

Murray Small Urban Area Study

Calloway County
KYTC Item No. N/A

April 2023



Executive Summary

Murray Small Urban Area (SUA) Study

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The Murray Small Urban Area (SUA) Study was initiated by the Kentucky Transportation Cabinet (KYTC) to identify and examine transportation issues related to safety and congestion in the City of Murray and the surrounding area. The study included reviewing previous planning documents, analyzing existing conditions, soliciting input from the public and local officials, developing traffic forecasts, and developing and evaluating improvement concepts.

Existing Conditions

The Murray SUA study area includes the incorporated limits for the City of Murray and surrounding area, which is just over 27 square miles, as shown in **Figure ES-1**. Kentucky's *Enacted FY 2022 – 2028 Highway Plan* projects total nearly \$52 million in funding to improve the transportation infrastructure in the study area.

Two principal arterial roadways are present in the study area. US 641 is a 165-mile principal arterial that provides north-south regional connectivity, stretching from Clifton, Tennessee to Marion, Kentucky. It runs through the center of Murray and has the highest average daily traffic (ADT) volumes within the study area, ranging from 7,500 to 23,700 vehicles per day (VPD). KY 80 is a 484-mile principal arterial that provides east-west regional connectivity, extending from Elkhorn City near the Virginia State Line in Pike County to Columbus, Kentucky in Hickman County.

