

Appendix D: Meeting Summaries

Meeting Minutes

TO: Stephen De Witte
Co-Project Manager
KYTC Central Office
200 Mero Street
Frankfort, KY 40622

James Tilley
Co-Project Manager
KYTC District Office #1
5501 Kentucky Dam Road
Paducah, KY 42003

FROM: Len Harper
Project Manager
Stantec Consulting Services Inc.

DATE: October 7, 2021

SUBJECT: Murray Small Urban Area (SUA) Study
Calloway County
KYTC Item No. N/A
Project Team Meeting No. 1

The first Project Team Meeting for the subject project was held virtually with Microsoft Teams on September 28, 2021 at 9:30 a.m. CDT. The following individuals were in attendance:

| | |
|-------------------|---|
| Bryan Black | KYTC – District 1 |
| Jeremy Buchanan | Purchase Area Development District (PADD) |
| Stacey Courtney | Purchase Area Development District (PADD) |
| Stephen De Witte | KYTC – Central Office Planning |
| Chris Kuntz | KYTC – District 1 |
| Keith Lovan | KYTC – District 1 |
| Jim LeFevre | Purchase Area Development District (PADD) |
| Jason Looper | KYTC – District 1 |
| Beth Niemann | KYTC – Central Office Planning |
| Michael Oliver | KYTC – District 1 |
| Amin Omidy | TSW Design Group |
| Patrick Perry | KYTC – Central Office Design |
| Kyle Poat | KYTC – District 1 |
| Connor Schurman | KYTC – Central Office Planning |
| James Tilley | KYTC – District 1 |
| | |
| Brian Aldridge | Stantec Consulting Services Inc. |
| Len Harper | Stantec Consulting Services Inc. |
| Graham Winchester | Stantec Consulting Services Inc. |

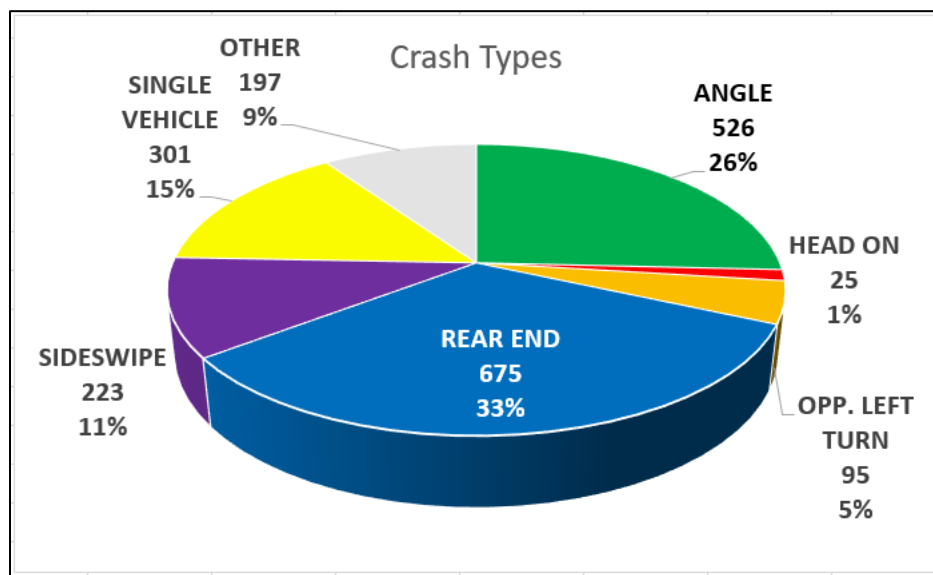
Len Harper welcomed everyone and coordinated brief introductions from the project team. Len then delivered a presentation. The following enumerated items were discussed:

1. The purpose of the meeting is to present the results from the existing conditions analysis, get feedback from the project team on transportation issues in the study area, and discuss the first Advisory Committee Meeting.
2. This project is federally funded with Federal State Planning and Research (SPR) Chapter 7 funds. Future phases of the project are not funded in *Kentucky's FY 2020 – FY 2026 Highway Plan*.
3. The previous Murray SUA Study was completed in 2008. There are currently four projects in the study area listed in *Kentucky's FY 2020 – 2026 Highway Plan*:
 - **KYTC Item No. 01-8952.00** – Improve N 16th Street from KY 1327 to KY 121
 - i. Design funds have been authorized. This project will include design improvements at the “5 Points” intersection.
 - **KYTC Item No. 01-20001.00** – Address pavement condition on KY 1327
 - i. This project has been completed
 - **KYTC Item No. 01-9026.00** – Left and right turn lanes at Southwest Calloway Elementary
 - i. Design for this project was completed by KYTC. Utility relocation and right-of-way acquisition funds were authorized on 5/19/2021.
 - **KYTC Item No. 01-314.20** – Improve US 641 from the Tennessee state line
 - i. This project is currently under construction.

Additionally, there are two Highway Safety Improvement Program (HSIP) projects in the study area.

- Signing, striping, and advanced warning flashers at the KY 80 intersection with US 641
 - This project will be let to construction in October 2021
 - Construct turn lanes at the 12th Street intersection with Sycamore Street
 - This project has been completed
4. The purpose of the Murray SUA Study is to examine the transportation network in Murray and to identify and evaluate potential options to improve safety and congestion in the project area. The study will focus on short and long-term improvements that KYTC and the City of Murray can use for further project development and implementation.
 5. Highlights from the existing conditions analysis were discussed. There are several four-lane roadways within the study area, all of which have at least 11-foot lanes, including KY 80 with up to 5,200 vehicles per day (vpd), US 641 with 23,000 vpd, and KY 121 with 10,600 vpd. Most of the major two-lane roadways in the study area have sections of both 10- and 11-foot lanes, including KY 94 with 12,200 vpd, KY 822 with 9,000 vpd, KY 1327 with 12,000 vpd, and US 641X with 8,900 vpd. US 641 is a federally authorized truck route and is the only truck route in the study area.

- Preliminary volume-to capacity (V/C) ratios were calculated for study area roadways based on results from the KYSTM. Since the model is still being updated, it was decided that the v/c ratio map would need to be updated before sharing any results with the Advisory Committee.
 - It was noted that trucks frequently travel on US 641X around Courthouse Square.
6. Crash data from the Kentucky State Police database indicates that in the three years between January 1, 2017 and December 31, 2019, a total of 3,168 crashes were reported in the study area. Of these 3,168 crashes, 1,126 were animal related or parking lot collisions and were removed from analysis. Of the remaining 2,042 crashes, two (0.1 percent) were fatal and 322 (16 percent) were injury collisions. Rear end crashes (33 percent) and angle crashes (26 percent) were the most prominent types of collisions.



Over the three-year period, there were 11 bicycle collisions and 19 pedestrian collisions, concentrated near Murray State University and along the US 641 corridor. Of these 30 crashes, 21 (70 percent) were injury collisions.

The Crash Data Analysis Tool (CDAT) was used to perform an Excess Expected Crashes (EEC) analysis. EEC is a measure of the crash frequency at a given site compared to what is expected based on current conditions (geometrics, traffic, etc.). A positive EEC indicates more crashes are occurring than should be expected. Results from this analysis showed portions of US 641 and US 641X with the highest EEC values in the study area, as shown in **Figure 1**. Additionally, several intersections on US 641, KY 121, and KY 94, among others, have positive EEC values.

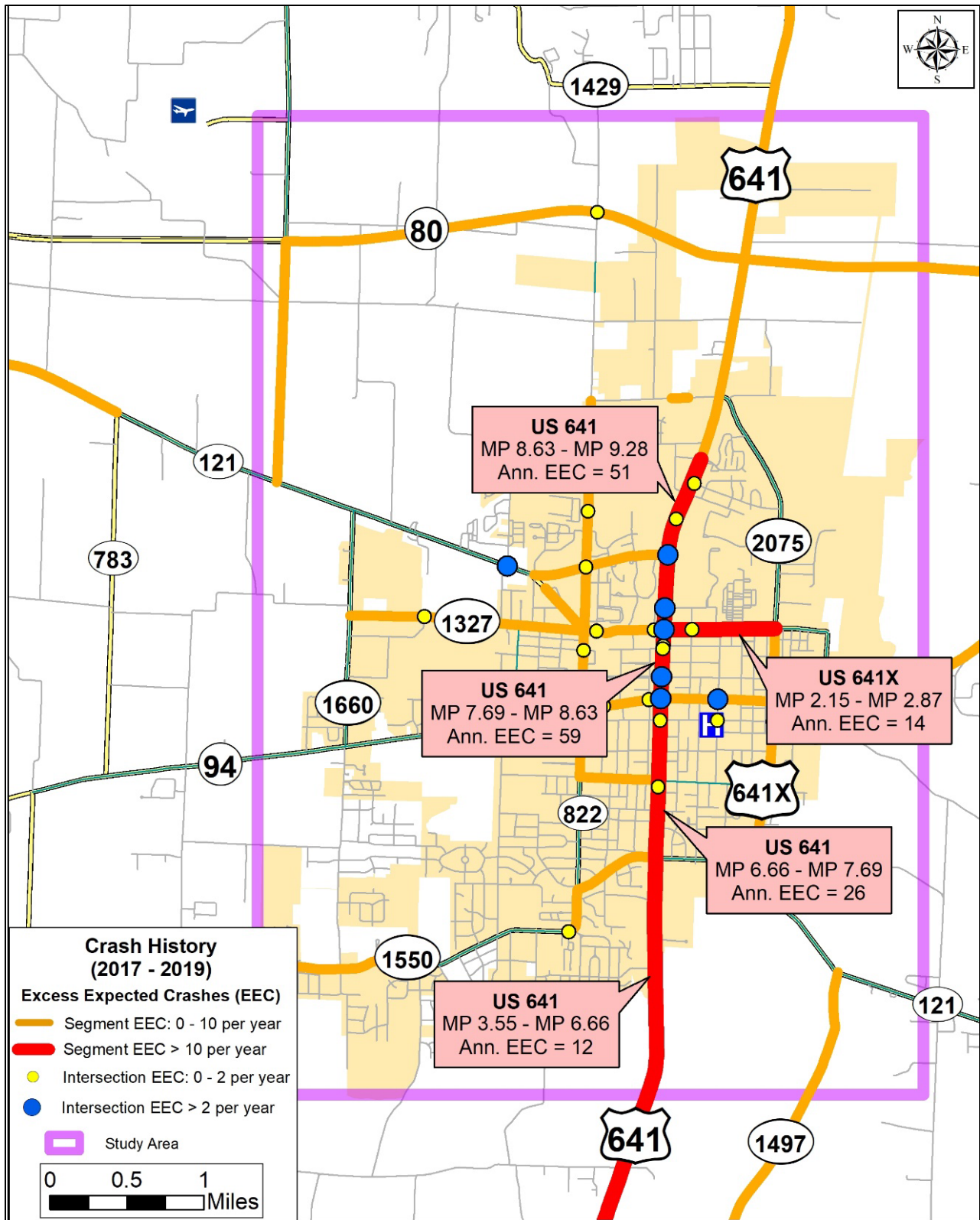


Figure 1: Excess Expected Crashes (2017 – 2019)

7. Preliminary growth rates are being developed based on historical KYTC traffic counts, population projections from the KY State Data Center, input from the Advisory Committee, and data from the KYSTM. The study area portion of the KYSTM is being updated for this study, including splitting traffic analysis zones (TAZs), updating existing household and employment data, and allocating expected growth based on feedback from the Advisory Committee. Once the KYSTM is updated, growth rates will be finalized and used to develop 2045 traffic forecasts. A meeting will be held with the Modal Branch before the second Project Team Meeting to review the analysis and the process will be documented in a technical memo.

- Question: Will the population projections include data from the 2020 Census?
Answer: No, KY State Data Center population projections have not been updated since the 2020 Census was released.

8. A MetroQuest survey was developed and sent to participants before the first Advisory Committee meeting. The goal of the survey is to solicit feedback regarding general transportation concerns, traffic and safety concerns, potential improvement concepts, and areas of expected growth. The Advisory Committee will be asked to complete the online MetroQuest survey by October 12, 2021.

A similar survey was made available to the public on October 5, 2021, through a District 1 Press Release and Social Media posts. As requested by the Division of Planning, Stantec will pay to boost the Facebook posts to increase participation. Stantec will also ask Murray State University to send the survey out through an email blast to students and faculty. The deadline for the public survey is November 2, 2021.

9. The next steps will be for Stantec to update the KYSTM and develop traffic forecasts based on input from the Advisory Committee. Input from the online surveys will also be used to help identify where turning movement counts may be needed. Stantec is scoped to collect five turning movement counts to determine warrants for intersection improvements. A second Project Team Meeting is currently scheduled for mid-December where preliminary improvement concepts will be discussed.

The meeting ended at approximately 10:30 a.m. CDT.

Meeting Minutes

TO: Stephen De Witte
Co-Project Manager
KYTC Central Office
200 Mero Street
Frankfort, KY 40622

James Tilley
Co-Project Manager
KYTC District Office #1
5501 Kentucky Dam Road
Paducah, KY 42003

FROM: Len Harper
Project Manager
Stantec Consulting Services Inc.

DATE: October 27, 2021

SUBJECT: Murray Small Urban Area Study
Calloway County
KYTC Item No. N/A
Advisory Committee Meeting No. 1

The first Advisory Committee Meeting for the subject project was held virtually with Microsoft Teams on September 28, 2021 at 1:30 p.m. CDT. The following individuals were in attendance:

| | |
|-------------------|--|
| Kenny Imes | Calloway County Judge Executive |
| Mary Beth Imes | Kentucky State Representative |
| Mark Manning | Murray Calloway Economic Development Corporation |
| Jim Osborne | City of Murray |
| Rodney Skinner | Murray/Calloway Transit |
| Jason Youngblood | Murray State University |
| Bryan Black | KYTC – District 1 |
| Stephen De Witte | KYTC – Central Office Planning |
| Chris Kuntz | KYTC – District 1 |
| Keith Lovan | KYTC – District 1 |
| Jim LeFevre | Purchase Area Development District (PADD) |
| Beth Niemann | KYTC – Central Office Planning |
| Michael Oliver | KYTC – District 1 |
| Patrick Perry | KYTC – Central Office Design |
| Kyle Poat | KYTC – District 1 |
| Connor Schurman | KYTC – Central Office Planning |
| James Tilley | KYTC – District 1 |
| Len Harper | Stantec Consulting Services Inc. |
| Graham Winchester | Stantec Consulting Services Inc. |

Len Harper welcomed everyone and said the purpose of the meeting was to discuss the progress to-date for the Murray Small Urban Area (SUA) Study. Len then delivered a presentation. The following enumerated items were discussed:

1. The purpose of the meeting is to introduce the Advisory Committee to the Murray SUA Study, present the results from the existing conditions analysis, and to solicit feedback using an online MetroQuest survey.
2. This project is federally funded with Federal State Planning and Research (SPR) Chapter 7 funds. Future phases of the project are not funded in *Kentucky's FY 2020 – FY 2026 Highway Plan*.
3. The previous Murray SUA Study was completed in 2008. There are currently four projects in the study area listed in *Kentucky's FY 2020 – 2026 Highway Plan*:
 - **KYTC Item No. 01-8952.00** – Improve N 16th Street from KY 1327 to KY 121
 - i. Design funds have been authorized. This project will include design improvements at the “5 Points” intersection.
 - **KYTC Item No. 01-20001.00** – Address pavement condition on KY 1327
 - i. This project has been completed
 - **KYTC Item No. 01-9026.00** – Left and right turn lanes at Southwest Calloway Elementary School
 - i. Design for this project was completed by KYTC. Utility relocation and right-of-way acquisition funds have been authorized.
 - **KYTC Item No. 01-314.20** – Improve US 641 from the Tennessee state line
 - i. This project is currently under construction.

Additionally, there are two Highway Safety Improvement Program (HSIP) projects in the study area.

