directly supports the Merit Criteria of the project.

<b>Table 1: Technical and Engineering Aspects</b>		
<b>Possible Solutions</b>	<b>Included in Project</b>	<b>Will Evaluate During Preliminary Design/NEPA</b>
<b>Benefitting Motorists</b>		
Reduce the number and width of lanes on 9th Street	X	
Convert one-way traffic to two-way on Muhammad Ali Blvd. and Chestnut St./River Park Dr.	X	
Two-way left-turn lane (TWLTL) on Muhammad Ali Blvd. and Chestnut St./River Park Dr.	X	
Eliminate negative offset left-turn lanes	X	
Adequately dimensioned turn bays to meet demand	X	
Traffic signal upgrades	X	
Protected/permissive left turns at signals	X	
Electrification infrastructure		X
Infrastructure for automated speed enforcement		X
<b>Benefitting Pedestrians and People with Disabilities</b>		
Bring existing sidewalks into ADA-compliance	X	
Expand the sidewalk (up to 20-feet wide)	X	
Curb extensions or pedestrian refuge islands	X	
Pedestrian-scale lighting	X	
High visibility crosswalks, bar walks, yield bars, and advanced stop lines	X	
Tabled intersections		X
Mid-block crossings with Rectangular Rapid Flashing Beacons (RRFBs)		X
<b>Benefitting Bicyclists and Scooters</b>		
Bike lanes	X	
Additional protection for bicyclists including buffered bike lanes, grade separation, and two-way cycle tracks		X
Signs to encourage scooter usage in the bike lanes	X	
<b>Benefitting Transit Users</b>		
Improved transit amenities including bus shelters, benches, trash cans, signs, kiosks with real-time bus information	X	
Dedicated bus lanes	X	
Bus bulbs		X
<b>Benefitting All People</b>		
Protect existing tree canopy while expanding amount of green infrastructure such as bioswales	X	
Improve the storm drainage system		X
Expand fiber throughout the corridor		X
Minimal or no impact to utility relocations or existing structures along the corridor	X	

## II. Project Location

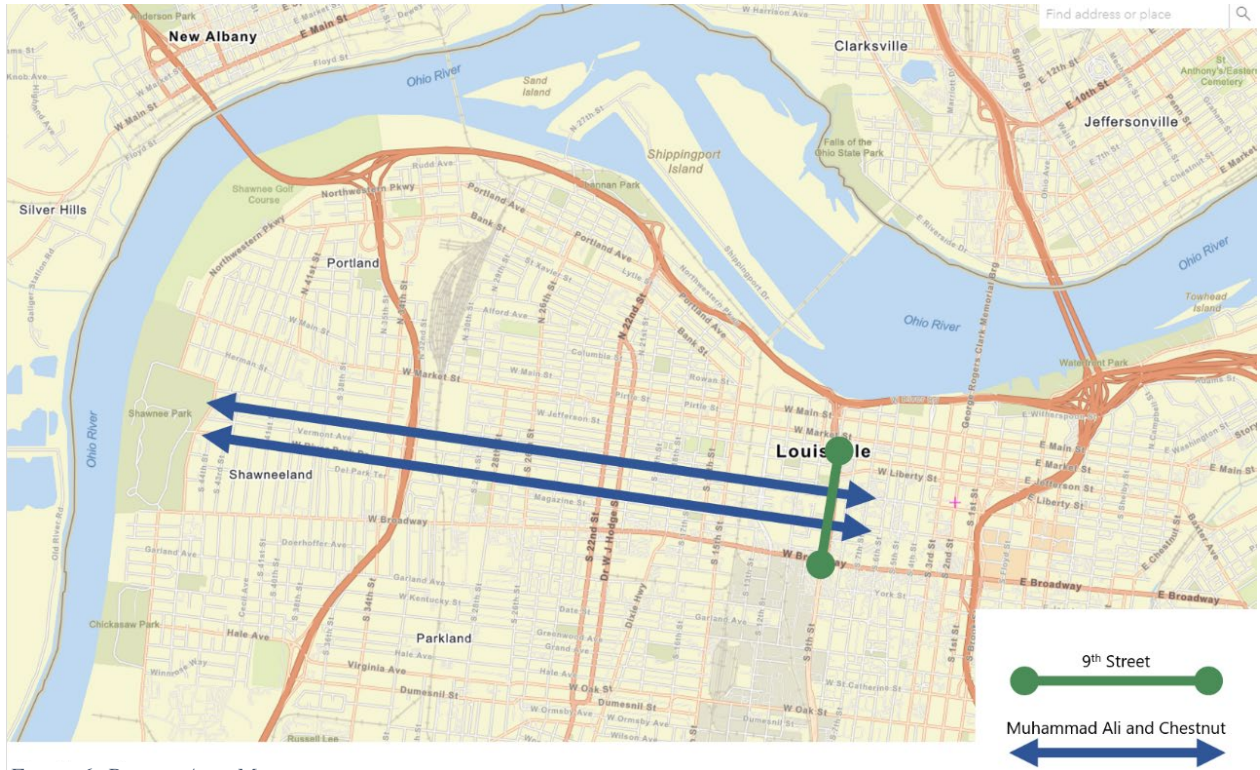


Figure 6: Project Area Map

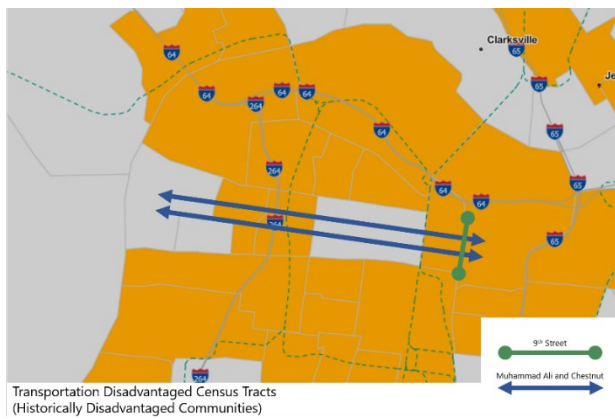


Figure 7: Historically Disadvantaged Communities Over the Project Area

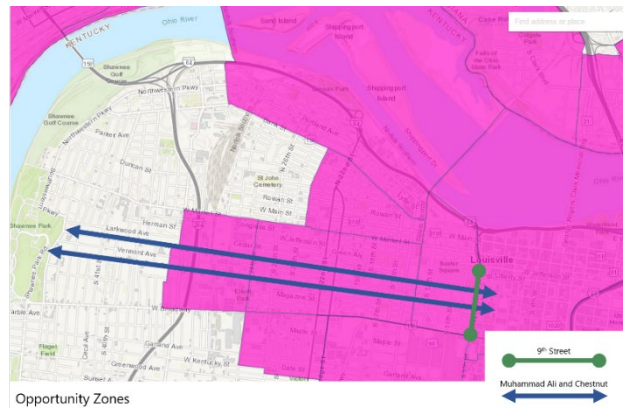


Figure 8: Opportunity Zones Over the Project Area



Table 2: Geography	
<b>City, County and State:</b>	Louisville, Jefferson County, Kentucky
<b>Congressional District</b>	Kentucky’s 3rd Congressional District
<b>Census-Designated Urbanized Area:</b>	Louisville, KY—Southern, IN Urbanized Area
<b>Metropolitan Planning Organization:</b>	Kentuckiana Regional Planning and Development Agency (KIPDA)
<b>Primary Route:</b> (Rightsizing/Linear Park)	<b>9<sup>th</sup> Street/Roy Wilkins Avenue</b>
<b>Northern Terminus:</b>	Main Street (US 31W) <span style="float: right;"><b>Lat/Long:</b> 38.2575, -85.7648</span>
<b>Southern Terminus:</b>	Broadway (US 150) <span style="float: right;"><b>Lat/Long:</b> 38.2468, -85.7665</span>
<b>Project Length:</b>	0.65 miles
<b>Functional Class:</b>	Major Arterial for majority of route. Local Road for 1 block between Main & Market streets.
<b>National Highway System (NHS)?</b>	Yes, entire corridor
<b>Congestion Management Process (CMP)?</b>	Yes, entire corridor
<b>KIPDA Freight Network</b>	Yes, entire corridor
<b>Secondary Routes:</b> (One-way to Two-Way Conversions)	<b>Muhammad Ali Boulevard (westbound) Chestnut Street/River Park Drive (eastbound)</b>
<b>Western Terminus:</b>	Southwestern Parkway <span style="float: right;"><b>Lat/Long:</b> 38.2585, -85.8241</span>
<b>Eastern Terminus:</b>	6th Street <span style="float: right;"><b>Lat/Long:</b> 38.2515, -85.7608</span>
<b>Project Length:</b>	3.5 miles for each street – 7 miles total
<b>Functional Class:</b>	Minor Arterial east of I-264 (majority of corridor) Major Collector west of I-264
<b>National Highway System (NHS)</b>	No
<b>Congestion Management Process (CMP)?</b>	No
<b>KIPDA Freight Network</b>	Yes, east of 9th Street
<b>Census Tracts in Project Area:</b>	<b>6 (21111000600), 7 (21111000700), 8 (21111000800), 9 (21111000900), 24.01 (21111002401), 24.02 (21111002402), 30 (21111003000), 49 (21111004900)</b>
<b>Areas of Persistent Poverty:</b>	Yes, Census Tracts 6, 7, 9, 24.01, 24.02, 30, 49
<b>Historically Disadvantaged Community:</b>	Yes, Census Tracts 6, 7, 30, 49
<b>Environmental Justice Areas:</b>	Yes, Census Tracts 6, 7, 8, 9, 24.01, 24.02, 30, 49
<b>Designated Community Development Zones:</b>	
<b>Opportunity Zones:</b>	Yes, Census Tracts 6, 24.01, 24.02, 30, 49
<b>Empowerment Zones:</b>	No
<b>Promise Zones:</b>	No
<b>Choice Neighborhoods:</b>	Yes, the target neighborhood poverty rate/ELI rate = 54.76

### Connections to Existing Transportation Infrastructure

9<sup>th</sup> Street is a major arterial with an overbuilt interchange to I-64. It intersects three major arterials and four minor arterials, including Muhammad Ali Blvd and Chestnut Street, which become major collectors west of their I-264 exchanges.