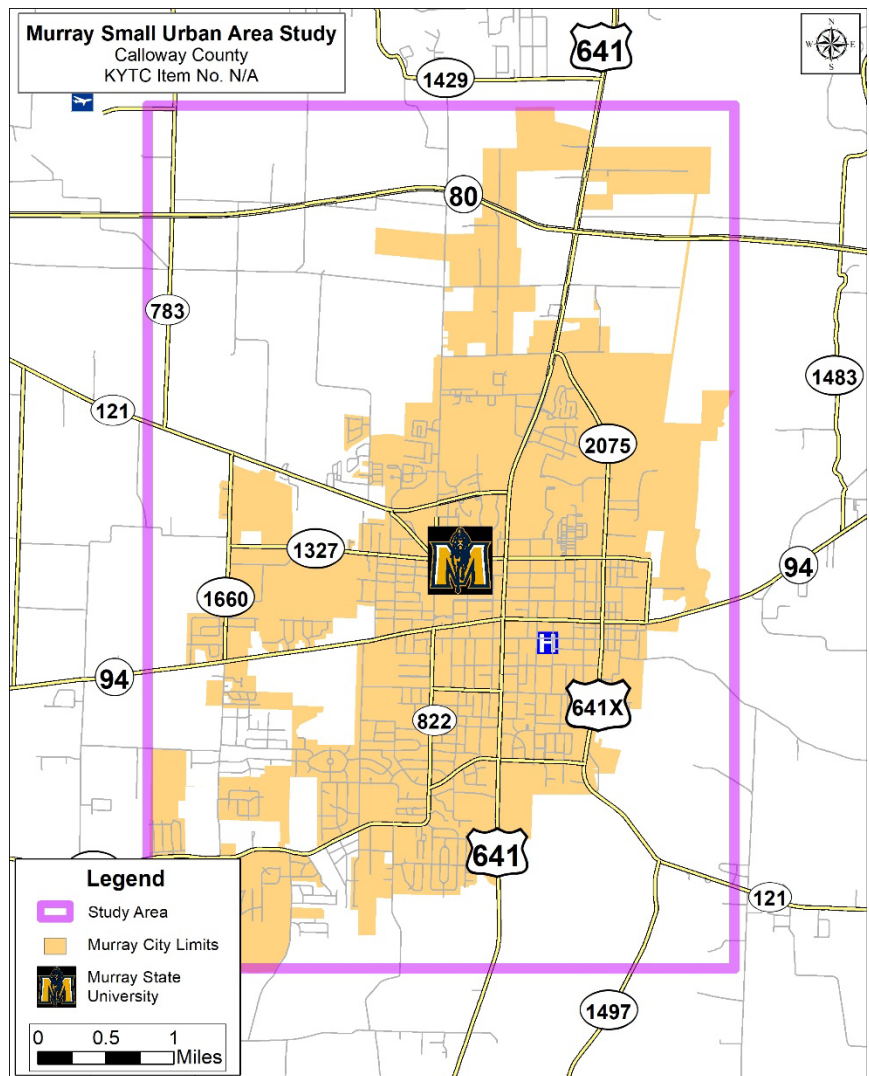


Figure ES-1: Murray SUA Study Area

A total of 3,168 crashes were reported within the study area between January 1, 2017, and December 31, 2019. Of those, two resulted in a fatality (one on KY 121 near Airport Road and one on KY 1660 south of College Farm Road), and 322 collisions resulted in an injury. Rear end crashes (675 crashes, 33 percent) and angle crashes (526 crashes, 26 percent) were the most prominent types of collisions. There were 11 bicycle collisions and 19 pedestrian collisions concentrated near Murray State University (MSU) and along the US 641 corridor. Of these 30 bicycle/pedestrian crashes, 21 (70 percent) resulted in injuries.

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Public Outreach

Early in the process, the project team met with a diverse array of local officials and other stakeholder representatives, referred to as the Advisory Committee, and created an online survey for the public to solicit feedback on transportation concerns in the study area.

There were 619 respondents to the online survey, 90 percent of which indicated that they travel the study area daily. Respondents were asked to rank their overall transportation concerns in Murray. Traffic congestion, intersections, and pedestrian facilities were noted as the top three transportation issues. Another concern for the public was safety, with the highest concern being the need for sidewalks, followed by speeding and poor sight distance. A heat map of the safety concerns with red representing a higher density of concern is shown in **Figure ES-2**.

Future Conditions

Based on projections by the Kentucky State Data Center (KSDC), Calloway County is expected to be one of the higher growing areas in western Kentucky, around 0.8 percent per year between 2010 and 2040. This growth is due in part, at least, to MSU, a four-year state-supported public university in the central portion of the study area with a Fall 2021 enrollment of 9,427.

The Advisory Committee indicated that the residential growth will likely occur in the western and southern portions of the study area. Commercial growth, alternatively, is expected in the eastern and northern portions of the study area, especially around KY 2075 (North 4th Street) and the KY 80/US 641 intersection. Traffic forecasts were developed based on expected future growth and suggest that portions of KY 94, KY 121, KY 822, US 641, and US 641X will operate over capacity by 2045, indicating that mitigation measures may be warranted.

Improvement Concept Development

Improvement concepts were developed based on a combination of input from the project team, a review of the existing conditions, traffic analyses, safety analyses, field reconnaissance, and input from the Advisory Committee and public. The improvement concepts were categorized as follows:

- **Short-Term:** The short-term concepts are typically lower-cost improvements that can be implemented in the near future. These types of improvements should require little or no right-of-way to construct and, in some cases, could conceivably be implemented by the KYTC Division of Maintenance as part of regular activities.
- **Long-Term:** The long-term concepts are higher-cost improvements that will require more significant resources to implement. These types of improvements will generally require additional right-of-way to construct and will need to be funded through a future Kentucky Highway Plan.
- **Bicycle/Pedestrian:** The bicycle and pedestrian concepts can be stand-alone projects or can be added to the short- and long-term concepts. Standalone bike-ped projects require funding that does not utilize Kentucky Road Fund dollars.