- Signing, striping, and advanced warning flashers at the KY 80 intersection with US 641
 - This project will be let to construction in October 2021
 - Construct turn lanes at the 12th Street intersection with Sycamore Street
 - This project has been completed
4. The purpose of the Murray SUA is to examine the transportation network in Murray and to identify and evaluate potential options to improve safety and congestion in the study area. The study will focus on short and long-term improvements that KYTC, Calloway County, the City of Murray, or private developers can use for further project development and implementation.
 5. Highlights from the existing conditions analysis were discussed. There are several four-lane roadways within the study area, all of which have at least 11-foot lanes, including KY 80 with up to 5,200 vehicles per day (vpd), US 641 with 23,000 vpd, and KY 121 with 10,600 vpd. Most of the major two-lane roadways in the study area have sections of both 10- and 11-foot lanes, including KY 94 with 12,200 vpd, KY 822 with 9,000 vpd, KY 1327 with 12,000 vpd,

and US 641X with 8,900 vpd. US 641 is a federally authorized truck route and is the only truck route in the study area.

6. Crash data from the Kentucky State Police database indicates that in the three years between January 1, 2017 and December 31, 2019, a total of 3,168 crashes were reported in the study area. Of these 3,168 crashes, 1,126 were animal related or parking lot collisions and were removed from analysis. Of the remaining 2,042 crashes, two (0.1 percent) were fatal and 322 (16 percent) were injury collisions. Rear end crashes (33 percent) and angle crashes (26 percent) were the most prominent types of collisions.

Over the three-year period, there were 11 bicycle collisions and 19 pedestrian collisions, concentrated near Murray State University and along the US 641 corridor. Of these 30 crashes, 21 (70 percent) were injury collisions.

The Crash Data Analysis Tool (CDAT) was used to perform an Excess Expected Crashes (EEC) analysis. EEC is a measure of the crash frequency at a given site compared to what is expected based on current conditions (geometrics, traffic, etc.). A positive EEC indicates more crashes are occurring than should be expected. Results from this analysis showed portions of US 641 and US 641X with the highest EEC values in the study area. Additionally, several intersections on US 641, KY 121, and KY 94, among others, have positive EEC values.

7. Preliminary growth rates are being developed based on historical KYTC traffic counts, population projections from the KY State Data Center, input from the Advisory Committee, and data from the Kentucky Statewide Travel Model (KYSTM).
8. A MetroQuest survey was developed and sent to participants before the meeting. The survey was sent to the Advisory Committee one week prior to the meeting (September 21, 2021) and closed two weeks after the meeting (October 12, 2021). The goal of the survey was to solicit feedback regarding general transportation concerns, traffic and safety concerns, potential improvement concepts, and areas of expected growth. There were 17 participants who fully or partially completed the survey, all of whom travel the study area by car or truck. Six respondents identified as Calloway County residents, three as Murray residents, three chose 'other,' and five did not respond. Of the 12 respondents nine (75 percent) indicated they work in Murray.

When asked how often they travel in the study area, nine of the 13 respondents indicated they drive it daily, as shown in **Figure 1**.

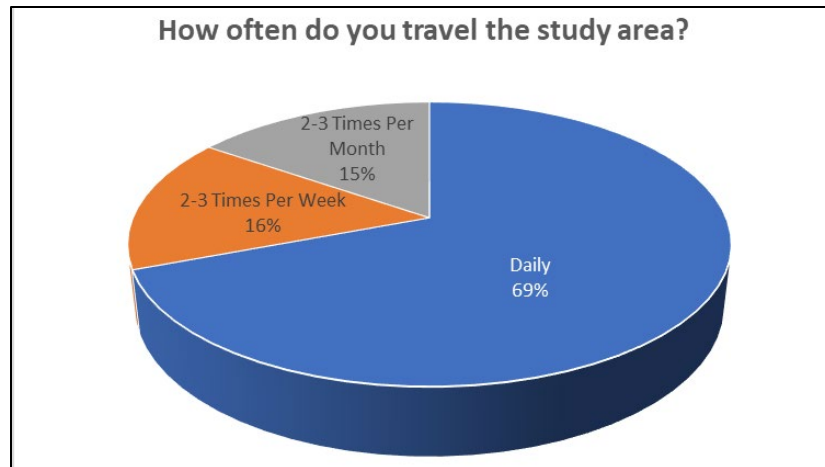


Figure 1: How often do you travel the study area?

The next question asked respondents to rank their top five transportation concerns in the study area. Of the concerns listed, traffic congestion, excessive speeds, and large trucks were the top concerns, as shown in **Figure 2**.

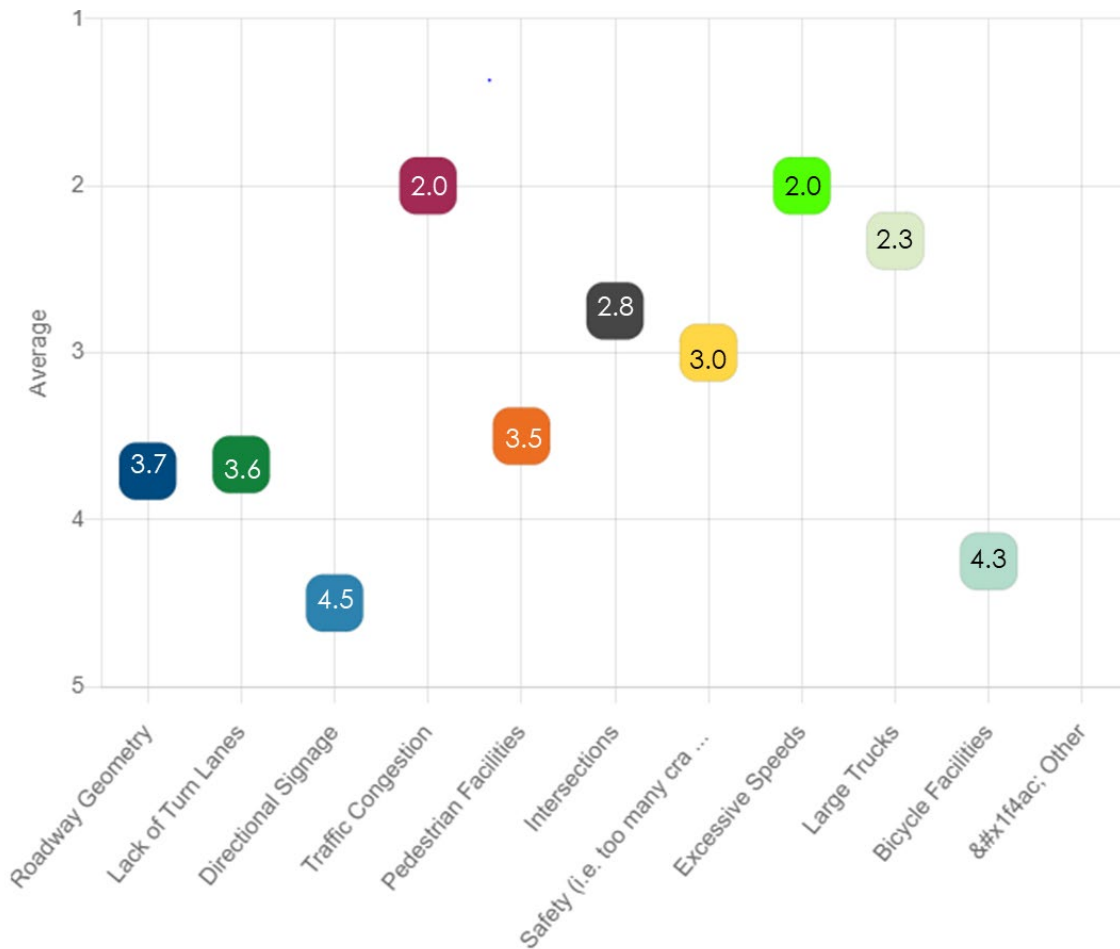


Figure 2: Rank your top 5 Transportation Concerns

The second question asked participants to identify trouble spots in the study area. The Advisory Committee identified traffic concerns including poor signal timing, lack of turn lanes, the need for intersection reconfigurations, and school traffic, as shown in **Figure 3**. Most of the traffic concerns are located on the main corridors – US 641, KY 94, KY 121. Safety concerns included school traffic, lack of bicycle and pedestrian facilities, sharp curves, poor sight distance, narrow lanes, offset lanes, lack of turn lanes, and the need for intersection reconfigurations, as shown in **Figure 4**.

Several concerns were listed as “other” and included intersection reconfigurations, poor sight distance, poor pavement, poor signal timing, narrow lanes, and turning trucks striking a pedestrian signal, as shown in **Figure 5**.

The next question asked participants for potential improvement ideas in the study area. Improvements listed included a roundabout, constructing a two-way left-turn lane (TWLTL), constructing crosswalks, reconstructing an intersection and converting an intersection to right-in right-out, as shown in **Figure 6**.

The final question asked participants to identify where growth is likely to occur over the next 20 years. Based on results from the survey, the Advisory Committee expects residential growth to occur mostly in the southern and western portions of the study area, as shown in red on **Figure 7**. Additionally, the Advisory Committee expects commercial growth to occur in the northern and eastern portions of the study area, especially along the KY 2075 corridor and the US 641/KY 80 intersection, shown in blue on **Figure 7**.

There were three comments at the end of the survey. One indicated they are a Murray State University administrator and another noted that they work at the Chamber and they’ve paid attention to Murray and its business growth. The final comment indicated that Murray has an effective public transportation service and that a bypass for through traffic will be essential in the future.

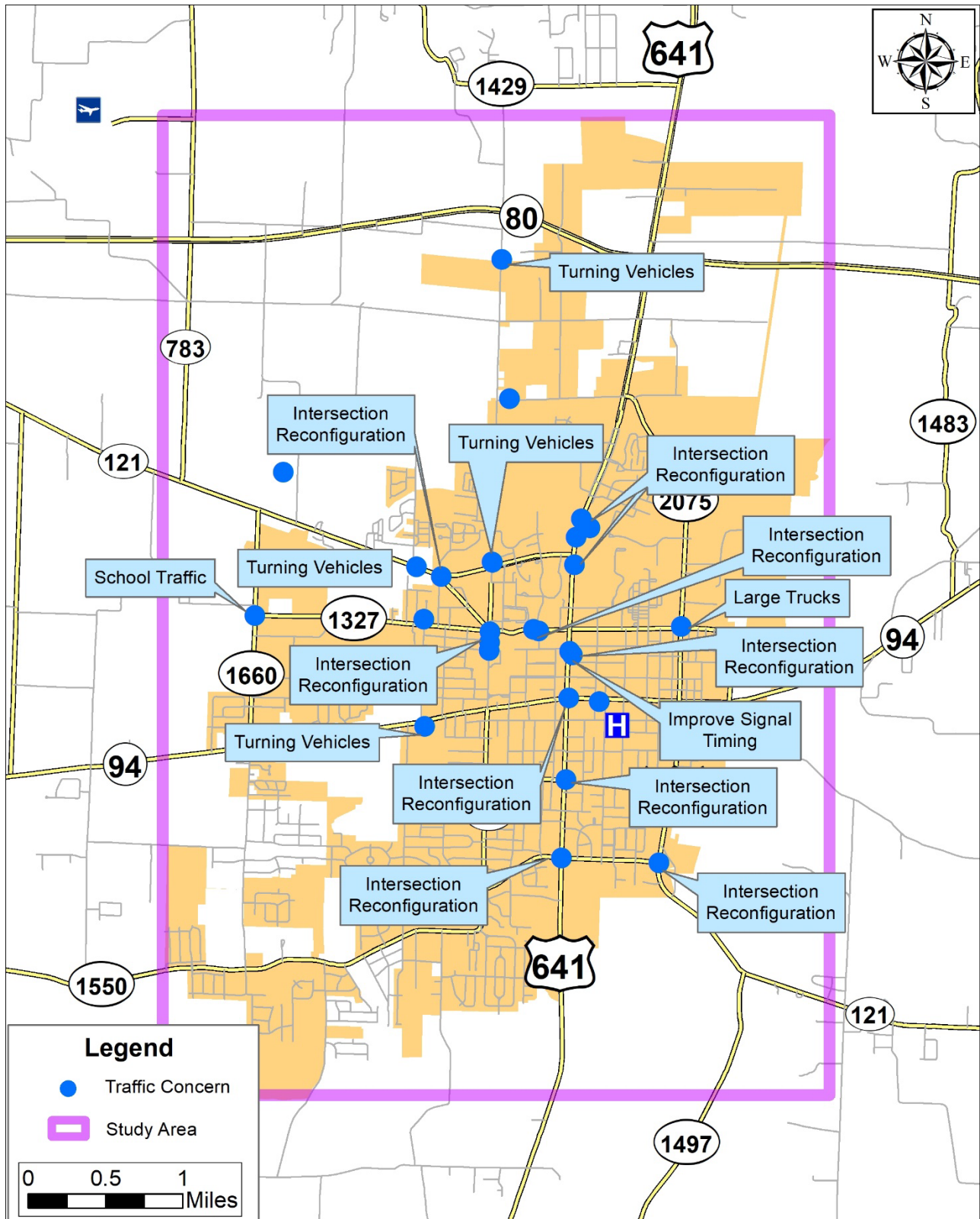


Figure 3: Where are potential traffic concerns?

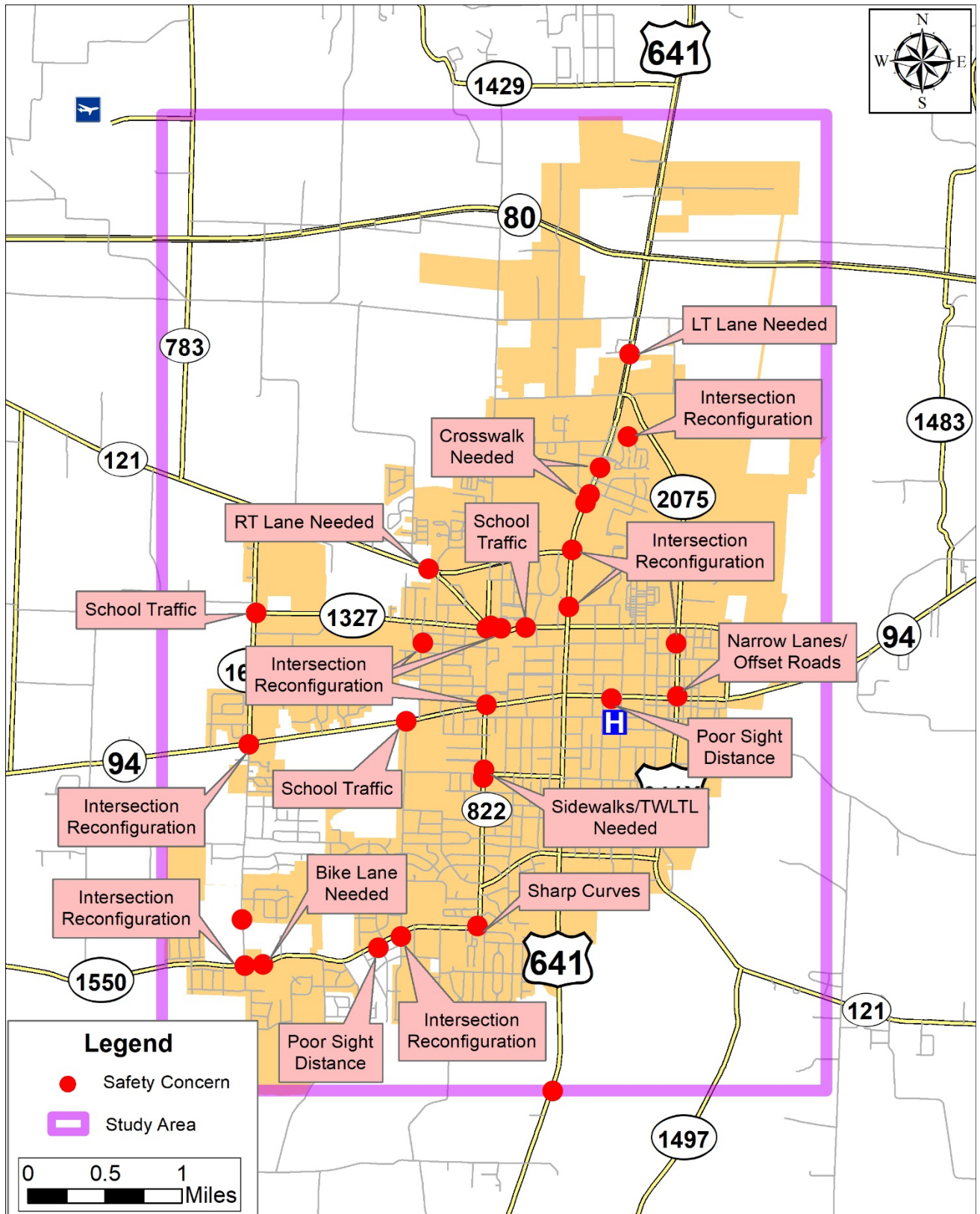


Figure 4: Where are potential safety concerns?