The Transit Authority of River City (TARC) currently serves the project area with [several fixed bus routes](#) on the entire 9<sup>th</sup> Street corridor and on portions of Muhammad Ali Blvd. and Chestnut St./River Park Dr. Louisville’s first and only bus rapid transit (BRT) service operates on 9<sup>th</sup> Street.

The project will complement existing bike and pedestrian infrastructure on cross-streets and maintain the existing bike/scooter lanes on Muhammad Ali Blvd. and Chestnut Street.

### III. Grant Funds, Sources, and Uses of Project Funds

**Table 3** demonstrates the total project cost is \$24,640,000. The RAISE Grant request for this project is \$15.584 million or 63% of the total project cost. Louisville Metro Government (LMG) is committing \$4.66 million as non-federal local match that will be administered as a tapered match. There are no restrictions or conditions for this funding. The source of the match will be general fund dollars allocated in LMG’s annual budget in FY 2020, FY 2022, and FY 2023. The Kentucky Transportation Cabinet (KYTC), the state DOT, is committing \$500,000 of non-federal state funds that are allocated in KYTC’s FY 2024 budget. The total non-federal match is \$5.16 million or 21% of the total project cost. See [Appendix C: Documentation of Non-Federal Funds](#) for further documentation.

LMG plans to procure other federal dollars through the MPO (KIPDA), specifically STBG funds. While not yet programmed in the TIP, this project is listed in the MTP (see **page 26**). Additionally, LMG has a long history of receiving at least 80% of the federal funds allocated by KIPDA each year. Due to LMG’s success at delivering projects and with the increase in STBG funds available to KIPDA under the BIL, no issues are anticipated in the procurement of additional federal funds, totaling \$3.896 million in federal FYs 2024, 2025, and 2026. All STBG funds will be assigned to Construction Contingency; therefore, any unused STBG funds could be returned to the KIPDA MPO for use in other projects.

**Table 4** demonstrates that the proposed funding plan satisfies statutory cost-sharing requirements.

**Table 3: Sources of Funds**

Funding Type	Description	Amount	Percentage
<b>Non-Federal</b>			
Local Funds from LMG	Local Funds in FYs 2020, 2022, 2023	\$4,660,000	19%
State Funds from KYTC	State Funds in FY 2024	\$500,000	2%
<b>Total Non-Federal</b>	<b>LMG and KYTC funds combined</b>	<b>\$5,160,000</b>	<b>21%</b>
<b>Federal</b>			
RAISE Grant	2022 RAISE Grant	\$15,584,000	63%
<b>Other Federal</b>			
Through the KIPDA MPO	STBG Funds in FYs 2024, 2025, and 2026	\$3,896,000	16%
<b>TOTAL</b>		<b>\$24,640,000</b>	<b>100%</b>

**Table 4: Project Costs and Funding Allocations by Source**

Project Element	Total Cost	Non-Federal LMG & KYTC		Federal RAISE		Other Federal STBG	
		Amount	%	Amount	%	Amount	%
<b>Project Management</b>	\$ 500,000	\$ 500,000	100%	\$ -	0%	\$ -	0%
<b>Design</b>	\$ 2,000,000	\$ 2,000,000	100%	\$ -	0%	\$ -	0%
<b>Construction</b> (Includes 30% Contingency)							
~ 700’ south of Broadway	\$ 1,870,000	\$ -	0%	\$ 1,496,000	80%	\$ 374,000	20%
Broadway - Jefferson	\$ 12,530,000	\$ -	0%	\$ 10,024,000	80%	\$ 2,506,000	20%
Jefferson - Market	\$ 1,670,000	\$ -	0%	\$ 1,336,000	80%	\$ 334,000	20%
Market - Main	\$ 410,000	\$ -	0%	\$ 328,000	80%	\$ 82,000	20%
Muhammad Ali Blvd.	\$ 1,460,000	\$ -	0%	\$ 1,168,000	80%	\$ 292,000	20%
Chestnut St./River Park Dr.	\$ 1,540,000	\$ -	0%	\$ 1,232,000	80%	\$ 308,000	20%
<b>Utilities</b>	\$ 400,000	\$ 400,000	100%	\$ -	0%	\$ -	0%
<b>Right-of-Way</b>	\$ 220,000	\$ 220,000	100%	\$ -	0%	\$ -	0%
<b>Construction Inspection</b>	\$ 2,040,000	\$ 2,040,000	100%	\$ -	0%	\$ -	0%
<b>TOTAL</b>	<b>\$ 24,640,000</b>	<b>\$ 5,160,000</b>	<b>21%</b>	<b>\$ 15,584,000</b>	<b>63%</b>	<b>\$ 3,896,000</b>	<b>16%</b>

Construction costs represent most of the project budget. Right-of-way and utility costs are estimated to be minimal due to the vast amount of public right-of-way available for the project. There are not expected to be any expenses incurred between the time of award and obligation, since those expenses would not be eligible for reimbursement. The cost estimate is presented in year-of-expenditure dollars using an annual inflation rate of 2.5% from base year 2022 estimates.

## IV. Merit Criteria

### Safety

This project supports LMG’s [Vision Zero Louisville safety initiative](#) and will address documented safety problems in the project area:

- Excessive capacity given current traffic volumes,
- Multi-lane, one-way traffic patterns,
- High vehicular design speeds,
- Infrastructure for non-motorized travelers is missing or provides little buffer from vehicles (i.e., curb-adjacent sidewalks and narrow bike lanes near the curb),
- Neighborhoods along the project area are home to significant vulnerable populations who have a disproportionate likelihood of being killed or seriously injured in crashes.

Broadly, the solutions to improve health and safety outcomes include:

- Redesigning the corridors with safety and economic vibrancy in mind.
- Implementing Vision Zero techniques to decrease the severity and frequency of collisions.
- Deploying Complete Streets principles to serve non-motorized travelers.

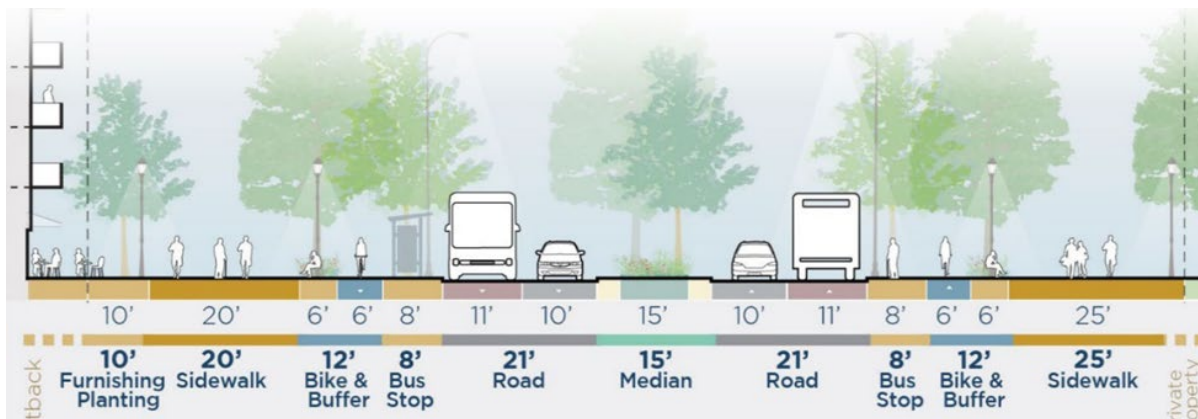


Figure 9: Proposed Cross-Section on 9<sup>th</sup> Street

### Complete Streets Approach

The current configuration on 9<sup>th</sup> Street induces speeding in excess of the posted 35 mph limit. The current configuration has a six-lane cross section, wide 12-foot lanes, a large 45-foot median, and underutilized on-street parking. 9<sup>th</sup> Street carries approximately 17,400 to 22,500 vehicles per day, far below capacity.

This project will rightsize the street to provide transit-users (dedicated bus lanes), bicyclists (protected bike lanes), and pedestrians (pedestrian boulevard and linear park) with dedicated infrastructure. The reduction of travel lanes and provision of dedicated left-turn lanes will decrease the number of rear-end and angle crashes, which accounted for 65% of crashes on the 9<sup>th</sup> Street from 2015-2019.



Figure 10: Pedestrian crossing mid-block

Many pedestrians are induced by the street design to cross mid-block (Figure 10). This project will evaluate the feasibility of mid-block crosswalks with rectangular rapid flashing beacons (RRFB). At controlled crossings, the pedestrian signal cycle is too short (approximately 20 seconds), with no leading pedestrian interval (LPI). Because of this, pedestrians are often stranded in the unprotected median during signal cycle changes. These issues can be addressed through signal timing improvements with LPIs, curb extensions, and pedestrian refuge islands.