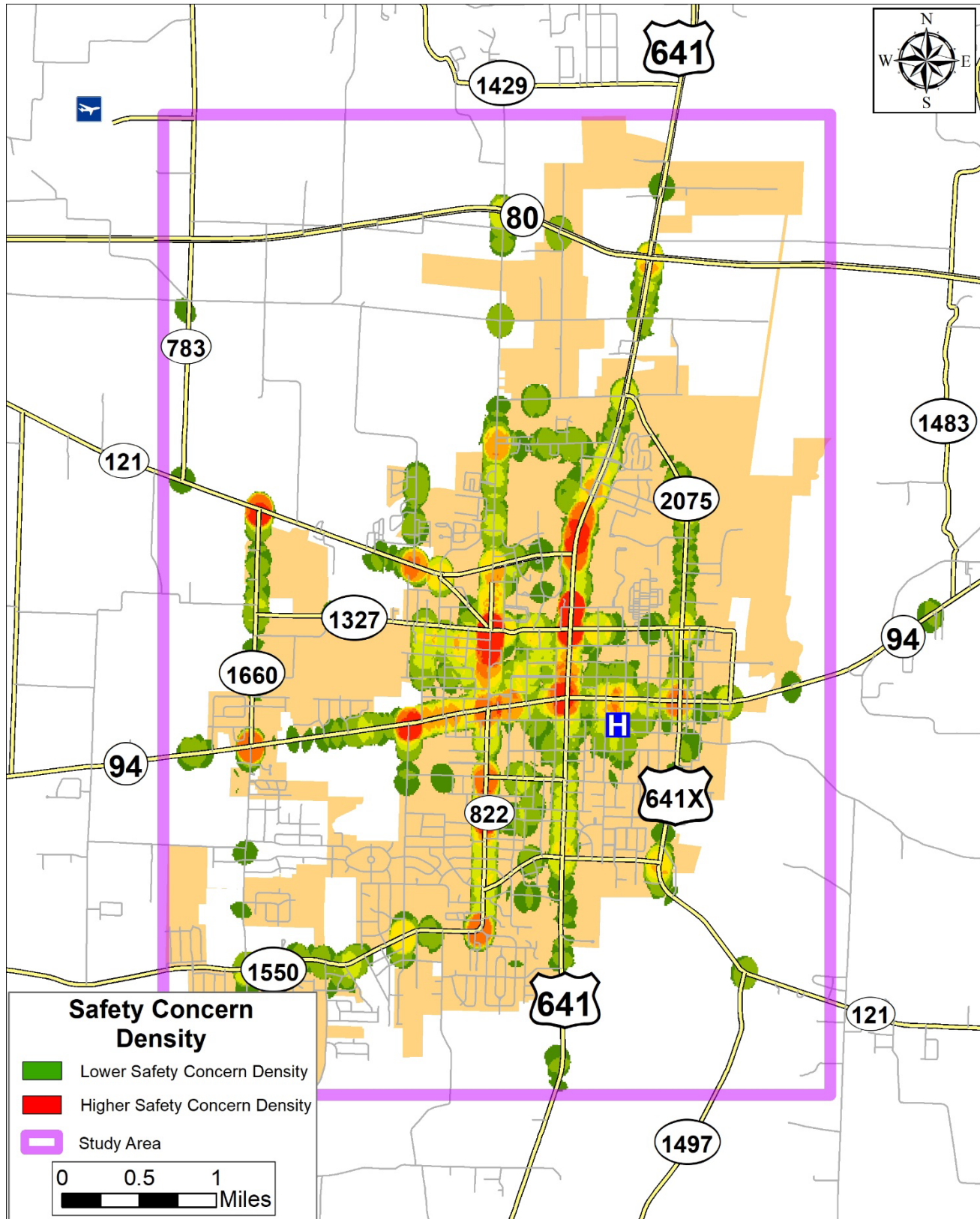


Figure ES-2: Public Survey – Safety Concern Heat Map

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Nine short-term concepts and eight long-term concepts were initially developed. Additionally, 12 bicycle/pedestrian concepts were developed. An Advisory Committee meeting was held to solicit feedback on the initial improvement concepts. Improvement concepts were revised and prioritized after the meeting.