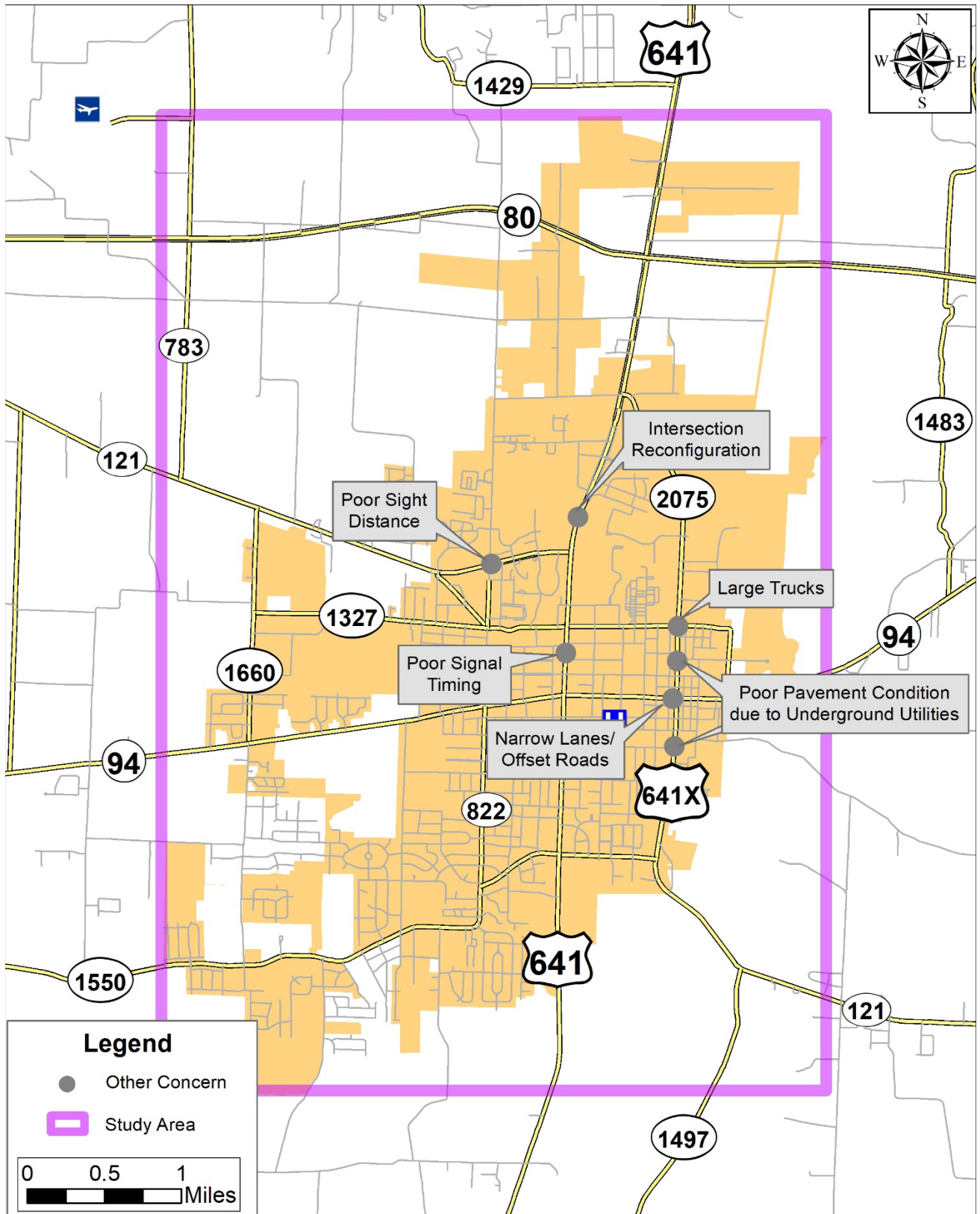


Figure 5: Do you have any other concerns?

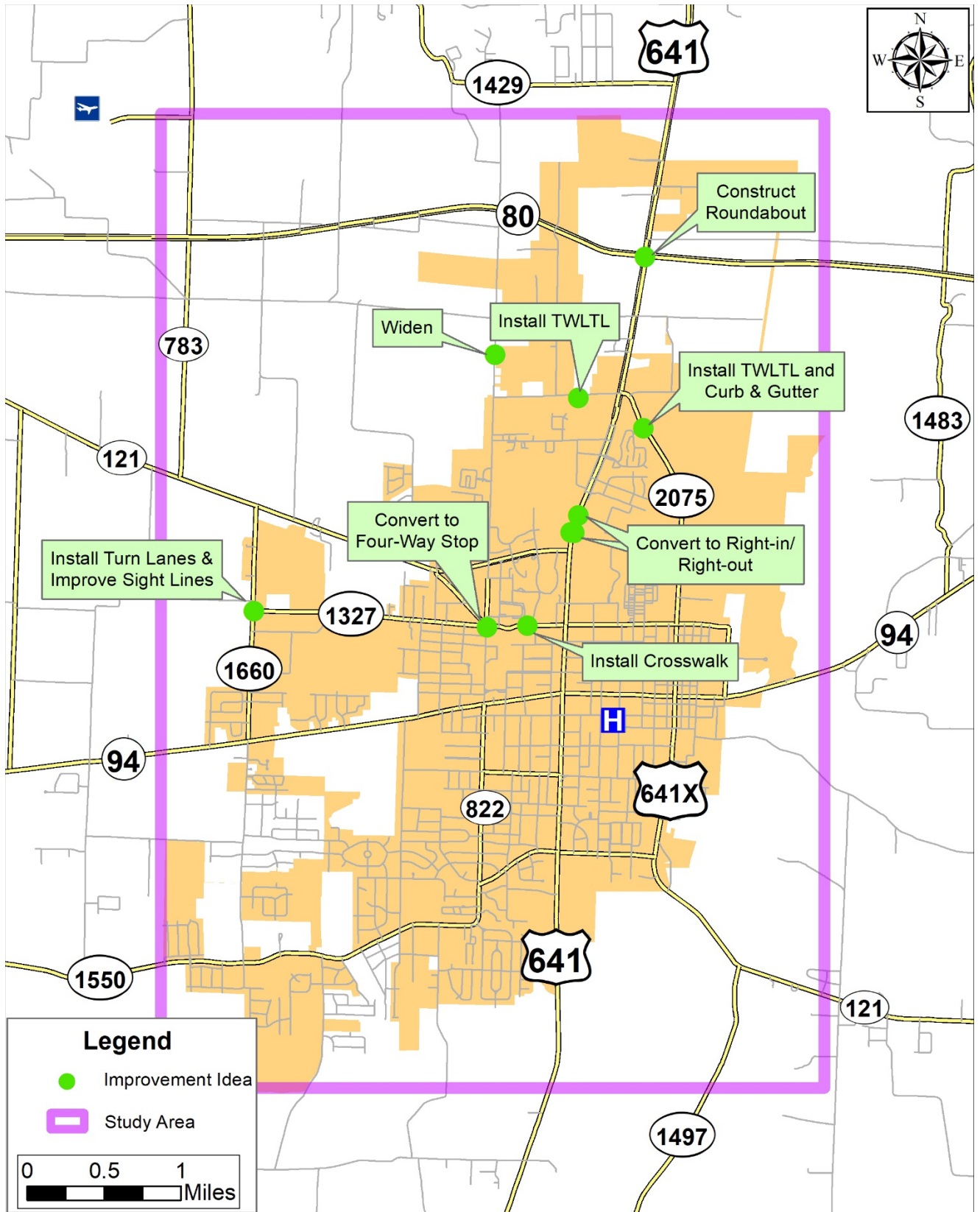


Figure 6: Do you have any potential improvement ideas?

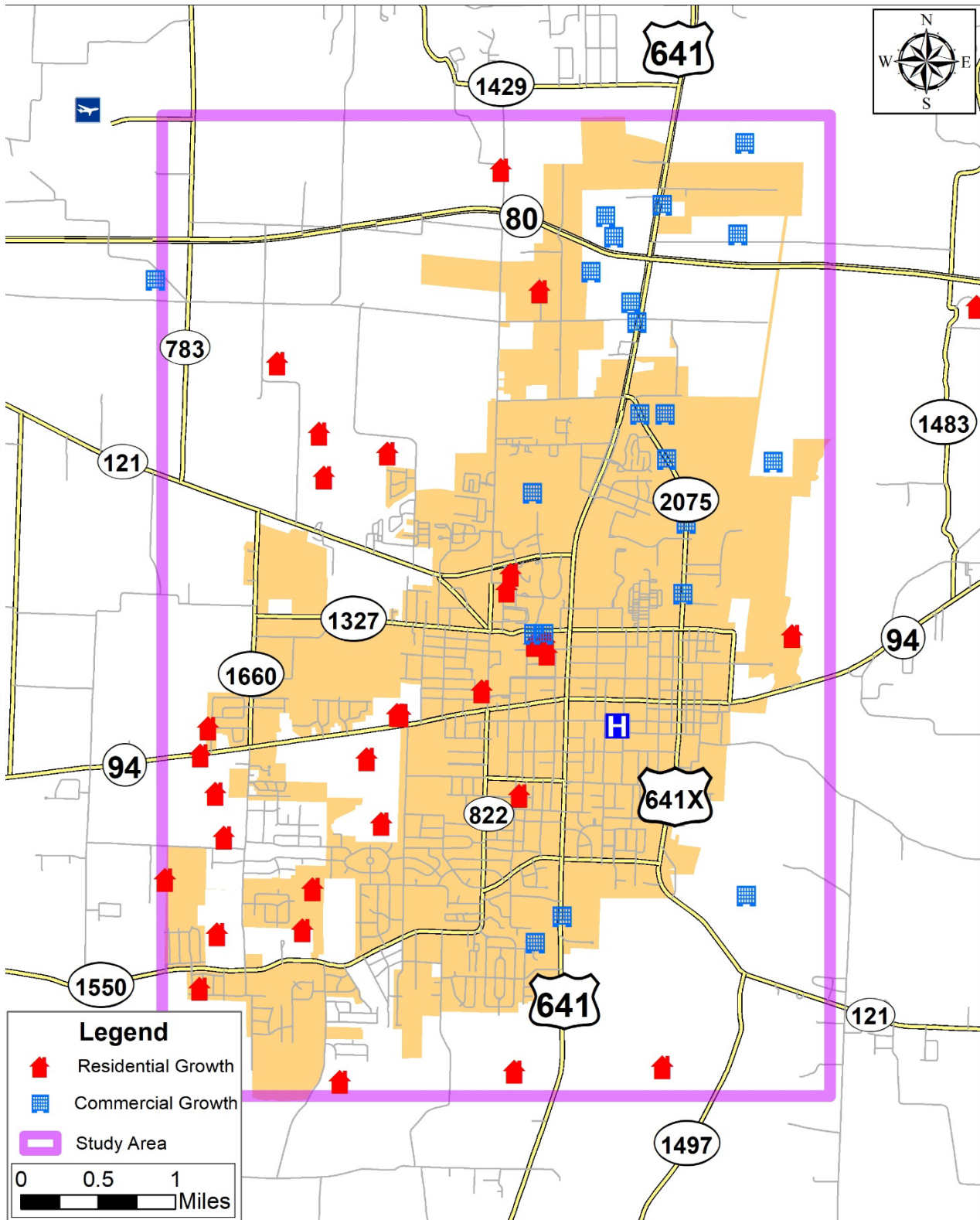


Figure 7: Where do you expect growth to occur over the next 20 years?

9. The next steps will be for the project team to use feedback from the Advisory Committee and the public to finalize the traffic forecasting and begin the improvement concept development process.

The meeting ended at approximately 2:00 p.m. CDT.

Meeting Minutes

TO: Stephen De Witte
Co-Project Manager
KYTC Central Office
200 Mero Street
Frankfort, KY 40622

James Tilley
Co-Project Manager
KYTC District Office #1
5501 Kentucky Dam Road
Paducah, KY 42003

FROM: Len Harper
Project Manager
Stantec Consulting Services Inc.

DATE: March 16, 2022

SUBJECT: Murray Small Urban Area (SUA) Study
Calloway County
KYTC Item No. N/A
Project Team Meeting No. 2

The second Project Team Meeting for the subject project was held virtually with Microsoft Teams on February 16, 2022 at 9:30 a.m. CST. The following individuals were in attendance:

| | |
|-------------------|---|
| Bryan Black | KYTC – District 1 |
| Jeremy Buchanan | Purchase Area Development District (PADD) |
| Stephen De Witte | KYTC – Central Office Planning |
| Dave Heil | KYTC – Central Office Planning |
| Chris Kuntz | KYTC – District 1 |
| Jim LeFevre | Purchase Area Development District (PADD) |
| Keith Lovan | KYTC – District 1 |
| Mikael Pelfrey | KYTC – Central Office Planning |
| Patrick Perry | KYTC – Central Office Design |
| Kyle Poat | KYTC – District 1 |
| Connor Schurman | KYTC – Central Office Planning |
| James Tilley | KYTC – District 1 |
| Brian Aldridge | Stantec Consulting Services Inc. |
| Len Harper | Stantec Consulting Services Inc. |
| Graham Winchester | Stantec Consulting Services Inc. |
| Gretchen Bailey | TSW Design Group |
| Amin Omidy | TSW Design Group |

Len Harper welcomed everyone and coordinated brief introductions from the project team. Len then delivered a presentation. The following enumerated items were discussed:

1. The purpose of the meeting is to present the results from the first round of public involvement and to get feedback from the project team on preliminary improvement concepts.
2. This project is federally funded with Federal Statewide Planning and Research (SPR) Chapter 7 funds. Future phases of the project are not funded in *Kentucky's FY 2020 – FY 2026 Highway Plan*.
3. There are currently four ongoing projects in the study area:
 - KYTC Item No. 01-8952.00 – Improve N 16th Street from KY 1327 to KY 121
 - This project is currently under design and includes improvements at the “5 Points” intersection.
 - KYTC Item No. 01-9026.00 – Left and right turn lanes at Southwest Calloway Elementary.
 - Design for this project was completed by KYTC. Utility relocation and right-of-way acquisition are currently under way. Construction is expected in summer 2022.
 - KYTC Item No. 01-314.20 – Improve US 641 from the Tennessee state line.
 - This project is currently under construction.
 - KYTC Item No. 01-22312 – Address pavement condition on US 641X from MP 0.0 to MP 2.873.
 - This project is currently under design.
 - Highway Safety Improvement Program (HSIP) project for signing, striping, and advanced warning flashers at the KY 80 intersection with US 641.
4. There are four recently completed projects in the study area:
 - KYTC Item No. 1-9004.50 - Construct right-turn lane on US 641 (12th Street) at Sycamore Street
 - KYTC Item No. 01-20001.00 – Address pavement condition on KY 1327.
 - US 641/12th Street Mainline Signal Coordination in 2017 from Glendale Road to Walmart. Travel time data was used to adjust the green splits along the mainline to improve progression between signals. No traffic counts were collected and cycle lengths on the side streets were not adjusted.
5. The objective of the Murray SUA Study is to examine the transportation network in Murray and to identify and evaluate potential options to improve safety and congestion in the project area. The study will focus on short and long-term improvements that KYTC and the City of Murray can use for further project development and implementation.