A Complete Streets approach will also benefit transit users by providing protected areas to access transit facilities, including the [Dixie Highway Rapid service](#). This will help attract people to the service thereby reducing greenhouse gas emissions, which is further explored in the Environmental Sustainability section.

### Vision Zero Approach

According to the [Vision Zero Louisville Safety Report \(2021\)](#), speeding, sight distances, and lighting are three of the most common contributing factors to vehicle crashes with pedestrians. This project will implement engineering techniques addressing each to prevent pedestrian fatalities and serious injuries. Narrowed lane widths, tabled intersections, and signal timing improvements will decrease speeding and improve safety.

Other failures of the current design include poor sight lines caused by elevated berms (Figure 11), which will be removed with this project. This will improve safety and make more efficient use of public space.



Figure 11: Elevated berms and lack of crosswalks

Traffic queuing caused by undersized, left-turn lanes incentivize dangerous driving behaviors, such as weaving between lanes. Creating adequately dimensioned turn bays will reduce this type of driver behavior and increase safety for all users.

The “Vulnerable Road Users” subsection in the Quality of Life Merit Criteria further explains how using Vision Zero techniques will improve quality of life for nearby residents and travelers.

### Crash Analysis

The deliberate choice was made to analyze crashes using data from 2015 to 2019. Given the ongoing Choice Neighborhood grant-funded redevelopment of Beecher Terrace, which began in 2018, and the impacts of the COVID-19 pandemic on traffic in 2020 and 2021, the years 2015 to 2019 are the most representative of what we expect the future to look like along 9<sup>th</sup> Street,

Muhammad Ali Blvd., and Chestnut Street/River Park Dr. The first residents of the new Beecher Terrace returned in March 2021 and residential occupancy will continue to increase as the project approaches completion in 2025, bringing the number of residents along 9<sup>th</sup> Street back to levels before the redevelopment began.

The COVID-19 pandemic led to major shifts in traffic volume and pattern changes beginning in March 2020. Related business closures and other restrictions had a large impact on traffic collisions along the project area’s corridors. Due to low traffic volumes, the severity of crashes increased due to increased vehicular speeds. Because of the significant changes in the number, severity, and location of crashes across Jefferson County in 2020 and 2021, those two years are not considered representative of historic safety conditions along the corridors and were excluded.

As activity in the area rebounds, the geometry of the streets, if left unchanged, will produce the same typical speeds and rate of collisions, as they historically have. Therefore, now is the opportune time to coordinate investments between LMG, USDOT, and HUD and truly set up the neighborhoods around the project area for success and prosperity.

Historical crashes in the study area are detailed by year, severity, and mode in **Tables 5 and 6**.

**Table 5: Crash Severity by Mode (2015-2019): 9th Street**

Severity	2015	2016	2017	2018	2019	Total	%
<b>Injury</b>	<b>24</b>	<b>22</b>	<b>24</b>	<b>17</b>	<b>25</b>	<b>112</b>	<b>18.6%</b>
Bicycle	0	1	0	0	0	1	0.2%
Car	23	21	24	17	23	108	17.9%
Pedestrian	1	0	0	0	2	3	0.5%
<b>Property Damage Only</b>	<b>103</b>	<b>125</b>	<b>88</b>	<b>87</b>	<b>88</b>	<b>491</b>	<b>81.4%</b>
Bicycle	0	0	0	0	0	0	0.0%
Car	103	124	88	87	88	490	81.3%
Pedestrian	0	1	0	0	0	1	0.2%
<b>TOTAL</b>	<b>127</b>	<b>147</b>	<b>112</b>	<b>104</b>	<b>113</b>	<b>603</b>	<b>100.0%</b>

**Table 6: Crash Severity by Mode (2015-2019): Muhammad Ali & Chestnut/River Park**

Severity	2015	2016	2017	2018	2019	Total	%
<b>Injury</b>	<b>94</b>	<b>97</b>	<b>86</b>	<b>80</b>	<b>82</b>	<b>439</b>	<b>27.2%</b>
Bicycle	2	0	0	0	2	4	0.2%
Car	89	91	82	77	77	416	25.8%
Pedestrian	3	6	4	3	3	19	1.2%
<b>Property Damage Only</b>	<b>214</b>	<b>255</b>	<b>249</b>	<b>237</b>	<b>221</b>	<b>1176</b>	<b>72.8%</b>
Bicycle	0	2	2	1	1	6	0.4%
Car	213	253	246	236	219	1167	72.3%
Pedestrian	1	0	1	0	1	3	0.2%
<b>TOTAL</b>	<b>308</b>	<b>352</b>	<b>335</b>	<b>317</b>	<b>303</b>	<b>1615</b>	<b>100.0%</b>

**Figure 12** shows crash severity along 9<sup>th</sup> Street. Injury crashes were primarily concentrated at signalized intersections. It also shows crash density, demarcating hot spots at key intersections along 9<sup>th</sup> Street. Most collisions, including those involving bicyclists and pedestrians, occur at the intersection of 9<sup>th</sup> Street and Broadway, which is the southern terminus of this project. The 9<sup>th</sup> St. and Broadway intersection was identified by KIPDA, the regional MPO, as a [Top 40 High Crash Intersection Location](#) in the entire nine-county region.

Common collision types on 9<sup>th</sup> Street are consistent with other urban arterial corridors; multiple lanes, a wide median, and negative offset left-turn lanes are likely factors that lead to angle, rear end, and sideswipe collisions – the three most common collision types on 9<sup>th</sup> Street (Table 7).

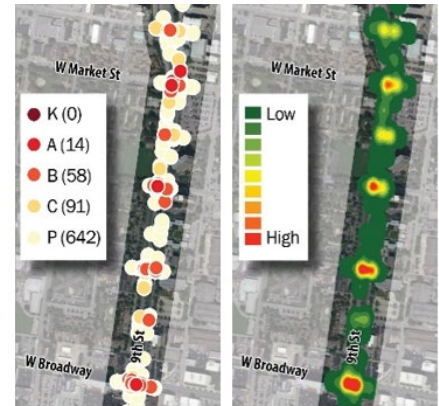


Figure 12: Crash Severity & Crash Density on 9<sup>th</sup> Street (2013-2018)

**Table 7: Crashes by Collision Type (2015-2019): 9th Street**

Collision Type	2015	2016	2017	2018	2019	Total	%
Angle	51	68	60	36	37	252	41.8%
Backing	1	0	1	1	1	4	0.7%
Head On	1	1	0	0	2	4	0.7%
Opposing Left Turn	2	9	5	4	2	22	3.6%
Rear End	34	25	21	32	30	142	23.5%
Rear to Rear	0	0	1	0	0	1	0.2%
Sideswipe - Opposite Direction	0	1	0	0	0	1	0.2%
Sideswipe - Same Direction	31	37	20	26	34	148	24.5%
Single Vehicle	7	6	4	5	7	29	4.8%
<b>TOTAL</b>	<b>127</b>	<b>147</b>	<b>112</b>	<b>104</b>	<b>113</b>	<b>603</b>	<b>100.0%</b>

**Figure 13** shows crash severity and density along the Muhammad Ali Blvd. and Chestnut St./River Park Dr. corridors. The largest concentration of collisions occurs at the intersections with the access ramps to I-264 (at 32<sup>nd</sup> and 33<sup>rd</sup> streets), and the intersections with 26<sup>th</sup> St., 22<sup>nd</sup> St., and Dr. W. J. Hodge St., which see the most traffic volume on the corridor. Injury and fatal crashes were also concentrated at these intersections.



Figure 13: Crash Severity & Crash Density on Muhammad Ali & Chestnut/River Park (2015-2019)

Unlike 9<sup>th</sup> Street, the locations with the highest crash rates seen on Muhammad Ali Blvd. and Chestnut St./River Park Dr. are not amongst the worst in the region; however, these intersections feature a combination of free-flow and stop control conditions that are uncommon on the regional road network. This project will change all four intersections to standard two-way traffic and all-way stop control intersections, thereby improving safety.

Crash data shows that the most common collision types on Muhammad Ali Blvd. and Chestnut St./River Park Dr. are consistent with other urban arterial corridors. The predominant collision types are angle, sideswipe – same direction, rear end collisions, and single vehicle crashes. Multiple lanes with frequent intersections and high speeds are the likely factors that lead to these collection types. Single vehicle crashes being more prevalent on Muhammad Ali Blvd and Chestnut Street than on 9<sup>th</sup> Street, seems to indicate that vehicle speeds on the corridors are higher than design speeds. Collisions by type for Muhammad Ali Blvd and Chestnut Street are summarized in **Table 8**.

**Table 8: Crashes by Collision Type (2015-2019): Muhammad Ali & Chestnut/River Park**

Collision Type	2015	2016	2017	2018	2019	Total	%
Angle	140	153	157	145	139	734	45.5%
Backing	7	13	4	7	9	40	2.5%
Head On	3	3	0	3	5	14	0.9%
Opposing Left Turn	2	3	2	4	0	11	0.7%
Rear End	47	66	65	39	53	270	16.7%
Rear to Rear	0	2	0	0	0	2	0.1%
Sideswipe - Opposite Direction	4	2	2	0	4	12	0.7%
Sideswipe - Same Direction	74	66	65	76	63	344	21.3%
Single Vehicle	31	42	40	43	30	186	11.5%
<b>TOTAL</b>	<b>308</b>	<b>350</b>	<b>335</b>	<b>317</b>	<b>303</b>	<b>1613</b>	<b>100.0%</b>

To estimate the potential reduction in collisions for this project, an Interactive Highway Safety Design Model (IHSDM) model was created for 9<sup>th</sup> Street, covering Jefferson Street to Broadway, including the signalized intersections in that section. Based on one model run with six-lanes and a second model run with four-lanes, reduction factors were developed and applied to the corridor assuming that the historical crash data is indicative of the baseline safety performance. The IHSDM methodology separates the calculations by location type (roadway or intersection) and crash severity.