Conclusions

Short-Term Improvement Concepts: The short-term improvement concepts were categorized as high, medium, or low priority, or as a maintenance project. Maintenance projects are improvements that the KYTC Division of Maintenance could implement internally using KYTC forces or statewide contracts. The short-term improvement concepts are summarized in **Table ES-1** and shown on **Figure ES-3**.

Table ES-1: Short-Term Improvement Concepts

ID	Location	Description	Total Cost Estimate	Priority
A	US 641	Perform a detailed traffic analysis on US 641	\$250,000	High
B	Courthouse Square	Convert 5th Street to pedestrian area and convert on-street parking to back-in parking	\$240,000	Medium
C	KY 94 at 8th Street	Install a four-way stop and curb bump out at the KY 94/8th Street intersection	\$60,000	Medium
D	US 641X at Sycamore Street	Remove the channelized right-turn lane from US 641X to Sycamore Street	\$60,000	Low
E	KY 121 at Lowes Drive	Terminate the westbound KY 121 through lane at Lowes Drive	\$20,000	Maintenance
F	KY 1550 at Oxford Drive	Enhance striping and signing at the KY 1550 horizontal curve at Oxford Drive	\$15,000	Maintenance

Long-Term Improvement Concepts: The long-term improvement concepts were categorized as high, medium, or low priority. They are summarized in **Table ES-2** and shown on **Figure ES-4**.

Table ES-2: Long-Term Improvement Concepts

ID	Location	Description	Total Cost Estimate	Priority
G	East Bypass	Construct a new route from the Murray Business Loop to KY 80	\$19.9 Million	High
H	Main Street (KY 94)	Construct a TWLTL and multi-use path on Main Street (KY 94)	\$6.2 Million	High
I	KY 94 at KY 1660	Convert the KY 94/KY 1660 intersection to a roundabout.	\$1.4 Million	Medium
J	KY 121 at KY 1660	Convert the KY 121/KY 1660 intersection to a roundabout.	\$1.6 Million	Medium
K	West Bypass	Construct a new route between US 641 and KY 90 west of Murray	\$64.1 Million	Low