- There was a discussion of feedback from the first round of public outreach. An online survey and mapping exercise was made available between October 5, 2021 and November 2, 2021. There were 619 respondents to the survey. The following is a summary of the results.

Of the 617 respondents, 90 percent indicated that they travel the study area daily and 86 percent indicated they travel the study area in a car. Most of the respondents (80 percent) are either Murray or Calloway County residents, while 12 percent of respondents were Murray State University (MSU) students.

Respondents were then asked to rank their overall transportation concerns in Murray. A point scale was used to summarize the results, with a No. 1 ranking = 5 points, No. 2 = 4 points, No. 3 = 3 points, No. 4 = 2 points, and No. 5 = 1 point. Based on this scoring system, traffic congestion was found to be the biggest transportation issue, followed by intersections, as shown in **Figure 1**.

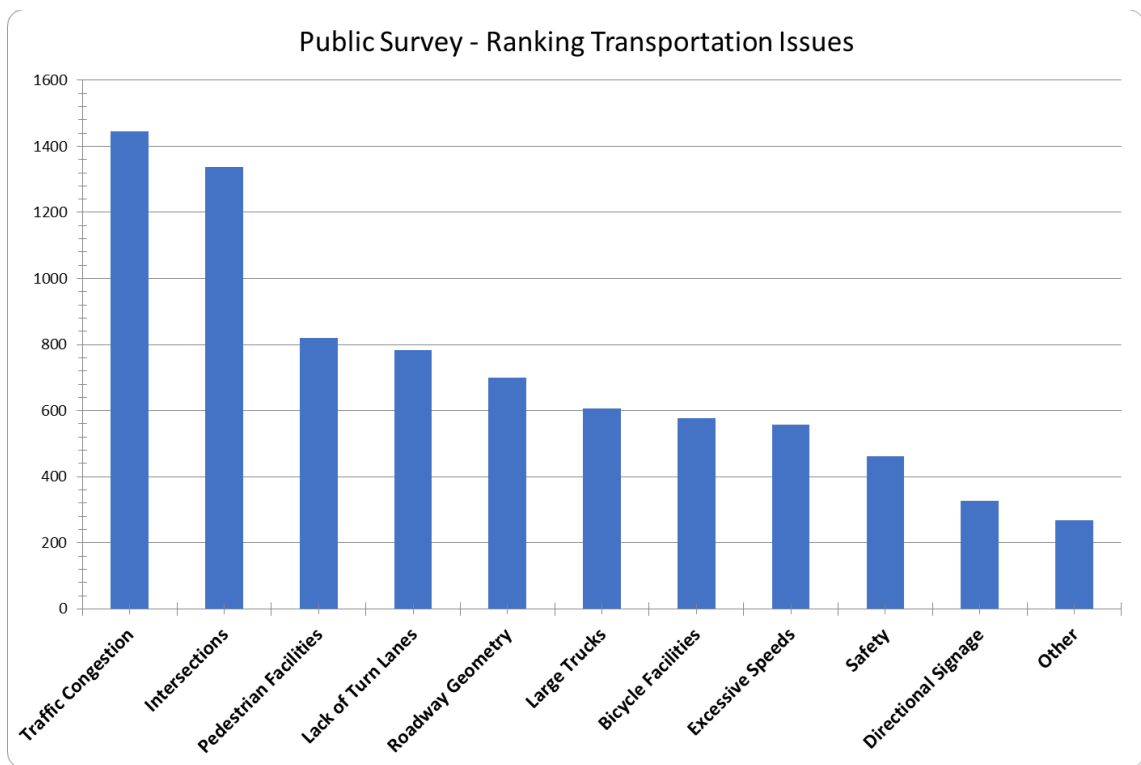


Figure 1: Public Survey – Ranking Transportation Issues

As shown above, traffic congestion was the number one concern for the public. When asked to identify locations with traffic concerns, US 641 was the most identified corridor, followed by the 5 points intersection (Chestnut Street at N. 16th Street). The biggest traffic concern for the public was the need for improved signal timing, as shown in **Figure 2**, especially to reduce queuing on side streets along US 641. The second biggest concern included the need to reconfigure intersections, which was most suggested at the 5 points intersection.

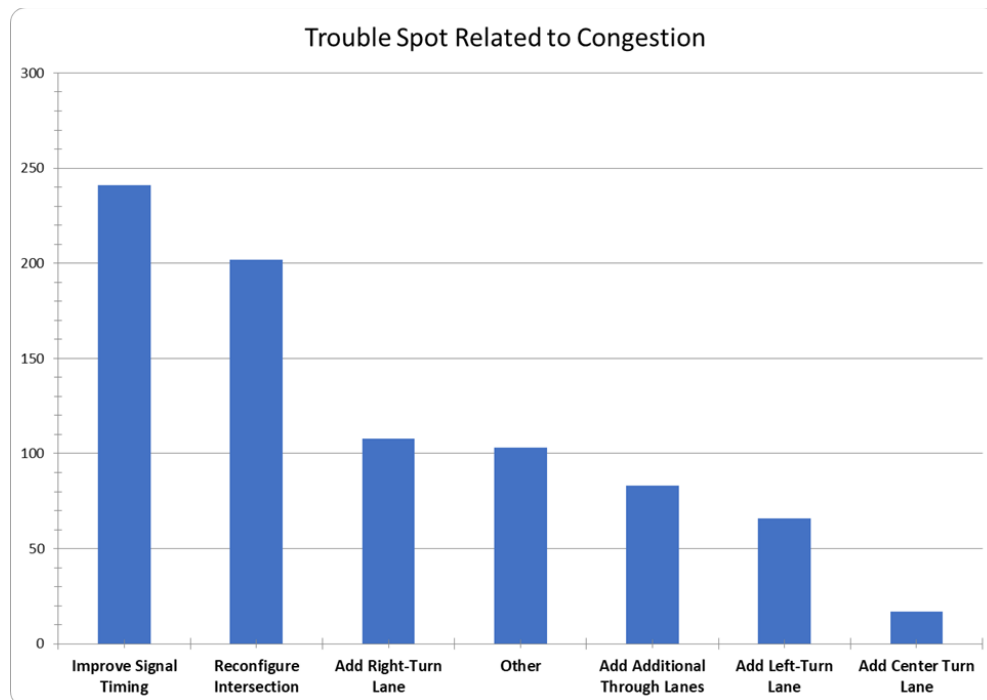


Figure 2: Public Survey – Ranking Traffic Concerns

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 3**. US 641, the Murray State University (MSU) campus, and the 5 points intersection are the focus of public safety concerns.

When asked to provide improvement ideas, 88 respondents suggested turn lanes, as shown in **Table 1**. Most of the suggested turn lanes were located at the 5 points intersection and at various locations along US 641, including the KY 94, KY 121, and Chestnut Street intersections. Installing sidewalks/crosswalks was the second most suggested improvement idea. These suggestions were mainly located along the southern portion of KY 822 and US 641 between KY 2075 and KY 121. While only five percent of respondents indicated that they either walk or bike within the study area, the overall concern with lack of bicycle and pedestrian facilities suggests that more people would likely use alternate transportation if it were more accessible.

- KYTC asked for a summary of the proposed improvement ideas at the 5 points intersection to help with the current design project (KYTC Item No. 01-8952.00). Stantec submitted survey results on February 25, 2022.

Other than the 5 points intersection and US 641, intersection improvements were commonly suggested at the rural intersections to the west. Many of these respondents suggested constructing roundabouts. Another suggestion was to construct a bypass around Murray. Most of these responses indicated that removing traffic off of US 641, especially trucks, was the primary purpose of a bypass alternative.

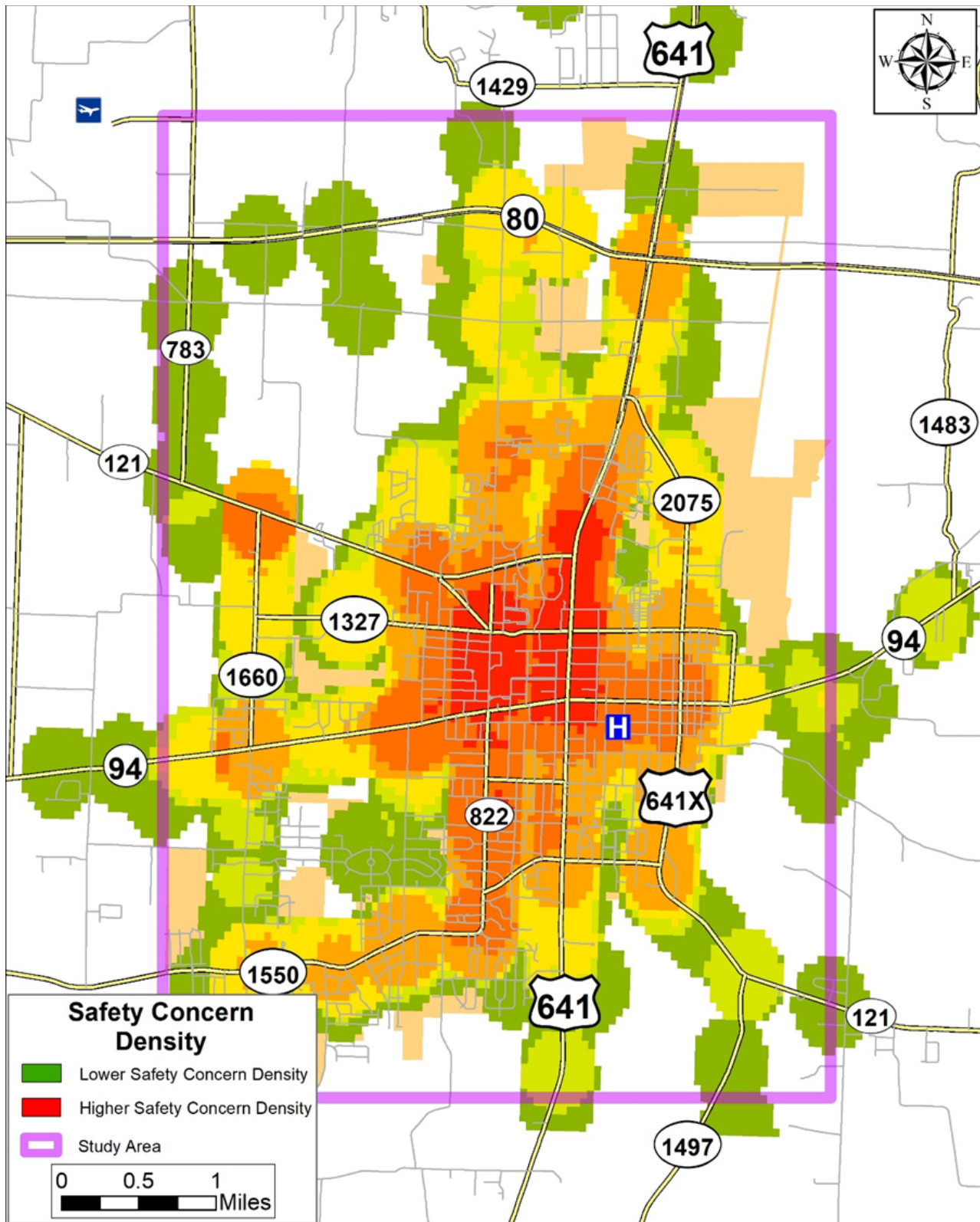


Figure 3: Public Survey – Safety Concern Heat Map

Table 1: Public Survey – Summary of Improvement Ideas

| Improvement Category | Number |
|------------------------------------|--------|
| Turn lanes | 88 |
| Sidewalks/Crosswalks | 83 |
| Signal timing (mostly US 641) | 55 |
| Install traffic signal | 46 |
| Intersection improvements* | 43 |
| Bike facilities | 41 |
| Construct bypass** | 27 |
| Enforce speed limit/reduce speed | 23 |
| Additional through lanes*** | 19 |
| Better signage | 18 |
| Improve sight distance | 12 |
| Fix flooding issues | 6 |
| Remove parking downtown | 6 |
| Repaving | 6 |
| Close 16th St to vehicular traffic | 4 |
| Fix roadside ditches | 2 |
| Build frontage roads for US 641 | 1 |
| Additional parking | 1 |

*Roundabouts were a popular suggestion

**To get traffic off US 641 (especially trucks)

***Especially the growing areas to the west

The public survey results were also filtered to better understand the concerns of MSU students. This analysis showed that the students’ concerns are similar to the overall public. Congestion concerns of MSU students include the need for improved signal timing, the need for turn lanes, and the need for intersection improvements. Safety concerns of the students include lack of bike/pedestrian facilities, the need for intersection improvements, poor sight distance, and speeding.

7. Based on a 2016 analysis by the Kentucky State Data Center, Calloway County is the only county in the region expected to experience significant growth between 2010 and 2040. Within Calloway County, the City of Murray grew around 1 percent per year between 2010 and 2019.

Based on feedback from the first Local Officials/Stakeholder meeting, residential growth over the next 20 years in Murray is expected to occur west of US 641, especially between KY 94 and KY 1550, as shown in **Figure 4**. Commercial growth is expected along KY 2075 and near the US 641 intersection with KY 80. This feedback was used to update the socioeconomic data in the Kentucky Statewide Travel Demand Model (KYSTM). Results from the model, along with feedback from the local officials and stakeholders, indicated that the areas west of US 641 are expected to grow at a higher rate than the areas to the east. Therefore, an annual growth rate of 1.35 percent was used on roadways west of US 641 while an annual rate of 0.6 percent was used on US 641 and roadways to the east. These

growth rates were applied to the most recent traffic counts in the study area, excluding counts collected in 2020, to develop 2045 daily traffic forecasts, as shown in **Figure 5**.

8. Len then led a discussion of preliminary improvement concepts. The concepts are categorized as short-term, long-term, or bicycle/pedestrian. **Figure 6** presents a map of the short- and long-term concepts.

Short-term improvement concepts include less resource intensive, quick-win type projects that KYTC or the City of Murray can pursue for further project development and implementation. These types of improvements require little or no right-of-way to construct and, in some cases, may be implemented by the KYTC Division of Maintenance.

Short-Term Improvement Concept S1: US 641 corridor between KY 80 and US 641X (Glendale Road)

Project Needs: US 641 is the only north-south principal arterial in Calloway County and the only Federally Authorized Truck Route in the area. This five-lane roadway provides a regional connection from I-69 in the north to Tennessee in the south. It also serves local trips and provides access to the many businesses on the commercial section through Murray. Over the three-year period between 2017 and 2019, there were 800 reported crashes on the study portion of US 641, 97 of which involved an injury. 348 (44 percent) of the crashes were rear end collisions and 226 (28 percent) were angle collisions, indicating that traffic congestion may be contributing to the high number of crashes. On this stretch of US 641, the EEC ranges from 12 – 55 crashes per year, indicating that more crashes are predicted than would be expected along similar roadways. US 641 is expected to carry up to 27,300 VPD by 2045 and was the most identified corridor as having transportation issues, especially related to congestion and the need for improved signal timing, in the public survey.

Improvement Options: One improvement option for the US 641 corridor is to perform a more detailed traffic operations analysis. This analysis could include collecting turning movement counts and developing a simulation model to analyze intersection improvements, including signal timing optimization and lane configuration. With the highest ADTs in the county, optimizing US 641 for current conditions and preparing it for future conditions is imperative to a healthy transportation system in Murray.