IHSDM safety models were also used to estimate the potential reduction in collisions for the proposed conversion of the Muhammad Ali Blvd and Chestnut Street corridors. The existing and proposed intersections along the corridors were categorized into 13 existing and 13 proposed intersection configurations for 26 total. An IHSDM safety model was built for all 26 intersections including the adjacent roadway segments leading to the intersection. Reduction factors were determined by comparing modeled crashes from the existing intersection those for the proposed intersection. This was done for each combination of existing and proposed configuration along the corridors. Additionally, a reduction factor was applied for speed reduction along the corridor, consistent with the travel time calculations. These reduction factors were applied to the corridor assuming that the historical crash data is indicative of the baseline safety performance.

The historical crash data was used to estimate the future baseline crashes. Volume projection data for the project area shows no projected traffic growth based on historical trends. When utilizing a 0.0% per year growth rate all future years are assumed to have the same traffic volume as the opening year. The crash reduction factors were then applied to the baseline to estimate the avoided crashes. The results of the analysis for all three of the project corridors are presented in **Table 9** and [Appendix H: Safety Analysis](#). As shown, it is predicted that approximately 21% of the annual crashes on 9<sup>th</sup> Street in the project area would be avoided with the proposed project, and approximately 19% of the annual crashes on Muhammad Ali Blvd. and Chestnut St./River Park Dr. would be avoided. This annual collision reduction was used for the Benefit-Cost Analysis included herein.

**Table 9: Collision Reduction Calculations**

Crash Severity	9th Street				Muhammad Ali & Chestnut/River Park			
	No-Build	Build	Change	% Change	No-Build	Build	Change	% Change
Fatal (K)	0.00	0.00	0.0	0%	0.40	0.29	-0.1	-25%
Incapacitating Injury (A)	1.60	1.00	-0.6	-38%	6.00	5.35	-0.7	-12%
Injury (B)	4.80	2.84	-2.0	-42%	36.00	35.12	-3.9	-11%
Possible Injury (C)	10.40	6.46	-3.9	-38%	51.80	46.23	-5.6	-11%
Property Damage Only (O)	79.40	65.31	-14.1	-18%	257.80	201.86	-55.9	-22%
<b>TOTAL</b>	<b>96.20</b>	<b>75.61</b>	<b>-20.6</b>	<b>-21.4%</b>	<b>352.00</b>	<b>288.85</b>	<b>-66.2</b>	<b>-18.8%</b>

### Environmental Sustainability

The entire project area is within one of Louisville’s largest Environmental Justice areas as defined by KIPDA, the regional MPO (**Figure 14**). *Reimagine 9<sup>th</sup> Street* is explicitly designed to improve environmental resiliency and fight climate change by:

- Reducing transportation-related air pollution and greenhouse gas (GHG) emissions,
- Lowering vehicle miles traveled (VMT),
- Combating the urban heat island effect,
- Mitigating flooding impacts,
- Supporting fiscally responsible land use and transportation systems,
- Redressing the impacts of historically inequitable transportation decisions that have disproportionately burdened underserved and disadvantaged communities in Louisville.

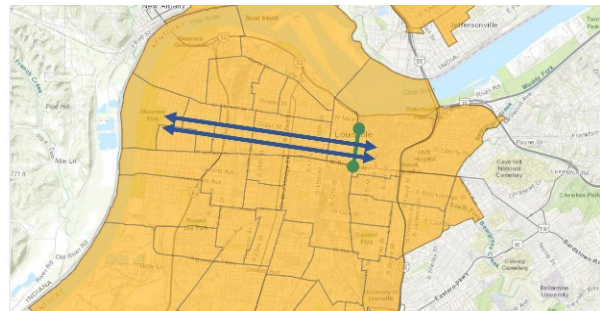


Figure 14: Environmental Justice Areas (as defined by KIPDA) over the Project Area.

### Lower Carbon Travel Modes

This project will improve air quality in one of Louisville’s most polluted neighborhoods by creating safe and accessible connections for people to bike, walk, and take transit. The project will result in a modal shift that will reduce VMT and reduce GHG emissions from transportation-related sources.



The addition of high-quality, all-ages-and-abilities bicycle infrastructure will provide options for residents seeking healthy, low-cost, and environmentally-friendly transportation options.

Access to Louisville’s only bus rapid transit (BRT) service will be improved by widening sidewalks, reducing crossing distances, redesigning intersections, improving visibility, adding dedicated bus lanes, implementing smart signal technologies, and enhancing stop amenities. These will upgrade a significant section of the [Dixie Highway Rapid service](#) to a gold-standard Bus Rapid Transit (BRT) level of service. These upgrades will make transit a more attractive option and will shift people from using other, more polluting modes of transportation.

For those who must drive, the project will reduce idle times and improve traffic flow through the deployment of smart signal technologies. The two-way conversions of Muhammad Ali Blvd. and Chestnut St./River Park Dr. will unlock new routing options for both drivers and bus routes, which will increase system legibility and decrease overall trip distances.

This project will also evaluate the possibility of adding electrification infrastructure for use by the general public. Implementing innovative technologies that encourage the use of electric vehicles will also reduce GHG emissions, improve environmental sustainability, and result in better health outcomes for residents in adjacent neighborhoods.

Emissions from freight trucks and automobiles significantly contribute to the Louisville MSA’s nonattainment status for the recently strengthened 8-hour Ozone National Ambient Air Quality Standard. More concerningly, the neighborhoods around 9<sup>th</sup> Street and along Muhammad Ali Blvd. and Chestnut St./River Park Dr. have some of the highest concentrations of ground-level ozone in the city, as shown in **Figure 15**.



Figure 15: Ozone Index (State Percentiles).  
Source: EJSCREEN

This project supports the goals and strategies outlined in a [final report from a 2020 Multipollutant Stakeholder Group](#) convened by LMG’s Air Pollution Control District. Decreasing emissions by creating more useful and sustainable transportation options will reduce the VOC and NOx pollutants that contribute to ground-level ozone, an irritant that can trigger a variety of health problems in an area that is already disproportionately affected by poor air quality.

### Mitigate the Urban Heat Island Effect

Louisville’s urban heat island is growing at one of the fastest rates in the country, and the neighborhoods in the project area face some of the most significant impacts. According to the [Louisville Urban Heat Management Study \(2016\)](#), there are 86 annual heat-related deaths in Louisville, with the greatest proportion of these deaths occurring in the urban core. Surface temperature maps (**Figure 16**) show that the highest surface temperatures in the region stretch from downtown to the airport, encompassing the 9<sup>th</sup> Street area.

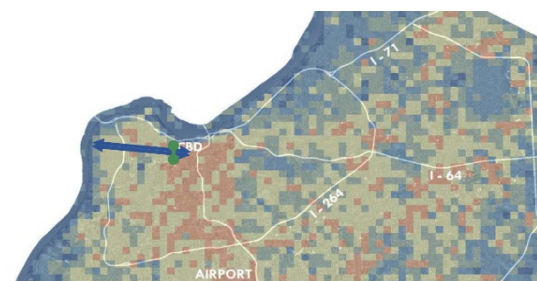


Figure 16: Surface Temperatures in Jefferson County.  
Source: Louisville Urban Heat Management Study.

*Reimagine 9<sup>th</sup> Street* will expand the tree canopy, while protecting the existing canopy as much as possible, by planting native trees and grasses. The project will also remove asphalt pavement, encourage mode shift, and introduce new, usable green space. These techniques, when deployed in combination, have been shown to reduce surface temperatures by as many as forty degrees. Additionally, this project’s components and goals support LMG’s other sustainability plans, such as: [Sustain Louisville \(2013\)](#), the [Louisville Greenhouse Gas Emissions Reduction Plan \(2020\)](#), and [Prepare Louisville \(2020\)](#).

### **Mitigate Flooding**

Like many historic cities, Louisville has combined sewers that frequently overflow during heavy rainfall events. This leads to the release of stormwater runoff and untreated wastewater into local waterways, which harms local wildlife and plant-life. This project will improve drainage and reduce the risk of flooding by capturing water before it enters catch basins, through increased permeable surfaces and the incorporation of blue and green infrastructure. Furthermore, the project supports the ongoing efforts of the Metropolitan Sewer District’s [Critical Repair & Reinvestment Plan \(2017\)](#), which aims to invest \$4.3 billion over 20 years to improve Louisville’s aging stormwater and wastewater infrastructure.

### **Redressing Past Infrastructural Harms**

By creatively redesigning one of the widest rights-of-way in Louisville’s urban core, this project will better support the urban fabric and traditional neighborhoods around it. 9<sup>th</sup> Street, bridged by newly converted two-way streets, will be more accessible, more inviting, more sustainable, and more of an asset than it has been since before it was redesigned in the 1950s. Decisions made by mid-Century planners and politicians placed a disproportionate share of the negative transportation externalities on the neighborhoods around these streets, and this project aims to reverse those decisions.