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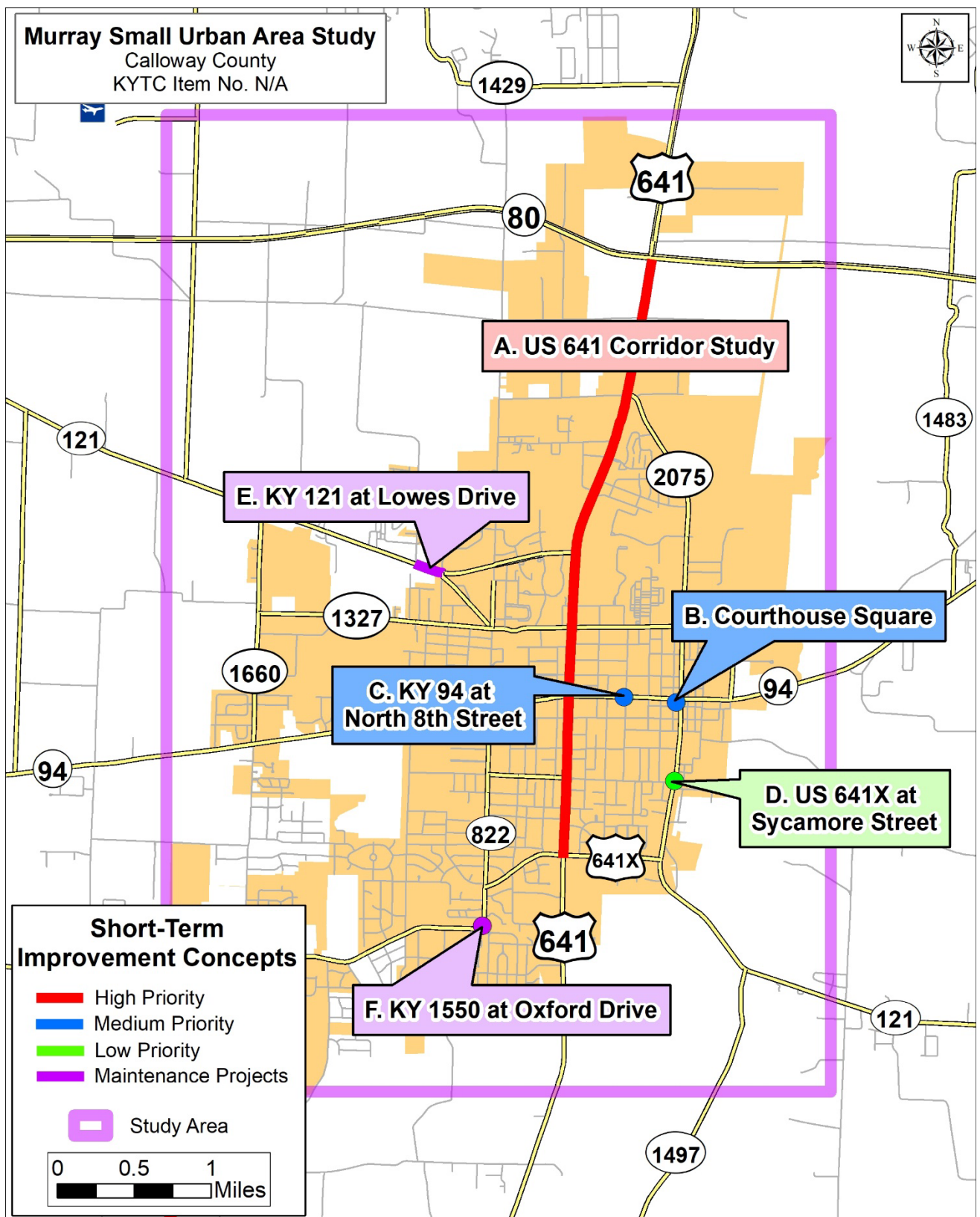