- **Question:** Are the signals on US 641 coordinated?
Answer: In 2017 the signal timing along mainline US 641 was reviewed with the goal of maximizing through traffic. Travel time data was used to adjust the green splits along the mainline to improve progression between signals. No traffic counts were collected and cycle lengths on the side streets were not adjusted. As noted in the public survey results, the biggest traffic concern for the public was the need for improved signal timing to reduce queueing on the side streets along US 641 and the need for left turn protected phasing.

An additional improvement concept for this corridor is to update the signs. Many of the overhead signs on intersecting roadways are faded and are difficult to read.

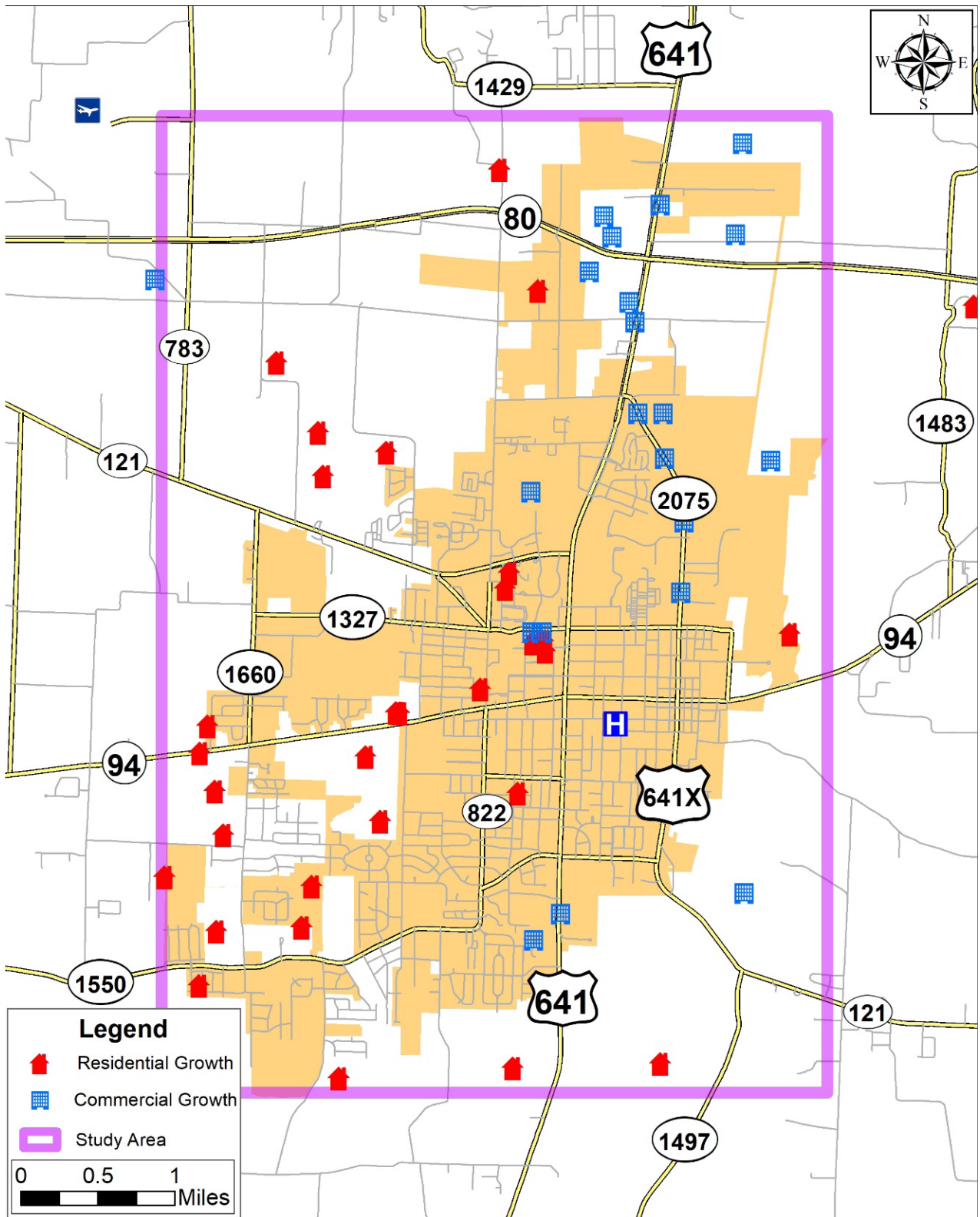


Figure 4: Local Officials Survey – Expected Growth Areas

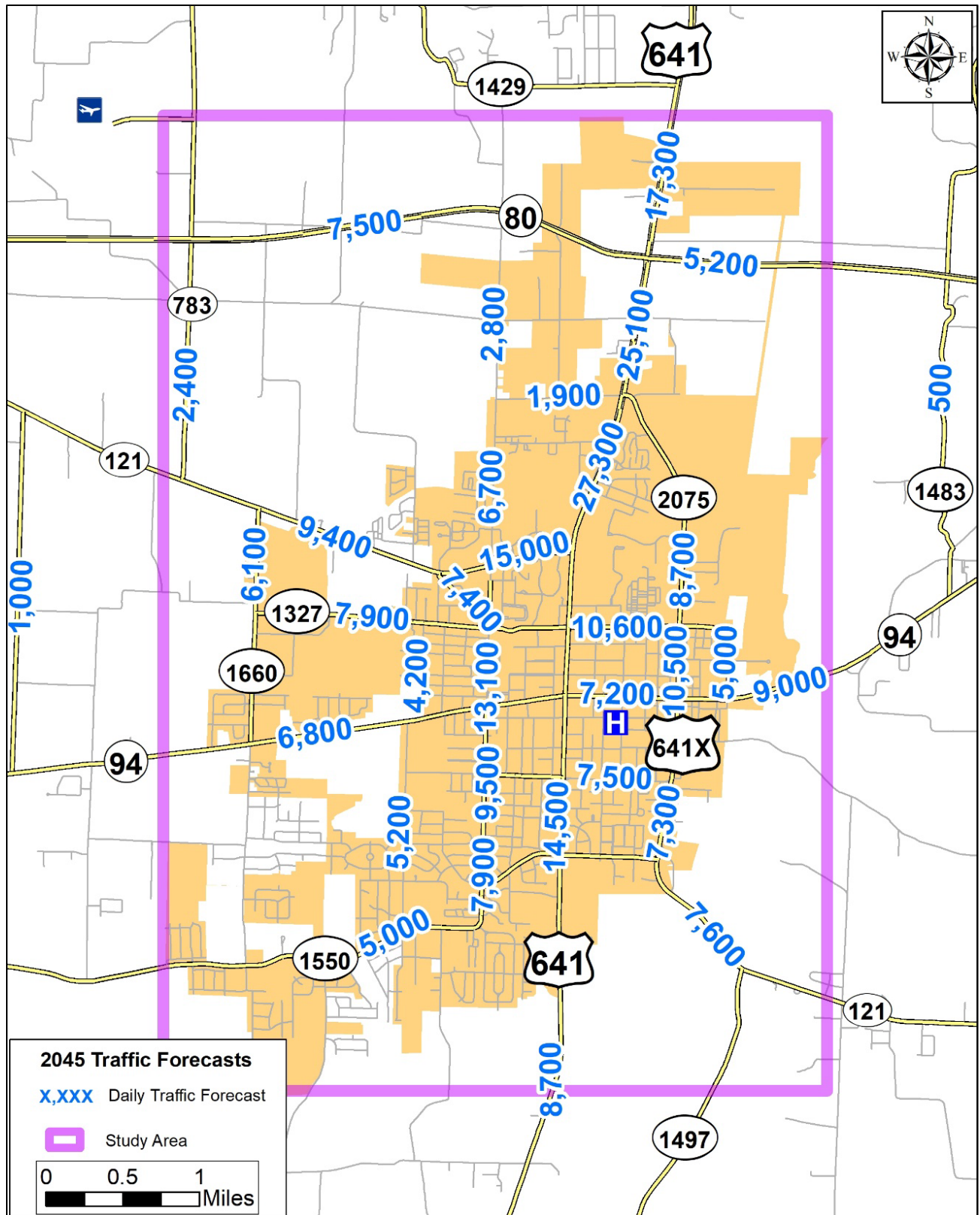


Figure 5: 2045 Daily Traffic Forecasts

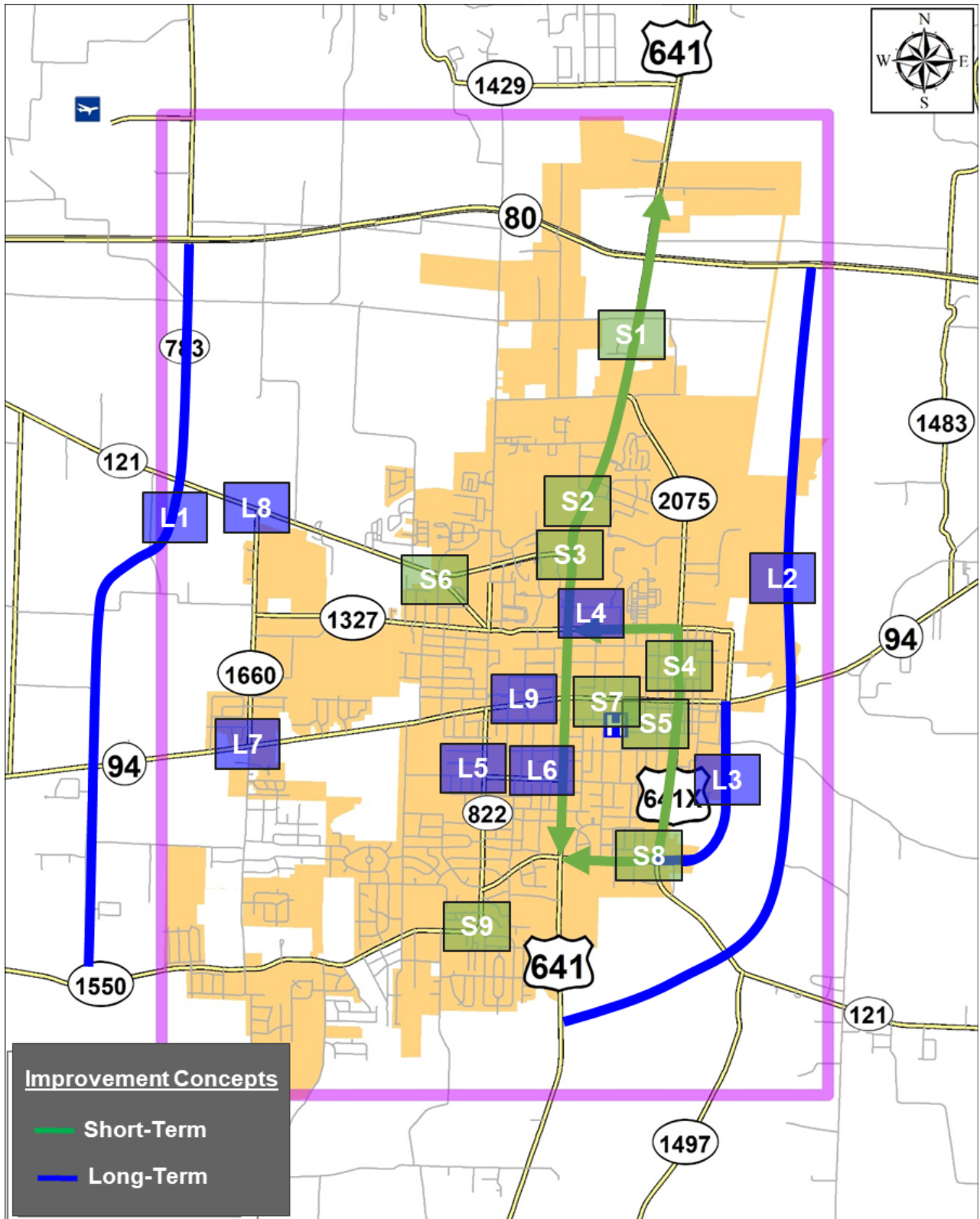


Figure 6: Preliminary Improvement Concepts

Short-Term Improvement Concept S2: US 641 at Keepers Way and Lowes Drive

Project Needs: Keepers Way and Lowes Drive provide access from US 641 to a shopping center that includes Walmart and Lowe’s Home Improvement Store. Between 2017 and 2019, there were 24 reported crashes at the signalized Keepers Way intersection and 18 crashes at the unsignalized Lowes Drive intersection. Traffic on this portion of US 641 is expected to be around 27,300 VPD in 2045. These intersections were identified in the public survey as having transportation concerns related to poor signal timing at Keepers Way and unsafe turning conditions at Lowes Drive.

Improvement Options: With only 600 feet between the two intersections, access management guidelines do not recommend adding an additional traffic signal at Lowes Drive. One improvement option is to extend the left-turn lane on the eastbound Keepers Way approach to provide additional storage and collect a turning movement count to optimize signal operations. Additionally, the Lowes Drive intersection would be converted to right-in/right-out to restrict left-turns to the signals at Keepers Way and KY 121. This would improve safety by restricting unsignalized left-turns across multiple lanes of traffic.

Short-Term Improvement Concept S3: US 641 at KY 121

Project Needs: KY 121 is a northern boundary for the MSU campus and provides access to the MSU football and basketball stadiums. The KY 121 intersection with US 641 was identified in the public survey as having transportation concerns related to the need for additional turn lanes and better signal timing. Over the three-year period between 2017 and 2019, there were 64 reported crashes at the US 641 intersection with KY 121, six (9 percent) of which involved an injury and 48 (75 percent) were rear end or angle collisions. This intersection has an EEC of 6 crashes per year, indicating that more crashes are predicted than would be expected along similar roadways. The eastbound KY 121 approach currently has one left-turn lane, one through lane, and one shared through/right-turn lane.

Improvement Options: With most of the traffic turning left or right, an improvement option is to re-stripe the approach to include two left-turn lanes and a shared through-right-turn lane. Collecting a turning movement count at this location would also help optimize signal operations. The westbound approach is the entrance to a shopping center and would benefit from some delineation to clearly define paths and provide stop signs on the access road. One final improvement option is to move the northbound US 641 stop bar closer to the intersection. It was originally placed further back due to the location of the crosswalk, which has since been relocated closer to the intersection.

Short-Term Improvement Concept S4: US 641X Corridor

Project Needs: US 641X is a 2.8-mile business loop of US 641 located along the east side of Murray between Glendale Road and KY 121. It provides access to the commercial and industrial areas of east Murray along with the old courthouse near KY 94. Over the three-year period between 2017 and 2019, there were 139 reported crashes on the US 641X corridor, nine (7 percent) of which were injury and 66 (49 percent) of which were rear end or

angle collisions. The EEC ranges from 0 to 14 crashes per year, indicating that more crashes are predicted than would be expected along similar roadways. Traffic on US 641X is expected to grow to 10,500 VPD by 2045. Based on feedback from the public survey, this route was identified as having transportation concerns, especially relating to truck traffic and poor pavement condition.

Improvement Options: A short-term improvement option is to restrict through truck traffic on US 641X. This would provide a safer route for passenger vehicles and would enable the pavement to last longer.

- Comment: KYTC is currently working on a pavement rehabilitation project for US 641X (KYTC Item No. 01-22312).
- Comment: Restricting through truck traffic on US 641X will not significantly reduce the number of trucks. Trucks are using US 641X to get to destinations in the commercial corridor.

Short-Term Improvement Concept S5: Courthouse Square

Project Needs: The former Calloway County Courthouse is surrounded by US 641X to the east, Maple Street to the south, south 5th Street to the west, and Main Street (KY 94) to the north, all together referred to as the Courthouse Square. There are businesses facing all four sides of the courthouse, with angled parking available along both sides of the street. Between 2017 and 2019, there were 27 reported crashes around the Courthouse Square, all of which were PDO collisions and nine (33 percent) of which were backing collisions. US 641X carries the most daily traffic around the courthouse, with 10,500 VPD expected in 2045. This location was identified as having transportation concerns through the public survey, especially relating to safety issues with the on-street parking and narrow lanes.