By funding this proposal, USDOT can help redress past infrastructural harms and support recent investments and development proposals that are walkable, transit-oriented, and sustainable. It is this plan’s explicit goal to kickstart a virtuous cycle of increased investment, greater economic activity, safer streets, greener transportation options, and healthier neighborhoods by going above and beyond the common practices for planning and infrastructure design.

### **Quality of Life**

The project is explicitly designed to improve quality of life by:

- Increasing accessibility for travelers – specifically for underserved and disadvantaged communities.
- Reducing transportation cost burdens through expanded infrastructure options.
- Removing transportation barriers to access jobs, services, and amenities.
- Proactively addressing racial equity and removing physical and psychological barriers.
- Enhancing the unique characteristics of the community.

## Legacy of Racial Segregation

9<sup>th</sup> Street has become a symbol of racial segregation in Louisville, between Black neighborhoods to the west and white neighborhoods to the east (Figure 17). This physical, social, and psychological barrier is colloquially referred to as the “9<sup>th</sup> Street divide.” This project will remove this physical barrier and take steps towards redressing past inequities.

9<sup>th</sup> Street once served as a local neighborhood street in the heart of Louisville’s Black community, renowned as the “[Harlem of the South](#).” Throughout the early and mid-1900s, Black Americans suffered from discriminatory lending practices, such as redlining, that resulted in disinvestment, segregation, and an increase in wealth disparity. In the mid-20<sup>th</sup> century, most of this area was demolished to accommodate automobile traffic with the construction of the Federal Interstate Highway System and facilitate large-scale Urban Renewal projects. This led to dramatic economic decline with the displacement of Black-owned businesses, cultural institutions, and residences.

Despite its intention to divide, 9<sup>th</sup> Street was a frequent setting for the civil rights movement of the mid-20<sup>th</sup> century. Marches for racial and social justice issues routinely began at the historic Quinn Chapel, located at 9<sup>th</sup> and Chestnut, including those led by Rev. Dr. Martin Luther King, Jr. Now 21<sup>st</sup> century civil rights leaders in Louisville recognize 9<sup>th</sup> Street as an important symbol of past injustices and advocate for an equitable and restorative transformation. This project will help the community take a major step towards healing past injustices and racial segregation by eliminating this physical barrier, making 9<sup>th</sup> Street a lively public space, and creating new economic opportunities for historically disadvantaged communities. It will also better tie in the neighborhoods around the project area to LMG’s publicly owned fiber backbone, which already partially runs through the project area, but will be expanded as a part of the project. This will help bridge not just the cultural and physical divide 9<sup>th</sup> Street is and represents but the digital divide as well.

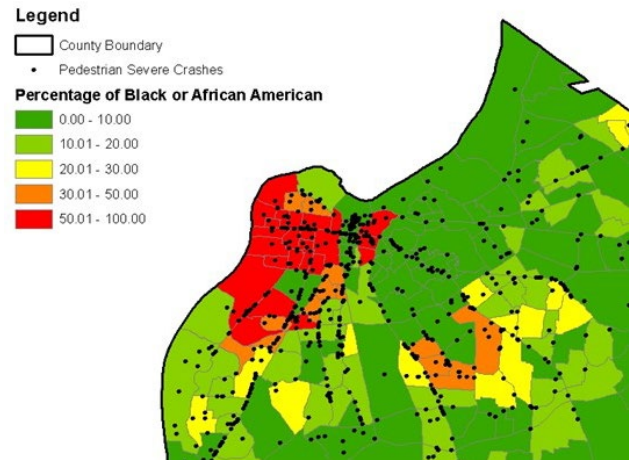


Figure 17: Percentage of Black/African American Population by Census Tract and Location of Severe (KA) Pedestrian Crashes (2011-2019).

Sources: US Census Bureau and Kentucky State Police

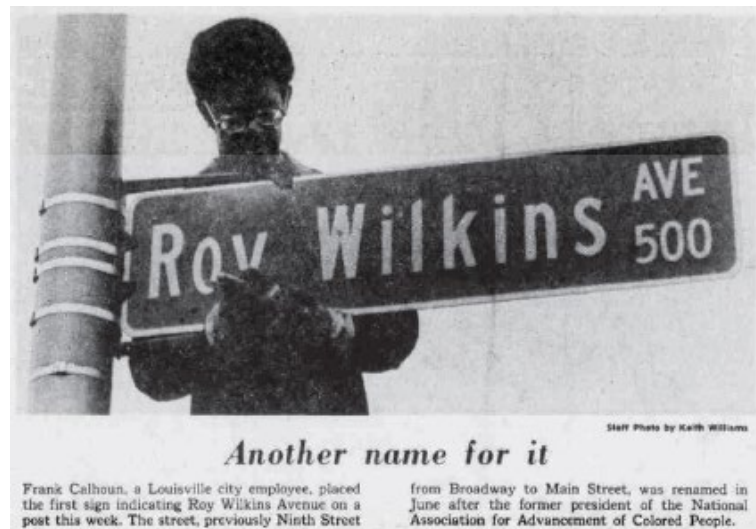


Figure 18: The Courier-Journal reported on July 28, 1979 that a portion of 9<sup>th</sup> Street was renamed in honor of Roy Wilkins, who was executive director of the NAACP from 1964-1977.

### Poverty and Public Health Outcomes

There is a marked difference in poverty, education, access to jobs, and health outcomes to the west of 9<sup>th</sup> Street. **Figure 19** demonstrates the high poverty rate. These neighborhoods often have disparate health outcomes and are among the worst rated for life expectancy, asthma rates, [COVID death rates](#), and many more public health challenges. Louisville Metro's [2017 Health Equity Report](#) details many of these discrepancies, especially those related to physical and mental health.

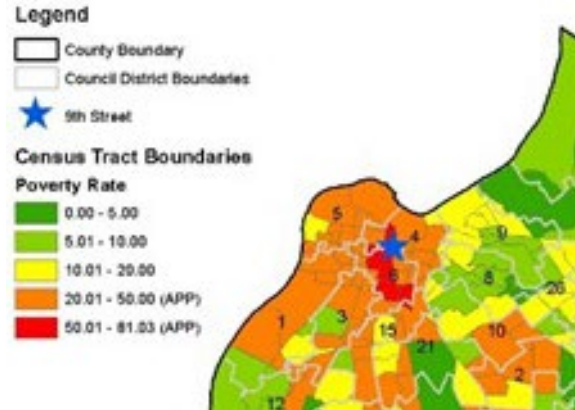


Figure 19: Poverty Rate by Census Tract. Source: US Census Bureau

The city of Louisville has one of the highest asthma rates in the United States, and to tackle this issue, a public-private partnership was created, called [AIR Louisville](#). **Figure 20** highlights where there are hot spots of use of rescue inhalers to relieve asthma symptoms, further demonstrating the need to improve air quality in the neighborhoods in an around the project area.

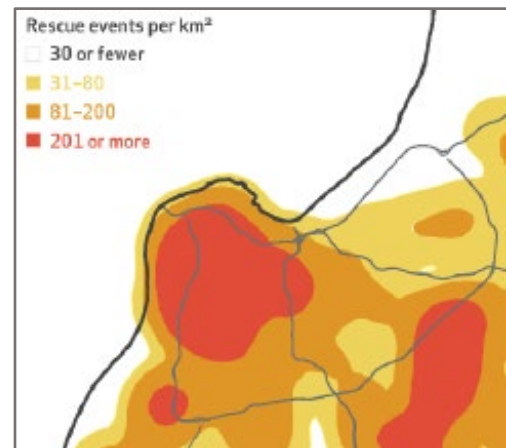


Figure 20: Use of rescue inhalers to relieve asthma symptoms in Jefferson County. Source: AIR Louisville

### Vulnerable Road Users

According to Smart Growth America’s [Dangerous by Design 2021](#) report, Louisville is ranked #32 out of the top 100 metro areas in their Pedestrian Danger Index. This report also states that Black pedestrians are killed by drivers at a rate 82% higher than white, non-Hispanic pedestrians. Fatality rates in low-income communities were three times higher than those of high-income communities.

9<sup>th</sup> Street is a vital corridor that provides access to jobs and amenities, and as detailed under the Safety Merit Criteria, this project would greatly improve safety for all users, including the Black, low-income residents of Louisville’s western neighborhoods.

Per the U.S. Census Bureau, approximately 32% of residents in the nine neighborhoods of west Louisville do not have access to a car. Improved access to transit, bike/scooter and pedestrian facilities will enhance mobility options for those who need them the most. These options, including dedicated bus lanes for the [Dixie Highway Rapid service](#), will create safe access to jobs and amenities in downtown and beyond.

New public spaces integrated into the 9<sup>th</sup> Street corridor will promote health and wellness and make the corridor a destination for visitors and residents alike. Like many cities in America, Black residents in Louisville’s western neighborhoods have less access to parks and green space than the majority white neighborhoods elsewhere in the city. The [2018 meta-analysis by Twohig-Bennett & Jones](#) shows that green space exposure is directly linked to positive health outcomes, including reduced rates of high blood pressure and diabetes. *Reimagine 9<sup>th</sup> Street* will allow the community

to reclaim the “edges” of the corridor through its linear parks and native plantings. Engaging recreational features will provide an essential amenity that will benefit the adjacent Black communities. In addition, this project will provide a direct connection to another vital green space, the upcoming [Waterfront Park Phase IV](#).