Figure ES-3: Short-Term Improvement Concepts

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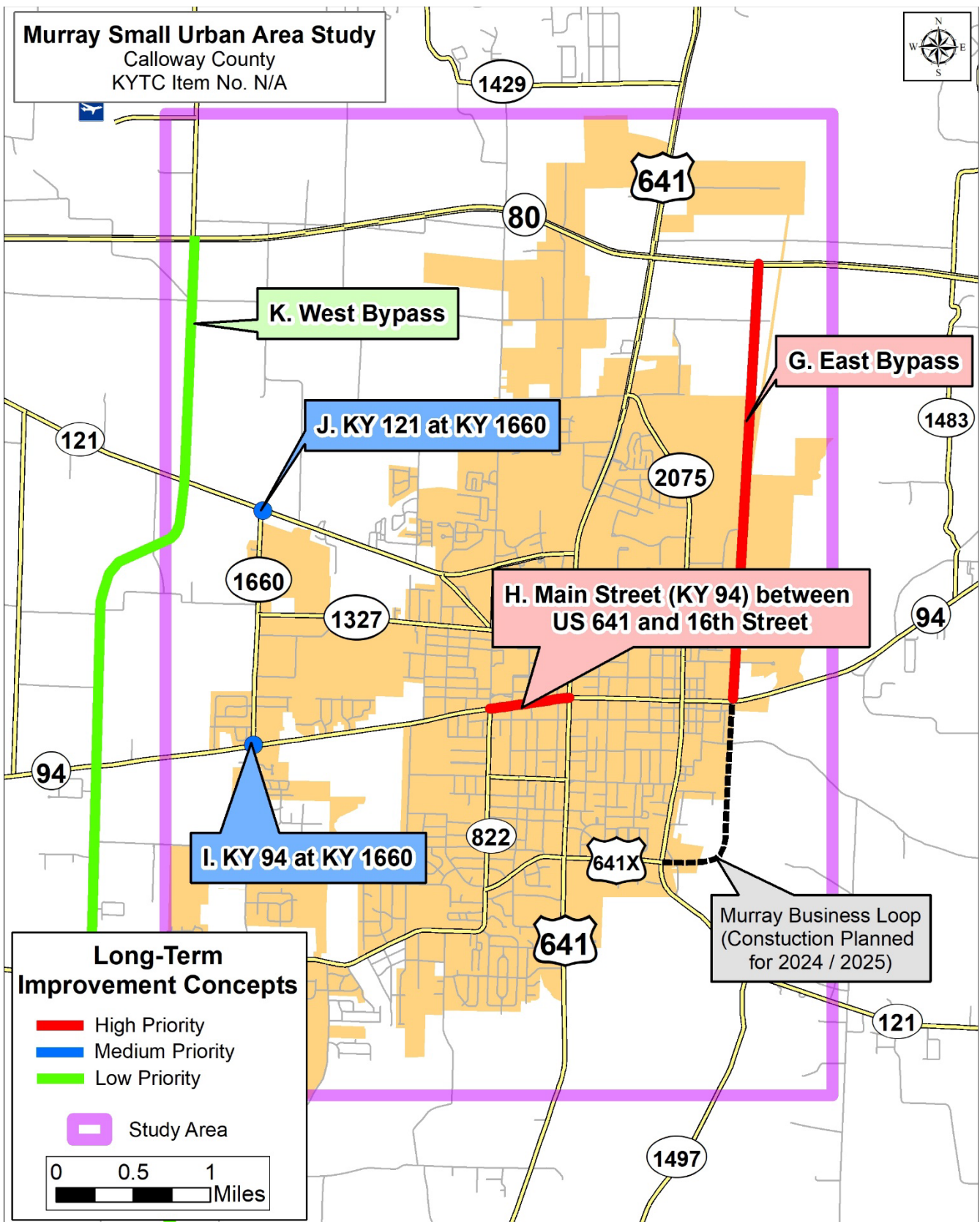


Figure ES-4: Long-Term Improvement Concepts

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Bicycle/Pedestrian Improvement Concepts: The bicycle/pedestrian improvement concepts, summarized in **Table ES-3** and shown on **Figure ES-5**, were categorized as high, medium, or low priority.

Table ES-3: Bicycle/Pedestrian Improvement Concepts

ID	Location	Description	Priority
2	Main Street (KY 94)	Construct a shared-use path on Main Street (KY 94)	High
4	Doran Road/ Sycamore Street	Construct sidewalks on Doran Road and buffered on-street bike lane on Sycamore Street	High
5	US 641 North of KY 121	Construct a shared-use path on US 641 with crosswalks at Lowes Drive and Center Drive	High
10	KY 121	Construct a shared-use path on KY 121	High
13	U B Bailey Road / Coldwater Road	Construct sharrows on U B Bailey Road and a shared-use path on KY 121 and Coldwater Road	High
1	KY 1327	Construct a shared-use path on KY 1327	Medium
3	KY 1660	Construct a shared-use path on KY 1660	Medium
6	KY 1550	Construct a shared-use path on KY 1550, shared-use paths on 16th Street and Glendale Road, and sidewalks on Doran Road	Medium
12	US 641 South of KY 121	Construct a shared-use path on US 641 and a buffered on-street bike lane/sidewalk on Arcadia Circle and Hobson Drive	Medium
7	US 641X / KY 2075	Construct a buffered on-street bike lane and sidewalk on KY 2075/US 641X	Low
8	8th Street	Construct a buffered on-street bike lane and sidewalk on 8th Street	Low
9	Poplar Street	Construct a buffered on-street bike lane and sidewalk on Poplar Street	Low
11	KY 94 to Land Between the Lakes	Construct a buffered on-street bike lane on KY 94	Low