Improvement Options: An improvement option is to close 5th Street to traffic between Main Street and Maple Street and convert it to a pedestrian friendly pavilion or farmer's market. This would provide a safer walking space for pedestrians and provide more opportunities for public events. Another improvement option is to convert the on-street parking to back-in parking. Signs would direct drivers to pull past the parking spot, then back in. This would reduce the likelihood of backing collisions.

Short-Term Improvement Concept S6: KY 121 at Lowes Drive

Project Needs: West of the MSU campus, KY 121 has two westbound through lanes at the Lowes Drive intersection. The left through lane continues on to the west while the right lane ends just past the intersection. The merging of the through lanes was identified as causing safety and congestion issues based on feedback from the public survey. Between 2017 and 2019, there were 21 crashes on this portion of KY 121, which has an EEC of 2 crashes per year. Daily traffic on KY 121 is expected to be around 9,400 VPD in 2045.

Improvement Options: An improvement option is to restripe the right through lane into a right-turn lane at the Lowes Drive intersection. This would improve safety and congestion by removing the merge west of the intersection.

- Comment: The intersection was constructed this way to allow for the future widening of KY 121 to the west. This improvement concept seems like a good idea for the existing configuration.

Short-Term Improvement Concept S7: KY 94 at North 8th Street

Project Needs: Near Murray Middle School, the KY 94 intersection with North 8th Street was identified as having more crashes than anticipated, with an EEC of 4 crashes per year. Between 2017 and 2019, there were 17 reported crashes at this intersection, 15 (88 percent) of which were angle collisions. Five of the crashes occurred during school arrival between 7:30 a.m. and 8:30 a.m. and six of the crashes occurred between 11:30 a.m. and 12:00 p.m. This portion of KY 94 has a 2021 ADT of 6,300 VPD.

Improvement Options: An improvement concept is to install a four-way stop. This would require all vehicles to stop and would improve safety by slowing traffic on KY 94. A turning movement count would be needed to analyze the traffic impacts before installing a four-way stop.

Short-Term Improvement Concept S8: US 641X at Sycamore Street

Project Needs: On the southern end of US 641X, the Sycamore Street intersection was identified in the public survey as having safety issues and needing intersection reconfiguration. The Sycamore Street approach is stop-controlled and southbound US 641X has a channelized right-turn onto Sycamore Street. Between 2017 and 2019, there were eight reported crashes, six (75 percent) of which were rear end collisions. This section of US 641X is expected to carry 10,500 VPD in 2045 while Sycamore Street is expected to carry 7,200 VPD.

Improvement Options: An improvement option is to remove the channelized right-turn and square up the intersection. This intersection could also be analyzed to determine if a three-way stop is warranted. A turning movement count would be needed to analyze the traffic impacts before installing a three-way stop.

- Question: None of the crashes appear to be as a result of the channelized right-turn.
Answer: A roundabout concept could also be considered but that would require right-of-way which would make it a long-term improvement concept.

Short-Term Improvement Concept S9: KY 1550 at Oxford Drive

Project Needs: In the southwestern residential section of Murray, KY 1550 has a horizontal curve with two channelized turn lanes at Oxford Drive and was identified in the public survey as having safety concerns and needing reconfiguration. Between 2017 and 2019, there

were nine reported crashes on this curve, four (44 percent) of which were single vehicle. This section of KY 1550 is expected to carry 7,900 VPD in 2045.

Improvement Options: An improvement option is to remove the channelized turn lanes and square up the Oxford Drive intersection. This would reduce the likelihood of vehicles entering the turn lanes with too much speed. Additionally, curve warning signs could be added to encourage drivers to slow their speed before entering the curve.

9. Long-term improvement concepts are higher cost projects that will require more significant resources to implement. These types of improvements will require additional right-of-way to construct and will likely need to be funded through the KYTC Six Year Plan (SYP) process.

Long-Term Improvement Concepts L1, L2 and L3L: Bypass options around Murray

Project Needs: US 641 is the only north-south principal arterial in Calloway County and the only Federally Authorized Truck Route in the area. This five-lane roadway provides a regional connection from I-69 in the north to Tennessee in the south. It also serves local trips and provides access to many businesses on the commercial corridor through Murray and was the most identified corridor in the public survey as having congestion issues. An option to relieve congestion on US 641 is to construct a bypass around Murray.

Improvement Options: Three bypass concepts were identified in the 2020 City of Murray Comprehensive Plan, as shown in **Figure 7**.

The first option, L1 West Bypass, is a bypass around the western portion of Murray that utilizes some existing routes such as Oaks Country Club Road, Hudson Road, and Airport Road. This concept would provide a more direct route from the residential areas on the west side of Murray to the KY 121 corridor and the MSU campus. The West Bypass is expected to carry up to 8,600 VPD in 2045 and is expected to divert up to 650 VPD from US 641. It is recommended that further phasing of the route be analyzed through additional studies as part of the 2020 City of Murray Comprehensive Plan.

The second option, L2 East Bypass, was identified as a possible bypass option in 2004 and provides a connection between US 641 south of Murray and KY 80 east of the US 641 intersection. This option is expected to carry up to 11,900 VPD in 2045 and is expected to reduce traffic on US 641 by up to 4,200 VPD. The 2020 City of Murray Comprehensive Plan noted that the construction of the L3 Murray Business Loop would reduce the need for this project. Additionally, the cost of construction in the floodplain coupled with increased access to KY 80 have alleviated some of the issues solved by the L2 East Bypass.

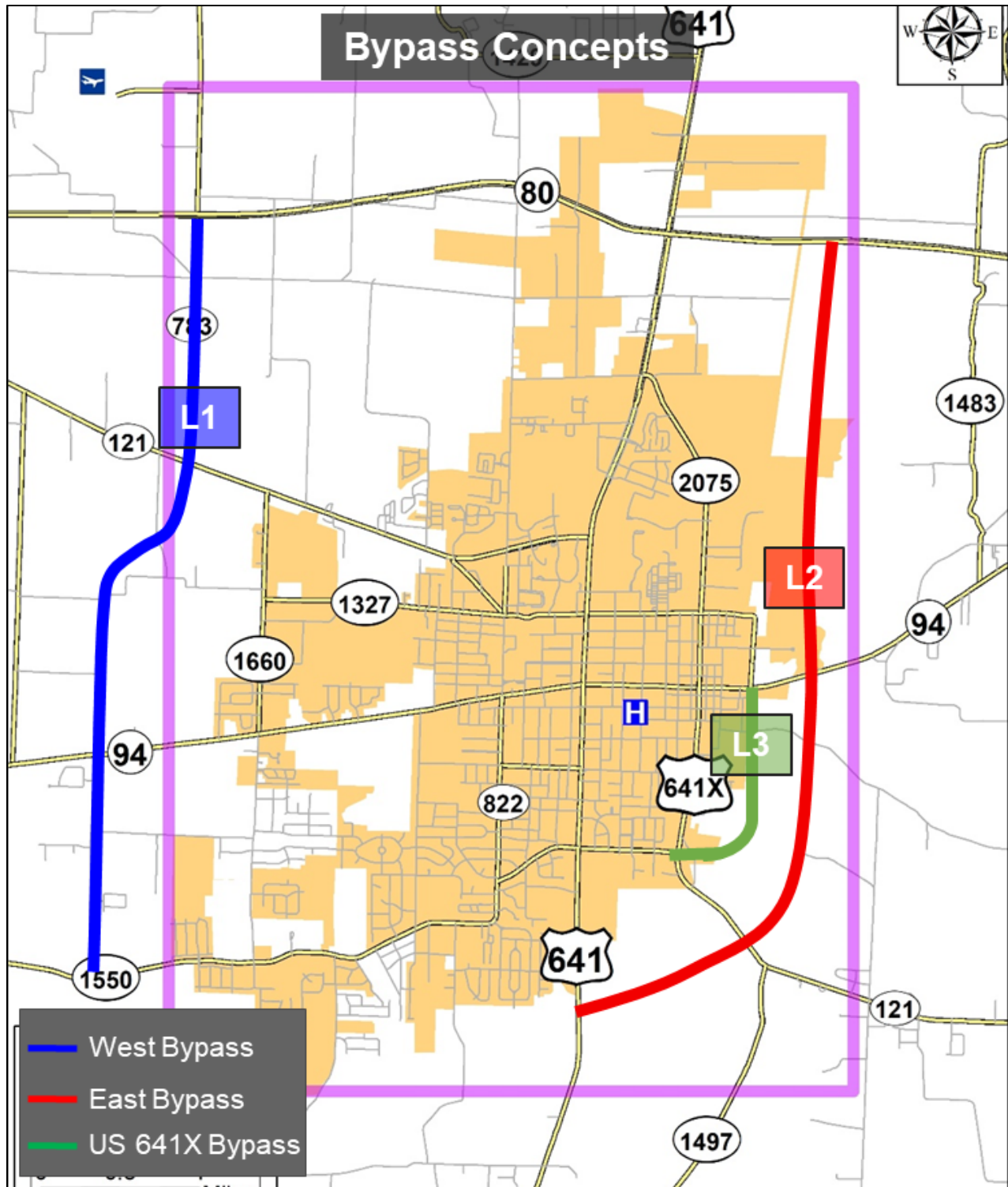


Figure 7: Murray Bypass Concepts

The third option, L3 Business Loop, connects Glendale Rod (US 641X) to the south with Industrial Road to the north at KY 94. This concept provides an alternate route for trucks accessing KY 94 and the industrial areas in east Murray. This bypass concept is expected to carry up to 6,400 VPD and reduce traffic on US 641 by up to 2,250 VPD. The City of Murray currently has plans to construct the L3 Business Loop as a two-lane rural roadway. The City of Murray is currently working on right-of-way acquisition, which will be followed by utility relocations. The City of Murray will need additional funding for the construction of the roadway.

- Comment: KYTC will reach out to the City of Murray to get the most recent plans for this project.
- Comment: Stantec will develop planning-level cost estimates for all three bypass options.

Long-Term Improvement Concept L4: US 641 and US 641X between Arcadia Circle and 8th Street

Project Needs: The Chestnut Street intersection with US 641 is in the center of the study area and is one of the most congested signalized intersections in Murray. Traffic often queues on the westbound Chestnut Street approach and blocks the Rushing Way intersection, making it difficult for left-turning vehicles to enter and exit. Rushing Way continues north and eventually intersects with US 641. This unsignalized intersection was identified in the public survey as having safety concerns for turning vehicles, especially vehicles turning left. Between 2017 and 2019, there were 20 reported crashes at the Arcadia Circle/Rushing Way intersection, four (20 percent) of which were injury and 15 (75 percent) of which were angle collisions. Over the same three-year period, there were six reported crashes at the Chestnut Street intersection with Rushing Way. The section of US 641 between Arcadia Circle/Rushing Way and Chestnut Street has several direct access points for businesses and has experienced a higher number of crashes than would be expected with an EEC of 4 crashes per year. Additionally, this is one of the higher volume sections of US 641, with 28,600 VPD expected in 2045. With these traffic volumes, access management guidelines would recommend a non-traversable median to restrict left-turns to the signalized intersections.

The westbound approach of Chestnut Street at the US 641 intersection is the northern terminus of US 641X and serves primarily commercial businesses with multiple access points. Between 2017 and 2019, there were 39 reported crashes in this area, 11 (28 percent) of which were sideswipe collisions. This section of US 641X is expected to carry 10,600 VPD in 2045 and was identified in the public survey as having safety issues with turning vehicles.

Improvement Options: An improvement option is to develop a Traffic Circulation and Access Management Plan for this area to install a non-traversable median on US 641 and consolidate entrances along US 641X. This would improve traffic operations and safety by reducing the number of conflict points. With only 700 feet between the two intersections, access management guidelines do not recommend adding an additional traffic signal on

US 641 at Arcadia Circle. A turning movement count is recommended at the US 641/Chestnut Street intersection to see if the signal can be optimized. Another improvement option is to collect turn movement counts and perform a signal warrant analysis for the US 641X intersection with 10th Street.

- Comment: It was noted that people in the MSU Football Stadium Parking Lot use the MMSU Alumni Center's driveway to access to Rushing Way.
- Starbucks and Aspen Dental have recently opened on Rushing Way and have added traffic to the area.

Long-Term Improvement Concept L5: Sycamore Street at South 16th Street

Project Needs: South of the MSU campus, 16th Street provides a north-south connection for the residential neighborhoods in west Murray. The Sycamore Street intersection is signalized and provides a connection to Murray High School to the west and US 641 to the east. Between 2017 and 2019 there were 12 reported crashes at this intersection, six (50 percent) of which were rear end collisions. This portion of Sycamore Street is expected to carry 5,800 VPD in 2045. This intersection was identified in the public survey as having safety concerns and needing signal retiming.

Improvement Options: One improvement concept is to conduct a turning movement count and reconfigure the intersection. Options include replacing the diagonal signal span with a box span, installing a four-way stop, constructing turn lanes, and constructing a roundabout.

Long-Term Improvement Concept L6: Main Street (KY 94) at 13th Street

Project Needs: West of US 641, North 13th Street is a local road that runs north-to-south and intersects KY 94 at a skewed angle. Due to its proximity to US 641, traffic on KY 94 often backs up and blocks the 13th Street intersection. Based on results from the public survey, there are safety concerns with turning left onto and off 13th Street and the surrounding businesses. Between 2017 and 2019, there were 20 reported crashes, 11 (55 percent) of which were rear end collisions. This portion of KY 94 is expected to carry 18,300 VPD in 2045.

Improvement Options: An improvement option is to extend the eastbound KY 94 left-turn lane at the US 641 intersection or provide a two-way left-turn lane to provide safer turning opportunities off of KY 94. Another improvement option is to perform access management and consolidate entrances on KY 94 to reduce the number of conflict points. Additionally, the 13th Street intersection could be converted to right-in/right-out to eliminate left-turns. A final option is to realign the 13th Street approaches to remove the skew.

Long-Term Improvement Concept L7: KY 94 at Robertson Road (KY 1660)

Project Needs: West of Murray, KY 94 and KY 1660 are rural two-lane roads that serve mainly residential and farmland areas. This western part of Murray is likely to experience

residential growth over the next 20 years according to feedback from local officials. The KY 94/KY 1660 intersection is signalized and was identified in the public survey as having safety and congestion issues and needing additional turn lanes. Between 2017 and 2019, there were eight reported crashes at this intersection, four (50 percent) of which were angle collisions. This portion of KY 94 is expected to carry 6,800 VPD in 2045 while KY 1660 is expected to carry 6,100 VPD.

Improvement Options: An improvement concept is to collect turn movement counts and reconfigure the intersection. This could involve constructing turn lanes or a complete reconstruction into a roundabout.

- Comment: The current box span signal was installed through an HSIP project in 2016
- Comment: There have been several calls and complaints about this location, especially citing speeding.

Long-Term Improvement Concept L8: KY 121 at Robertson Road (KY 1660):

Project Needs: KY 1660 provides a north-south connection for the residential and rural areas in west Murray. Its northern terminus intersects with KY 121 and was identified in the public survey as having safety issues, especially related to poor sight distance. Over the three-year period between 2017 and 2019, there were six reported crashes, four (67 percent) of which were injury collisions. This portion of KY 121 is expected to carry 9,400 VPD in 2045 while KY 1660 is expected to carry 6,100 VPD.

Improvement Options: An improvement concept is to collect a turning movement count and reconfigure the intersection. This could involve constructing turn lanes or a complete reconstruction into a roundabout.

Long-Term Improvement Concept L9: Main Street (KY 94) at 14th Street

Project Needs: West of US 641 on the MSU campus, KY 94 provides a major east-west connection for MSU, the residential areas to the west, and the commercial areas to the east. The North 14th Street intersections on this portion of KY 94 are offset, causing through traffic on 14th Street to turn twice before continuing. Between 2017 and 2019 there were two reported crashes at this intersection, one backing and one rear end collision. This section of KY 94 is expected to carry 18,300 VPD in 2045 and was identified in the public survey as needing turn lanes.