The one-way to two-way conversions on Muhammad Ali Blvd. and Chestnut St./River Park Dr. will return safety, viability, and accessibility to these residential neighborhoods. The streets will no longer be prioritized for moving vehicles as quickly as possible, and instead will be prioritized for use by the residents who call this area home. Transforming the infrastructure within the project area into Complete Streets that prioritize safety, expand access to alternative transportation modes, reduce GHG emissions, and provide new parks and green space will be a vital step to removing a long-standing barrier to equity.

### Improves Mobility and Community Connectivity

Increasing mobility and connectivity for all users, and particularly for people who do not, cannot, or choose not to drive, is an explicit project goal and one of the animating purposes behind the *Reimagine 9<sup>th</sup> Street*. The project components are specifically designed to:

- Increase affordable transportation choices for traditionally underserved communities.
- Improve access to key destinations and neighborhood amenities.
- Encourage thriving communities where people have the choice to move about freely, with or without a private automobile.
- Proactively incorporate universal design.
- Accommodate freight and supply chain movement to and from the U.S. Interstate Highway System.
- Bridge physical, mental, and socio-economic divisions created by past transportation planning and infrastructure decisions.

### Dignifying the Multimodal Experience

As discussed in the Safety and Environmental Sustainability sections, *Reimagine 9<sup>th</sup> Street* will create safe and accessible connections for people biking, walking, and taking transit, while also improving safety and decreasing idling times for those who must drive. The addition of bus lanes and enhanced station amenities will improve the [Dixie Highway Rapid service](#) by giving it dedicated right-of-way and smart signal preemption.

The addition of grade-separated bicycle facilities along 9<sup>th</sup> will be amongst the safest bike lanes in the city. Similarly protected bike lanes are being planned along Broadway, 9<sup>th</sup> Street’s southern terminus in the project area, and along Main Street at the northern terminus. As the first mover, this project would provide valuable lessons as LMG seeks to scale our protected bicycle network county-wide. Linking these all-ages-and-abilities facilities together would create a continuous, safe, and useful network for cyclists moving between west Louisville, downtown, and points beyond.



Figure 21: A person boarding the bus on the Dixie Highway Rapid service.

## Enabling Residents to Live, Work, and Play in their Own Neighborhoods

The project concepts will return the three streets to a human scale and will unlock significant community development potential that has been stymied by over-built, mid-century infrastructure. This project will recontextualize the corridors and re-connect the neighborhoods of west Louisville to downtown and to one another. This project will bridge the physical, mental, and socio-economic divisions created by past injustices from planning and infrastructure investments. Not only has the redevelopment of Beecher Terrace through the Choice Neighborhoods program been proceeding as scheduled, but several mixed-use, affordable housing developments have been proposed by private developers within the project area. This demonstrates that there is significant interest in the future of the 9<sup>th</sup> Street corridor and the neighborhoods around it as complete communities that provide opportunities for their residents to live, work, and play.

## Balancing the Movement of People and Freight

KIPDA, the regional MPO, has designated the 9<sup>th</sup> Street corridor as part of both the Regional Freight Network and the Congestion Management Process. These dual designations mean that it is vital for the future of the corridor to serve a wide variety of transportation uses. While the new Urban Parkway design will reallocate significant space to other uses beyond vehicle lanes, the movement of freight along the corridor will be minimally impacted, with no projected increase in bottlenecks or delays for the movement of goods through the corridor. The excess capacity of the corridor represents an opportunity cost for the neighborhoods around 9<sup>th</sup> Street that cannot continue to be undervalued and ignored. *Reimagine 9<sup>th</sup> Street* represents a far fairer balance between the needs of those who live in the project area and those who simply travel through it.

## Economic Competitiveness and Opportunity

*Reimagine 9<sup>th</sup> Street* will remove barriers to opportunity and increase the local and regional economic competitiveness of west Louisville and downtown by:

- Provide reliable, affordable, and efficient connections to jobs, amenities, and housing,
- Decrease annual travel time for all users, including freight and other goods movement,
- Support public and private investments in neighborhoods that have historically been at an economic disadvantage,
- Follow federal wage rate requirements and other standard labor practices and policies.

## Reliable, Affordable, and Efficient Connections

9<sup>th</sup> Street is the dividing line between Louisville’s downtown, the largest employment center in the Louisville MSA, and the 60,000 residents of Louisville’s majority-Black western neighborhoods. Like the discrepancies in environmental quality and health outcomes, 9<sup>th</sup> Street also represents a divide in community wealth. The median household income for Black residents in west Louisville is \$26,510, lower than both the Louisville MSA (\$38,875) and the United States (\$43,674). One likely cause of this wealth gap is lack of access to good-paying jobs and high-quality career opportunities. According to the [U.S. Census Bureau’s OnTheMap](#) tool, 64.2% of jobs in downtown are classified as high wage; a significantly larger proportion than that of the general MSA, at 46.1%. Of the 51,572 workers employed in downtown Louisville, 99.2% live elsewhere, making reliable and affordable connections to the area imperative for the city’s economic success.

**Table 10: Jobs by Earnings in Louisville, KY**

Jobs by Earnings:	Share of Jobs, Downtown Louisville	Share of Jobs, Louisville MSA	Share of Jobs, West Louisville
\$1,250 per month or less	13.0%	21.4%	19.2%
\$1,251 to \$3,333 per month	22.8%	32.2%	31.4%
More than \$3,333 per month	64.2%	46.4%	49.4%

The transportation improvements implemented by this project will strengthen these physical and economic connections through enhanced transit and multi-modal facilities that make it convenient to access high-wage jobs and careers.

In addition to improvements on 9<sup>th</sup> Street, the project will also create economic benefits with the two-way conversion of Muhammad Ali Blvd. and Chestnut St./River Park Dr. These streets were once home to one of the largest collections of Black-owned businesses in the country, until the discriminatory policies and practices of Urban Renewal destroyed their economies and infrastructure in the mid-20<sup>th</sup> century. Restoring these two historic streets to their original two-way configuration will improve connectivity and circulation in Louisville’s western neighborhoods, a proven strategy to increase accessibility for residents, business owners, and visitors.



Figure 22: Walnut Street (now Muhammad Ali Blvd.) business district, circa 1942

**Decrease Annual Travel Time**

This project will improve travel time reliability for vehicles, including freight, by decreasing congestion and minimizing crash risk. While the number of travel lanes will be reduced on 9<sup>th</sup> Street, the project will reconstruct key intersections and install dynamic smart signals, thereby improving traffic flow. These improvements, paired with the retiming of signals within the project area, will result in a travel time savings of 43,928 hours annually (see [Appendix G: Travel Time Summary](#)).

**Support Public and Private Investments**

The neighborhoods of west Louisville are undergoing an economic resurgence with over \$1 billion of public and private investment over the last ten years. A considerable portion of this investment is within the project area, and nearly half in the immediate vicinity of 9<sup>th</sup> Street. As noted on **page 3**, the Choice Neighborhoods HUD grant is vital to the residents of Beecher Terrace, and this *Reimagine 9<sup>th</sup> Street* will bolster that investment by creating a safe front porch for their affordable community and improve access to good-paying jobs.

All of 9<sup>th</sup> Street and most of Muhammad Ali Blvd. and Chestnut St./River Park Dr. are in an Opportunity Zone (**Figure 8**), demonstrating the need for transformative public and private investment. A tax increment financing (TIF) district was established by the Kentucky General Assembly in 2021 for the nine neighborhoods of west Louisville, with the goal of encouraging economic investment in Louisville’s historically disadvantaged communities. This TIF, and the associated West End Opportunity Partnership, is projected to generate at least \$30 million in initial investment.

## Labor Best Practices and Workforce Development

LMG is committed to following federal requirements for wages and encouraging strong labor standards and practices, confirmed by the included letter ([Appendix A: Letters of Support](#)) from Mayor Greg Fischer. The project will adhere to both federal and state workplace standards, as set forth by the U.S. Department of Labor and the Kentucky Labor Cabinet, ensuring a safe and supportive work environment. Like previous USDOT-funded projects in Louisville, *Reimagine 9<sup>th</sup> Street* will provide new opportunities for good-paying jobs, particularly in the building and construction industries. LMG has a strong partnership with the local Workforce Development Board, Kentuckiana Works, which has placed more than 300 individuals into good construction jobs since 2016 through its Kentuckiana Builds program. Collaboration between LMG, Kentuckiana Works, and other workforce development partners will be vital to the economic success of this project, from conception to completion.

## State of Good Repair

By making the proposed improvements, the three streets in the project area will become safer and more efficient, reducing opportunities for property damage and key infrastructure deterioration by:

- Restoring and modernizing core infrastructure assets.
- Addressing current and projected system vulnerabilities for underserved and disadvantaged communities.
- Maintaining assets in a state of good repair.

## Modernizing Core Infrastructure Assets

The wide median and negative offset left turn lanes on 9th Street result in sight distance limitations that make it difficult to see oncoming traffic. It is difficult to discern when to turn or when there is an adequate gap in oncoming traffic because intersection width causes the overhead signals to be obscured once a driver begins their turning movement. Intersection geometry, and the fact that many signals are mounted on light poles, results in frequent collisions involving utility and light poles, temporarily taking traffic signals out of service and causing safety and operational issues during the repair. This occurs approximately once a month at a \$10,000-per-repair expense (**Figure 23**).