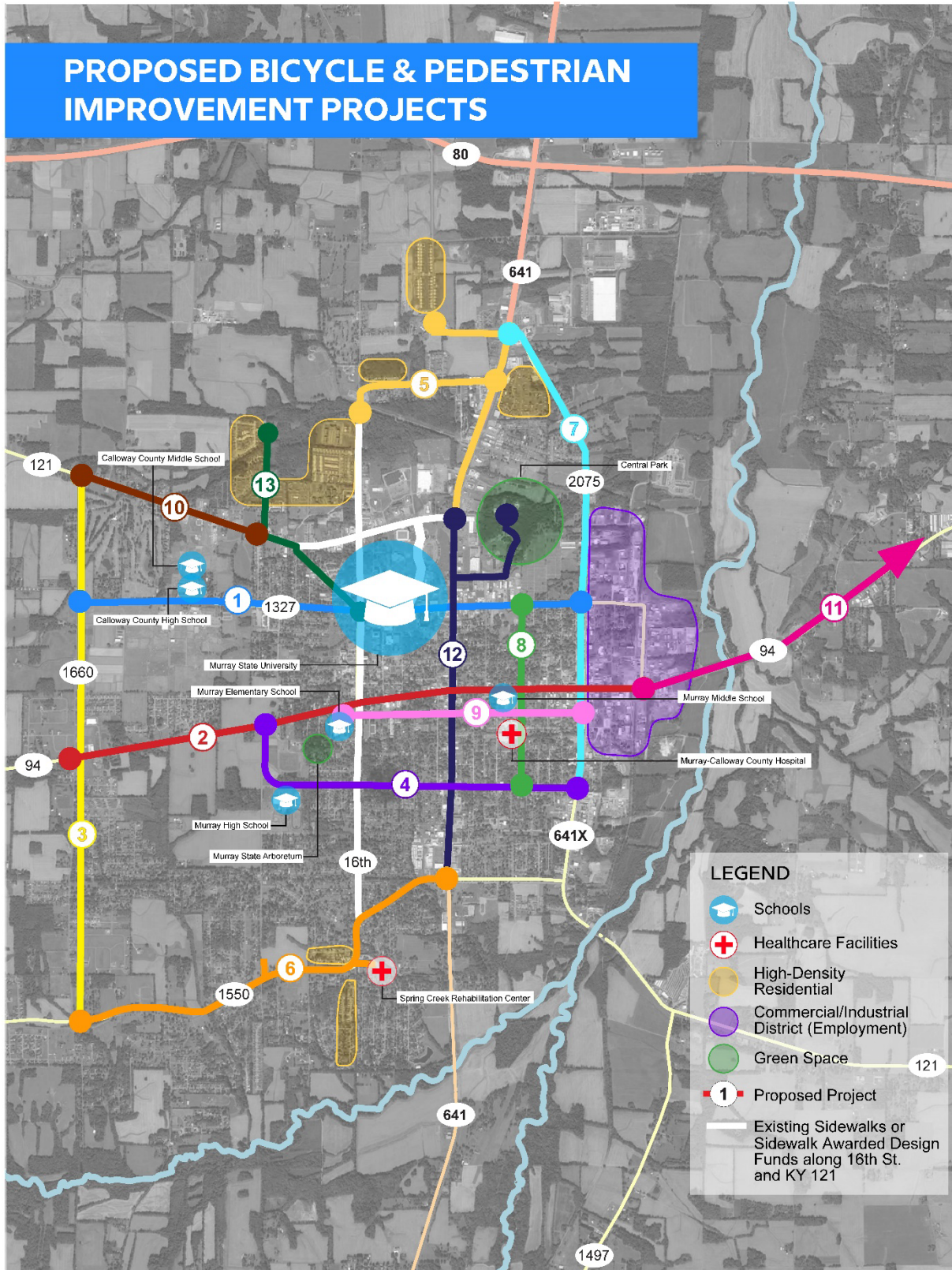


Figure ES-5: Bicycle/Pedestrian Improvement Concepts