Improvement Options: An improvement option is to construct a two-way left-turn lane (TWLTL) on KY 94 to provide safe opportunities for drivers to turn left. Another option is to realign the North 14th Street approaches to eliminate the offset.

- Comment: It does not appear the crash history would warrant an improvement.

10. Bicycle and pedestrian improvements can be stand-alone projects or can be added to the short- and long-term projects identified through this study.

The Taylor Siefker Williams Design Group (TSW) presented several bicycle and pedestrian concepts to the project team. TSW began by reviewing the existing sidewalk network along with the proposed cycle paths from the 2020 Murray Comprehensive Plan and the 2021 Murray Five-Year Sidewalk Plan. Results from the public survey were also analyzed and indicated that bicycle/pedestrian facilities are desired in west Murray and on the MSU campus, sidewalks are wanted on South 16th Street, and bicycle facilities are desired along KY 94 and US 641. **Figure 8** presents the preliminary bicycle and pedestrian improvements for Murray. The overall goal of the improvements is to respond to the public input and connect major multimodal trip origins and destinations. Proposed sidewalks fill in gaps in the current network and, along with the proposed multi-use paths, provide extensive connections between high density residential areas, low-income areas, schools, parks, and commercial areas. Several typical sections were presented as options for on-street bicycle lanes, sidewalks, and multi-use paths. Typical sections will be determined on a project-by-project basis during the design phase.

- Comment: There are “Share the Road” signs on US 641, indicating that bicyclists and vehicles should share the roadway. With significant congestion and high speeds, US 641 is not an ideal road for bicyclists. With bicyclists no longer using US 641, a multi-use path could be constructed on the MSU side of US 641 to improve safety for bicyclists and pedestrians. Existing crosswalks could also be upgraded as part of this effort.
- It was noted that the PADD does not receive specific funding for bicycle and pedestrian projects.
- Transportation Alternatives Program (TAP) Grants are an option to fund bike/ped projects.

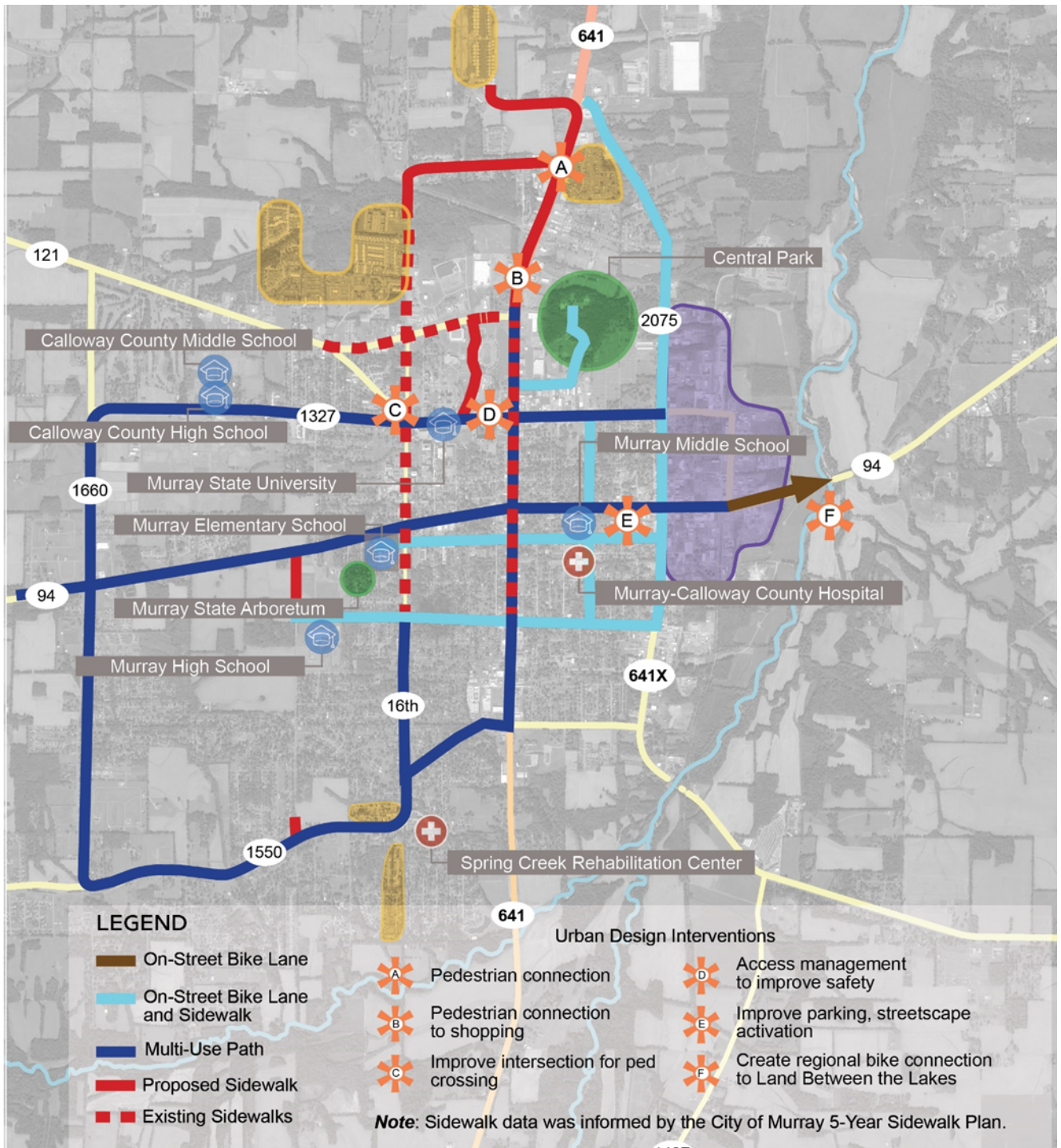


Figure 8: Preliminary Bicycle/Pedestrian Improvement Concepts

11. The next steps will be for Stantec to collect turning movement counts, refine the improvement concepts based on feedback from the project team, and develop a MetroQuest survey for the second round of public outreach. Turning movement counts were approved by District 1 at the following intersections:

1. US 641 / 12th Street @ Keepers Way / Walmart Entrance
2. US 641 / 12th Street @ KY 121
3. US 641 / 12th Street @ Chestnut Street / US 641X
4. US 641 / 12th Street @ KY 94 / Main Street
5. KY 94 / Main Street @ 8th Street
6. 16th Street @ Sycamore Street

The meeting ended at approximately 11:15 a.m. CST.

Meeting Minutes

TO: Stephen De Witte
Co-Project Manager
KYTC Central Office
200 Mero Street
Frankfort, KY 40622

James Tilley
Co-Project Manager
KYTC District Office #1
5501 Kentucky Dam Road
Paducah, KY 42003

FROM: Len Harper
Project Manager
Stantec Consulting Services Inc.

DATE: August 5, 2022

SUBJECT: Murray Small Urban Area Study
Calloway County
KYTC Item No. N/A
Advisory Committee Meeting No. 2

The second Advisory Committee Meeting for the subject project was held at Murray City Hall on July 28, 2022 at 10:00 a.m. CDT. The following individuals were in attendance:

| | |
|-------------------|--|
| Jeremy Buchanan | Purchase Area Development District (PADD) |
| Dannetta Clayton | City of Murray |
| Stacey Courtney | Purchase Area Development District (PADD) |
| Jackie Dudley | Murray State University |
| Jeff Gentry | Murray State University |
| Shane Knight | City of Murray |
| Jim LeFevre | Purchase Area Development District (PADD) |
| Jeffrey Liles | City of Murray Police |
| Mark Manning | Murray Calloway Economic Development Corporation |
| Bob Rogers | City of Murray |
| Gina Winchester | Calloway County Fiscal Court |
| Jason Youngblood | Murray State University |
| Dave Heil | KYTC – Central Office Planning |
| Jared Jeffers | KYTC – Central Office Planning |
| Chris Kuntz | KYTC – District 1 |
| James Tilley | KYTC – District 1 |
| Brian Aldridge | Stantec Consulting Services Inc. |
| Hayden Chism | Stantec Consulting Services Inc. |
| Len Harper | Stantec Consulting Services Inc. |
| Graham Winchester | Stantec Consulting Services Inc. |

Len Harper welcomed everyone and said the purpose of the meeting was to discuss the progress to-date for the Murray Small Urban Area (SUA) Study. Len then delivered a presentation. The following enumerated items were discussed:

1. The purpose of the meeting is to provide the Advisory Committee an opportunity to rank the improvement concepts.
2. This project is federally funded with Federal State Planning and Research (SPR) Chapter 7 funds. Future phases of the project are not funded in *Kentucky's FY 2020 – FY 2026 Highway Plan*.
3. The purpose of the Murray SUA is to examine the transportation network in Murray and to identify and evaluate potential options to improve safety and congestion in the study area. The study will focus on short-term, long-term, and bicycle/pedestrian improvements that KYTC, Calloway County, the City of Murray, or private developers can use for further project development and implementation.
4. There are currently seven planned projects in the study area, shown in **Figure 1**:
 - A. '5 points' Intersection: 16th Street from Chestnut Street to KY 121
 - ROW Phase Scheduled for 2023 (\$2.2 million)
 - Utility Phase Scheduled for 2024 (\$2.2 million)
 - B. Widen US 641 to 4-Lanes from Glendale Road to the Tennessee state line
 - Currently under Construction (\$37.6 million)
 - C. Business Loop from Glendale Road to Industrial Road
 - Construction Scheduled for 2024 (\$7.5 million)
 - D. Pavement Rehabilitation on US 641X
 - Construction Scheduled for 2023 (\$1.7 million)
 - E. North 16th Street from KY 121 to Utterback Road
 - Design Scheduled for 2023 (\$750k)
 - F. KY 80/US 641 Intersection Safety Improvements
 - Construction Scheduled for August 2022
 - G. 16th Street Sidewalk Project* from the federal Transportation Alternatives Program, administered by KYTC
5. Results from the public survey were discussed. Key takeaways included:
 - The public believes Murray is growing, especially residentially to the west, and wants the transportation network to be ready.
 - US 641 is a key corridor and the highest priority for most respondents
 - i. Signal timing improvements
 - ii. Left-turn protected phasing for side streets
 - iii. More turn lanes are needed on US 641
 - iv. Fast food restaurants consistently back up onto US 641
 - v. There are not enough north-south roads to alleviate traffic on US 641

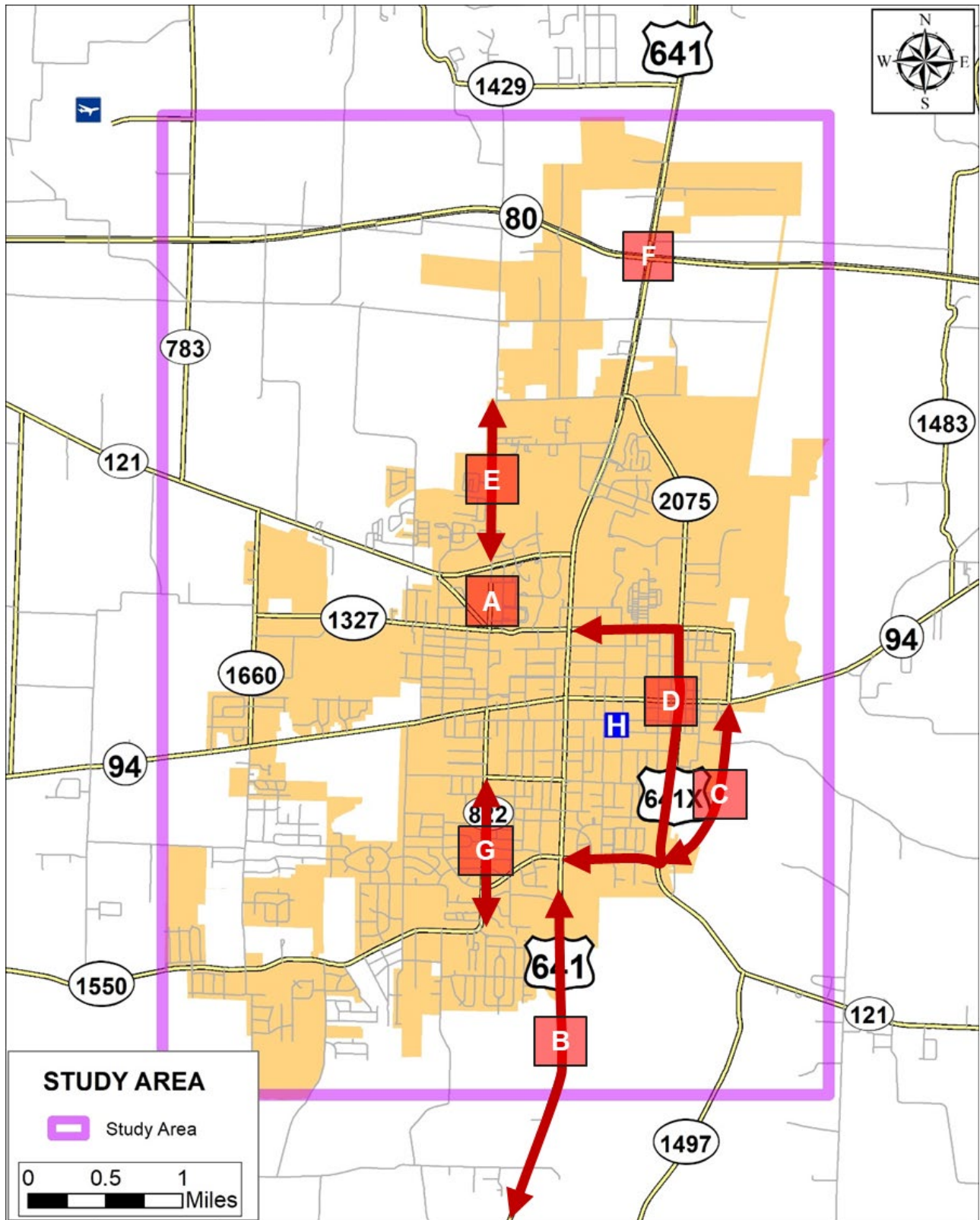


Figure 1: Projects in the Study Area

- The ‘5 Points’ intersection received the second most comments
 - Sidewalk and bike improvements are high priorities
 - Roundabouts were a popular intersection improvement, especially on KY 1660
6. The Advisory Committee members were then given handouts and asked to rank the improvement concepts. Results from the scoring exercise are as follows:

Each Advisory Committee member was given nine points to rank the nine short-term improvement concepts. The members were directed to vote for at least two concepts. **Figure 2** presents the results. The US 641 Corridor received the most points (48) followed by the US 641 intersections with Keepers Way and Lowes Dr. (10), the Courthouse Square (9), the KY 94 intersection with 8th St. (9), and the KY 94 intersection with 13th St. (9).