Figure 23: Utilities damaged on 9<sup>th</sup> Street

As a result of inadequately sized turn lanes, turning vehicles often form queues in the travel lanes during peak hours and block through-traffic. This scenario tests drivers' patience and is contrary to best practice design. The existing conditions cause increased driver confusion and frustration, which leads to less-than-optimal decisions regarding turning movements and other driving behaviors. Eliminating these opportunities for erratic driving behavior will reduce societal costs of crashes and help properly maintain one of Louisville's most vital roadways.

Transforming the right-of-way from six lanes with an inaccessible green median to four lanes with linear parks outside the curb will reduce annual costs. These costs include lighting, paving, mowing, and limbing of trees. While the new linear parks will contain more recreational elements and landscaping, their location on the edges of the Corridor will encourage community ownership



and consistent care. Reimagine 9th Street’s design improves efficiency and decreases maintenance costs by rightsizing the roadway and shifting green space to the accessible and inviting pedestrian realm.

LMG has appropriately capitalized the project and uses asset management techniques to track and maintain its infrastructure. LMG has dedicated funding to maintain all project elements including streets, sidewalks/paths, equipment, landscaping, and public spaces.

### Addressing Current and Projected System Vulnerabilities

This project will mitigate current system vulnerabilities on all traffic signals within the corridor. The needed traffic signal upgrades are detailed in the Innovative Technology section on **page 24**. In addition to upgrading the signals to meet future demands, LMG is simultaneously increasing protection against cybersecurity risks. As more of our public infrastructure is connected to the internet, the opportunity for cyber threats arises. LMG’s Civic Innovation and Technology department prioritizes protecting public infrastructure from current and projected system vulnerabilities.

### Maintaining Assets in a State of Good Repair

All the assets being considered for construction in this project either already exist within Louisville and are maintained by LMG, or they are concepts that LMG is currently evaluating for implementation (ex: cameras for automated speed enforcement). Therefore, LMG is prepared to maintain all assets constructed with the *Reimagine 9th Street* project in a state of good repair.

For the 9<sup>th</sup> Street corridor specifically, the Louisville Downtown Partnership has a maintenance program separate from LMG’s own maintenance team that assists with trash collection, landscaping, and beautification of the entire downtown area. The new trail being built on 9<sup>th</sup> Street will be within the boundaries of this partner maintenance team.

### Partnership and Collaboration

LMG has strong relationships with both public and private organizations, representing local, regional, and state-wide communities. Many of the partners listed below will directly benefit from Reimagine 9th Street, and all are supportive of the project’s transformative vision.

- **Kentucky Transportation Cabinet (KYTC)**, the state DOT, will provide direct financial and technical assistance.
- **Transit Authority of River City (TARC)**, Louisville’s transit provider, will partner on transit improvements like enhanced stop amenities and dedicated bus lanes.
- **Kentuckiana Planning and Development Agency (KIPDA)**, the region’s MPO, which continues to support Reimagine 9th Street through planning and prioritization of transportation projects and can award STBG funds for other federal sources of funds.
- **Louisville Metro Housing Authority (LMHA)**, managing organization for the HUD Choice Neighborhoods Grant, is redeveloping the Beecher Terrace public housing community.
- **Louisville Metropolitan Sewer District (MSD)**, managing organization for Louisville’s sewer and stormwater systems, which will partner on mitigation of stormwater runoff through green infrastructure improvements.
- **Kentuckiana Works**, the local Workforce Development Board, actively partners with LMG to provide job and career counseling, education, and training.

- **Louisville Downtown Partnership (LDP)**, which seeks to actively promote areas of the CBD for development, including areas adjacent to 9th Street.
- **Waterfront Development Corporation**, the organization that will develop the fourth phase of Waterfront Park, creating a seamless connection between the new linear park on 9th Street and one of Louisville’s premier park systems.
- **Russell: A Place of Promise**, a justice-based partnership between LMG, Cities United, and the Kenan Charitable Trust that focuses on investment without displacement in the Russell neighborhood.
- **Louisville Downtown Residents’ Association**, whose resident members will benefit from reliable, affordable, and efficient connections between downtown and the neighborhoods of west Louisville.
- **Louisville Central Community Center**, a private non-profit entity that seeks to better the lives of residents in the Russell neighborhood.
- **OneWest**, a nonprofit community development organization dedicated to improving west Louisville’s built environment.
- **Simmons College**, an accredited HBCU dedicated to educating students in the heart of Louisville’s urban core.

## Innovation

*Reimagine 9<sup>th</sup> Street* will advance LMG’s efforts to build a smarter, more efficient transportation system that uplifts communities and creates opportunities for all, with particular emphasis on closing the accessibility gap for underserved populations.

### Innovative Technology

LMG already has 120 linear miles of municipally owned fiber, some of which runs through the project area. This project will overhaul every traffic signal on the three corridors and connect them to this fiber backbone. This will enable these neighborhoods to be amongst the most prepared to meet the demands of Louisville’s future Intelligent Transportation Systems (ITS).

Traffic signal upgrades will enable adaptive traffic control and traffic response, transit preemption, emergency vehicle priority, or any other advanced traffic signal operations needed to achieve a “smart” corridor. The current signals run pre-timed coordinated traffic signal patterns and do not utilize detection of any kind. These upgrades will give LMG the ability to incorporate advanced detection and/or 360 PTZ cameras, enabling video analytics to be incorporated into traffic operations.

LMG has a critical need for a county-wide installation of the newer ATC 2070 controllers that will provide the foundation (along with fiber) to meet the demands of future Connected and Automated Vehicles (CAV), Vehicle-to-Vehicle (V2V), and Vehicle-to-Infrastructure (V2I) technologies. These innovations have the potential to eliminate 80% of unimpaired crash scenarios, improve travel time reliability, and can lower GHG emissions.

For consideration with the project are Smart LED streetlights that can turn themselves on and/or illuminate brighter if a car, cyclist, or pedestrian enters the vicinity. Smart LED streetlights use less energy, which lowers overall operations and maintenance costs compared to traditional streetlights. In addition, they use innovative detection and LED technologies to focus lighting where and when it is needed most, reducing glare and extraneous light pollution. These streetlights will save LMG money by reducing utility bills and providing for a longer useful life.

The purpose of exploring the feasibility of implementing these innovations is to deploy technologies that drive safety, equity, climate resilience, and economic outcomes for underserved and disadvantaged communities.

### Innovative Project Delivery

Perhaps not considered innovative, but worth calling attention to, is the effective relationship between LMG, KYTC, and the KIPDA MPO. Planning partners at these local, state, and regional agencies have a decades-long history of successfully delivering complicated and expensive projects of this magnitude, of which the Dixie Highway BRT TIGER project is a superb example.

### Innovative Financing

LMG plans to utilize as much of the non-federal local match as possible in the early phases of the project to demonstrate the city’s commitment to the project and ensure there are no project delays due to budget issues. KYTC, the state DOT, has committed \$500,000 in non-federal match for this project, demonstrating their level of support. At this time, there are no plans to pursue private financing.

## V. Project Readiness

### Project Schedule

The project schedule is presented in **Table 11**. Note that some activities occur simultaneously. Construction will run in phases by project component and is dependent on weather during the growing and planting season for plants, trees, and other landscaping. If possible, the construction phases will be accelerated.

**Table 11: Conceptual Project Schedule with Major Project Milestones**

Task	CY 2023				CY 2024				CY 2025				CY 2026				CY 2027			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Roadway, Paving, Drainage	P	P	P E	P E	P E D	P D U	D R U	D R U	R U	B	C	C	C	C	C					
Signal System & Street Lights	P	P	P E	P E	P E D	P D U	D R U	D R U	R U	B			C	C	C		C	C		
Linear Park & Trail	P	P	P E	P E	P E D	P D U	D R U	D R U	R U	B							C	C	C	C
Bioswales, Plantings & Landscaping	P	P	P E	P E	P E D	P D U	D R U	D R U	R U	B							C	C	C	C

P Planning, Preliminary Design & Stakeholder Engagement    
 R Right of Way Acquisition/Easements    
 D Final Design    
 C Construction  
E Environmental Work [Categorical Exclusion]    
 U Utility Relocation    
B Bidding Award

## Required Approvals and Permits

### NEPA Class of Action and Status

The project area does not have existing streams, wetlands, endangered species, or environmentally sensitive areas. Therefore, based on NEPA regulations, it is expected that the project will merit some level of Categorical Exclusion (CE). LMG spent \$30,000 to begin the NEPA process in order to accelerate the project’s readiness. This funding was for an environmental overview to determine if historic properties, wetlands, or other risks might be a factor in the NEPA review.

Implementation will be completed by existing agencies who own and are familiar with the project, so no other approvals will be required. Since the project area is adjacent to existing historic districts, ongoing coordination and communication with the State Historic Preservation Office (SHPO) will be needed. Some field investigation and monitoring will need to be done prior to and during construction, but this is a typical practice and has been done successfully by LMG as part of the recent Dixie Highway BRT TIGER project.

Ongoing stakeholder engagement and communication will continue through all phases of the project, including environmental approvals and construction.

### Other Agency Reviews & Approvals (State and Local)

The only approvals necessary from the State are those related to the NEPA reviews, which will be obtained from KYTC and the SHPO. KYTC has provided a letter of support and participated in the planning and design of this project. LMG and KYTC have a strong working relationship that was exemplified in the TIGER grant-funded Dixie Highway BRT project. Likewise, the SHPO will be engaged early in the process. Since the project is within an existing right-of-way, the CE is not overly complex and LMG and the SHPO have a record of efficiency and success.

Local approvals are also anticipated to be secured. This project is a priority project for Louisville’s Mayor and the Louisville Metro Council. The Metro Council will need to approve future budget allocations. Given the level of community interest in the project, local approvals should not be a problem. Letters committing support from Louisville’s Mayor, as well as the impacted Metro Councilmembers, are attached in [Appendix A: Letters of Support](#).

*Reimagine 9<sup>th</sup> Street* is included in the MPO’s Metropolitan Transportation Plan (MTP), [Connecting Kentuckiana 2040](#), as Project #2733. The Kentuckiana Regional Planning and Development Agency (KIPDA) has committed to amending their Transportation Improvement Program (TIP) to add *Reimagine 9<sup>th</sup> Street* if LMG is awarded RAISE grant funds. The TIP amendment would take approximately three months after notice of a grant award.

### Public Involvement (Past and Future)

For the 9<sup>th</sup> Street portion of this project, LMG engaged neighborhood leaders, stakeholders, and residents through six community meetings and open houses between June 2017 and July 2018. Upon compiling the community’s feedback and soliciting ideas for the corridor, the project team returned to the community to further vet the alternatives at six pop-up events that took place at key locations along 9<sup>th</sup> Street. These wide-ranging engagement efforts ensured that the public had numerous opportunities to discuss the future of the area and ensure that the plan recommendations reflected their ideas and wishes.

The portion of the project on Muhammad Ali Blvd. and Chestnut St./River Park Dr. is related to a broader effort to analyze Louisville’s one-way streets and develop strategic solutions. An initial

community meeting was held for these two specific corridors in February 2021, in conjunction with an informational direct mail campaign and an online survey. Feedback was generally positive, with residents and community members expressing the desire for calmer, safer, neighborhood-serving streets.

**ROW Acquisition Plans**

The entirety of *Reimagine 9th Street* will be constructed within the existing right-of-way. The right-of-way costs identified for the project are for temporary construction easements.

**Risk and Mitigation Strategies**

The risks associated with this project are minimal and conventional for a project of this size. Major risks associated with this project have been assessed according to standard risk categories with the following characteristics: highway and multi-modal improvement projects, projects within the existing right-of-way, project locations already under agency control, and projects with no adverse environmental conditions. Possible risks and mitigation strategies are discussed in **Table 12**.

Table 12: Risk and Mitigation Strategies		
Possible Risks		Mitigation Strategy
Procurement or Scheduling Delays	Delays due to procurement issues.	The scope of work is within the range routinely handled by LMG. Procurement is not considered unusual, so no delays are anticipated.  LMG can also leverage existing relationships to gain support from local architecture and engineering firms who have similar local and national experience.  Lastly, any project within Kentucky that received federal transportation funding and works with consultants must follow the guidelines in <a href="#">KYTC's Local Public Agency Project Guide</a> . LMG has extensive experience delivering projects while following this guide.
Existing Infrastructure	Impacts to the interchange ramps to I-64 and I-624	There are three interstate ramps in the project area, and none of the ramps or their underlying structures will be impacted by this project. Therefore, no permits nor Interchange Modification Reports (IMR) are needed.
Environmental Uncertainties	Significant impacts to the environment.	Environmental overviews have been completed for the entire project area and NEPA is expected to be some level of Categorical Exclusion. The Final Design and NEPA process will affirm there will be no negative environmental impacts.
Financial Risks	Inflation and/or cost overruns during construction.	The budget of each construction segment includes a 30% contingency. To account for inflation, the cost was increased by 5%.  The initial cost estimate was based on a recently-completed project – the Dixie Highway BRT project which used TIGER Grant funds.
	Outlays of general funds (local match) are not approved by Metro Council.	Given the level of community support for this project, this is not likely to be an issue. A letter committing support from Louisville's Mayor is attached under Supporting Documentation.

## VI. Benefit Cost Analysis

Investment in *Reimagine 9th Street* offers the opportunity to generate a variety of benefits that align with the RAISE merit criteria, estimated using the USDOT RAISE Grant application guidance. Where USDOT has not provided valuation guidance or a reference to guidance, standard industry practice has been applied. See [Appendices E and F: Benefit-Cost Analysis \(BCA\) Model and Technical Report](#) for complete summary and backup information.

In the benefit-cost analysis (BCA) conducted for this application, benefits are estimated on an incremental basis for current and future users; that is, the change in welfare that consumers and, more generally, society, derive from the investment as compared to the current situation. As with most transportation projects, the benefits derived from the implementation of an infrastructure project are actually a reduction in the costs associated with transportation activities following project implementation. These cost reductions may come in the form of average time saved by users, reductions in traffic crash costs, decreased levels of pollution, or more generally, a combination of multiple effects. The BCA was conducted by HDR, and the following principles guided the estimation of benefits and costs in the analysis:

- Only incremental benefits and costs are measured.
- Incremental benefits of the project include transportation cost savings for the users of the Reimagine 9th Street improvements.
- Incremental costs of implementation of the project include initial and recurring costs. Initial costs refer to capital costs incurred for design and construction of the proposed improvements. Recurring costs include incremental operating costs and maintenance expenses. Only additions in costs to the current operations and planned investments are considered in the analysis.
- Benefits and costs are valued at their opportunity costs.
- The benefits stemming from investment in the Reimagine 9th Street improvements are those above and beyond the benefits that could be obtained from the best transportation alternative.
- Annual costs and benefits are computed over a long-run planning horizon and summarized through a lifecycle cost analysis. The analysis includes five years of construction and 20 years of operation.

The opportunity cost associated with the delayed consumption of benefits and the alternative uses of the capital for project implementation is measured by the discount rate. All benefits and costs are discounted to reflect the opportunity costs of committing resources to the project.

Calculated real discount rates are applied to all future costs and benefits as a representation of how the public sector evaluates investments. A 7% real discount rate is used in the analysis for all benefits, with the exception of CO<sub>2</sub> which is discounted at 3%.

### Build and No-Build Scenarios and Associated Costs

Two alternatives were compared in the benefit-cost analysis: a build and no-build scenario. The build scenario represents the project improvements as described in this application. The no-build scenario reflects the status quo. For the build scenario, assuming a discount rate of 7%, it is estimated that the project will require \$14.5 million in discounted capital expenditures and slightly less than \$1 million in discounted operating and maintenance costs over the project timeline. This

generates \$40 million in discounted benefits, with \$28.4 million in crash reduction benefits, accounting for the largest share. Benefits associated with emissions reduction, health, and amenities are also generated by the improved bicycle and pedestrian facilities, as are travel time savings afforded to vehicular traffic once the improvements are complete.

**Table 13** presents results of the BCA conducted for this application, based on project information and the USDOT BCA Guidance. A \$1 investment in this project is expected to generate an estimated \$2.77 in public benefits.

**Table 13: Overall Results of the Benefit-Cost Analysis**

Project Evaluation Metric	Non-Discounted	7% Discount Rate (CO <sub>2</sub> at 3%)
Total Discounted Net Benefits	\$122.6 million	\$40.0 million
Total Discounted Costs	\$21.0 million	\$14.5 million
Net Present Value	\$101.6 million	\$25.6 million
Benefit / Cost Ratio	N/A	2.77
Internal Rate of Return	20.7%	
Payback Period	N/A	10 years

**Table 14: Benefit Estimates by RAISE Merit Criteria for the Build Alternative**

RAISE Merit Criteria	Benefit Categories	7% Discount Rate (CO <sub>2</sub> at 3%)
<b>Safety</b>	Crash Reduction Benefit	\$28,417,006
<b>Economic Competitiveness</b>	Travel Time Savings for Vehicles	\$5,483,080
<b>Environmental Sustainability</b>	Emissions Reduction Benefit	\$2,857
<b>Quality of Life</b>	New Cyclist and Pedestrian Health Benefits	\$5,676,365
<b>Mobility and Connectivity</b>	Active Transportation Amenity Benefit	\$1,445,678
<b>Total Benefit Estimates</b>		<b>\$41,024,987</b>

## VII. Additional Application Elements

### Supporting Documentation

Additional application elements and other required forms can be found at the project website, [www.louisvilleky.gov/raise-9th-street](http://www.louisvilleky.gov/raise-9th-street).

- **Appendix A:** Letters of Support
- **Appendix B:** Federal Wage Requirements Letter
- **Appendix C:** Documentation of Non-Federal Funds
- **Appendix D:** Cost Estimates
- **Appendix E:** Benefit-Cost Analysis (BCA) Model
- **Appendix F:** Benefit-Cost Analysis (BCA) Technical Report
- **Appendix G:** Travel Time Summary
- **Appendix H:** Safety Analysis
- **Appendix I:** Maps – Census Tracts Designated as Areas of Persistent Poverty (APP), Historically Disadvantaged Communities (HDC), Environmental Justice (EJ) Areas, Opportunity Zones (OZ), and Choice Neighborhoods (CN)
- **Appendix J:** *Reimagine 9<sup>th</sup> Street Corridor Plan (2018)*
- **Appendix K:** Preliminary Design Plans for One-Way to Two-Way (OWTW) of Muhammad Ali-Chestnut-River Park

### Federal Wage Determination

The letter confirming that LMG will comply with the requirements of Subchapter IV of Chapter 31 of Title 40, United States Code [Federal Wage Rate Requirements] is **Appendix B** located at: [www.louisvilleky.gov/raise-9th-street](http://www.louisvilleky.gov/raise-9th-street).