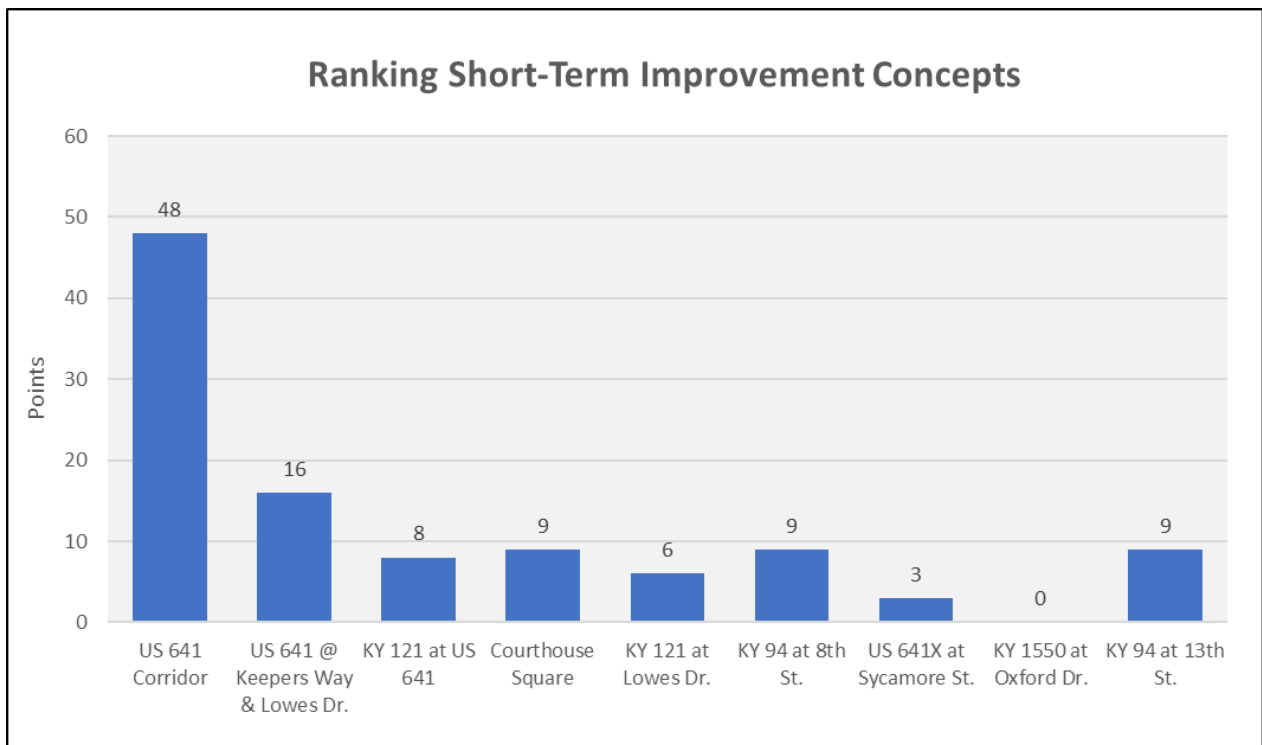


Figure 2: Advisory Committee Ranking of Short-Term Improvement Concepts

The Advisory Committee members were then given seven points to rank the seven long-term improvement concepts. The members were directed to vote for at least two concepts. **Figure 3** presents the results. The Main St. (KY 94) concept to construct a two-way left-turn lane (TWLTL) received the most votes (32), with the bypass concepts receiving the next most votes.

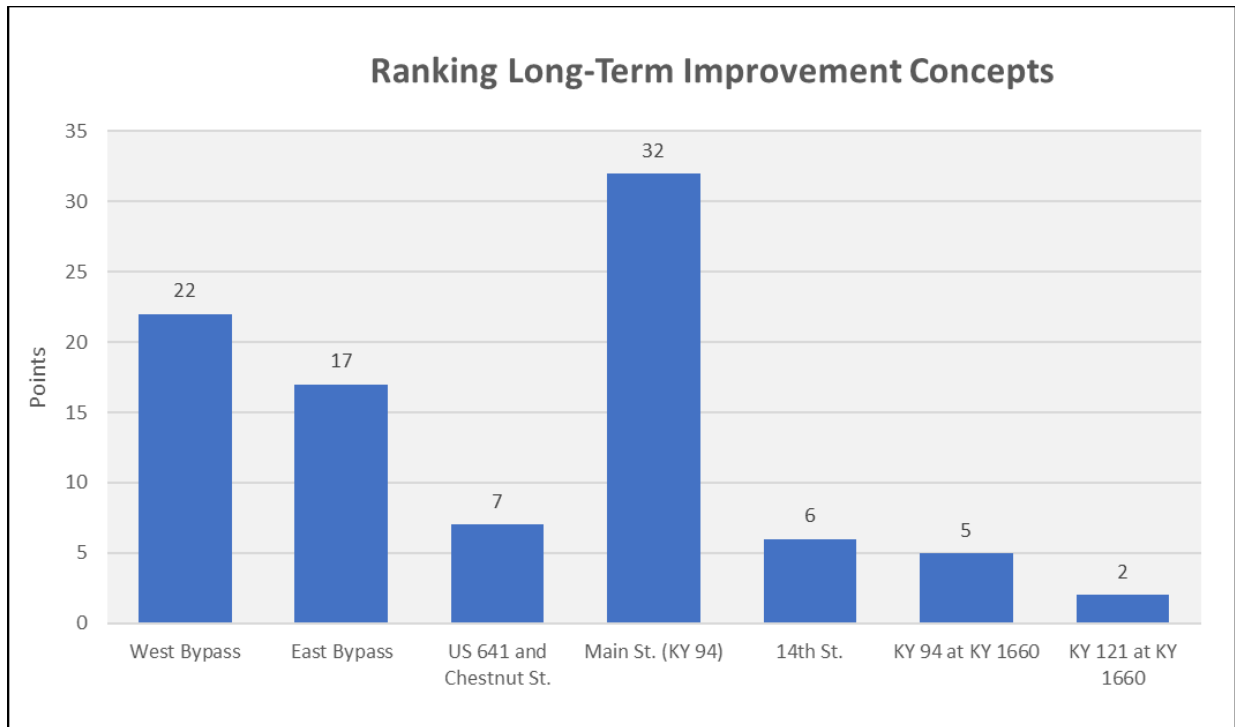


Figure 3: Advisory Committee Ranking of Long-Term Improvement Concepts

The Advisory Committee members were then given 12 points to rank the 12 bicycle/pedestrian improvement concepts. The members were directed to vote for at least two concepts. **Figure 4** presents the results. Constructing sidewalks on Doran Rd. and a buffered on-street bike lane with sidewalks on Sycamore Street received the most points (31) followed by constructing a multi-use path on KY 94 between Belle Meade Dr. and Industrial Rd.

- There was interest in constructing sidewalks on KY 121 and Bailey Rd. to connect the residential areas with the existing sidewalk network.

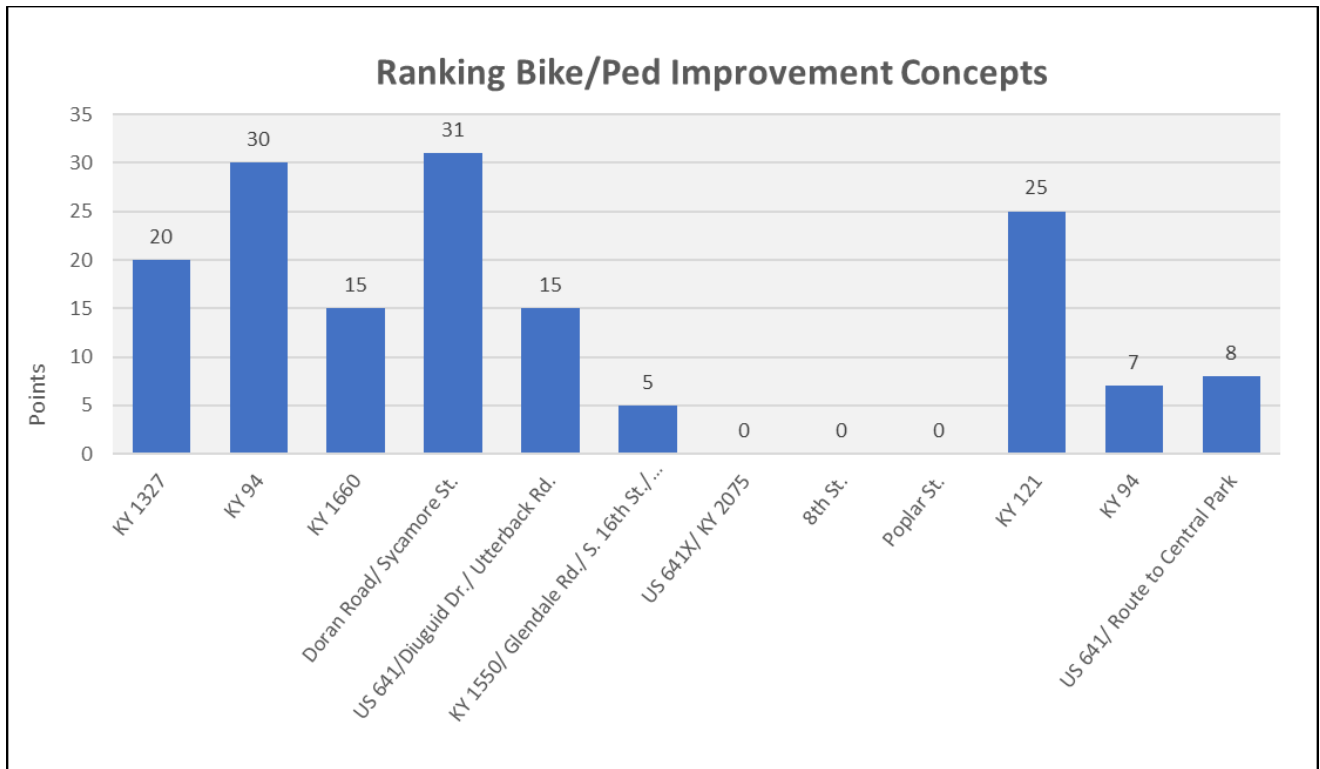


Figure 4: Advisory Committee Ranking of Bike/Ped Improvement Concepts

- The next steps will be for the project team to refine the improvement concepts, prioritize the concepts, and then develop a draft report.

The meeting ended at approximately 11:30 a.m. CDT.

Meeting Minutes

TO: Stephen De Witte
Co-Project Manager
KYTC Central Office
200 Mero Street
Frankfort, KY 40622

James Tilley
Co-Project Manager
KYTC District Office #1
5501 Kentucky Dam Road
Paducah, KY 42003

FROM: Len Harper
Project Manager
Stantec Consulting Services Inc.

DATE: August 15, 2022

SUBJECT: Murray Small Urban Area (SUA) Study
Calloway County
KYTC Item No. N/A
Project Team Meeting No. 3

The final Project Team Meeting for the subject project was held at Murray City Hall on July 28, 2022 at 1:30 p.m. CDT. The following individuals were in attendance:

| | |
|-------------------|----------------------------------|
| Dave Heil | KYTC – Central Office Planning |
| Jared Jeffers | KYTC – Central Office Planning |
| Chris Kuntz | KYTC – District 1 |
| James Tilley | KYTC – District 1 |
| Brian Aldridge | Stantec Consulting Services Inc. |
| Hayden Chism | Stantec Consulting Services Inc. |
| Len Harper | Stantec Consulting Services Inc. |
| Graham Winchester | Stantec Consulting Services Inc. |

Len Harper welcomed everyone and coordinated brief introductions from the project team. The following enumerated items were discussed:

1. The purpose of the meeting is to present the results from the second Advisory Committee Meeting and to prioritize improvement concepts.
2. The objective of the Murray SUA Study is to examine the transportation network in Murray and to identify and evaluate potential options to improve safety and congestion in the study area. The study has focused on short and long-term roadway improvements as well as bicycle/pedestrian improvements that KYTC, the City of Murray, Calloway County, or Murray State University (MSU) can use for further project development and implementation.
3. There was a discussion of feedback from the second Advisory Committee Meeting. An in-person meeting was held on July 28, 2022 at Murray City Hall. At the meeting, members of

the Advisory Committee were asked to complete a survey where they were given points to prioritize improvement concepts. There were 13 respondents to the survey, which included the Callow County Deputy County Judge Executive, Director of the Murray Calloway County Economic Development, MSU Police Chief, MSU Director of Facilities Management, Director of MSU Finance and Administrative Services, Mayor of Murray, Murray City Manager, City of Murray Director of Planning & Engineering, City of Murray Police Chief, Director of Murray-Calloway County Senior Citizens, and three members from the Purchase Area Development District (PADD). The following is a summary of the results.

Each Advisory Committee member were given nine points to allocate amongst the nine short-term improvement concepts, shown in **Attachment A**. The members were directed to vote for at least two concepts. **Figure 1** presents the results.

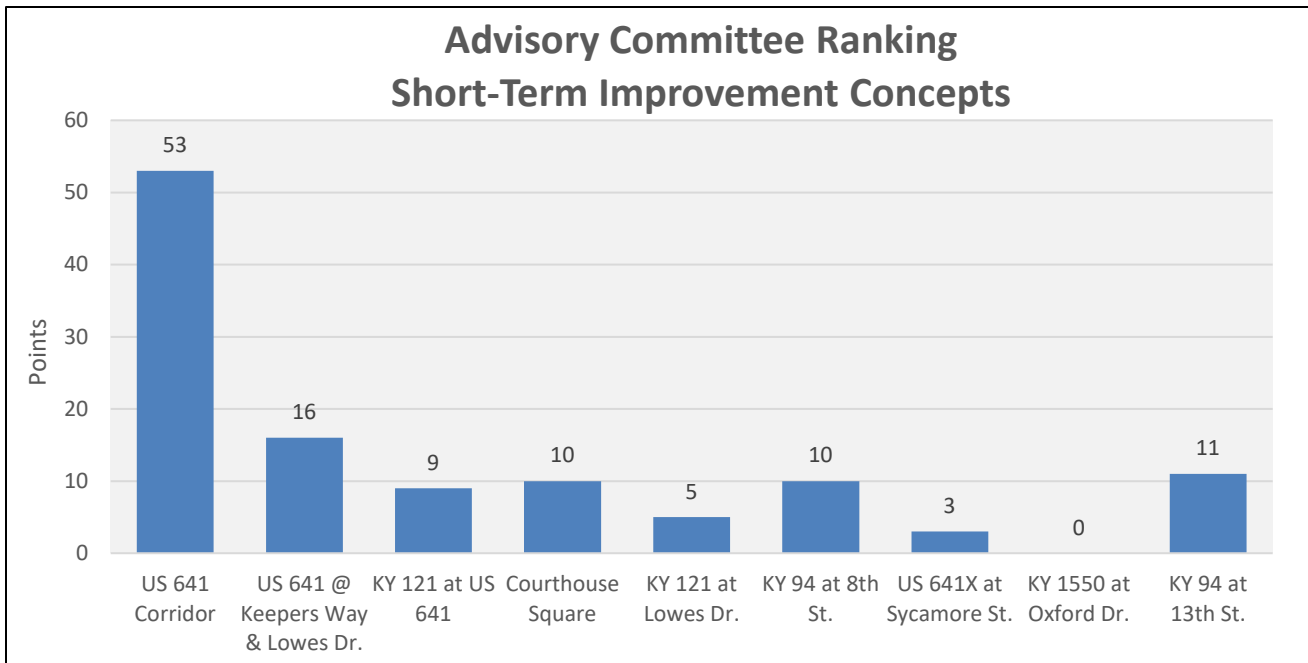


Figure 1: Advisory Committee Ranking of Short-Term Improvement Concepts

The US 641 Corridor received the highest score (53 points), which includes a detailed traffic operations analysis of the signal timing, upgraded traffic signal heads to include flashing yellow arrows, and updated signs. The US 641 intersections at Keepers Way and Lowes Drive received the second highest score (16 points) followed by the KY 94 intersection at 13th Street (11 points). While scoring the short-term improvement concepts, the Advisory Committee provided the following comments:

- Short-Term Improvement Concepts:
 - US 641 Corridor: Two people noted the focus should be on improving the signal timing.

- KY 121 at Lowes Drive: One person thought it would be better to extend the right-turn lane to Bailey Road.
- US 641X at Sycamore: One person wanted the channelized right-turn lane replaced with a standard right-turn lane.
- KY 94 at 13th Street: One person wanted the skewed intersection at 13th Street to be realigned as part of this project.

The Advisory Committee members were then given seven points to allocate amongst the seven long-term improvement concepts, shown in **Attachment A**. The members were directed to vote for at least two concepts. **Figure 2** presents the results.

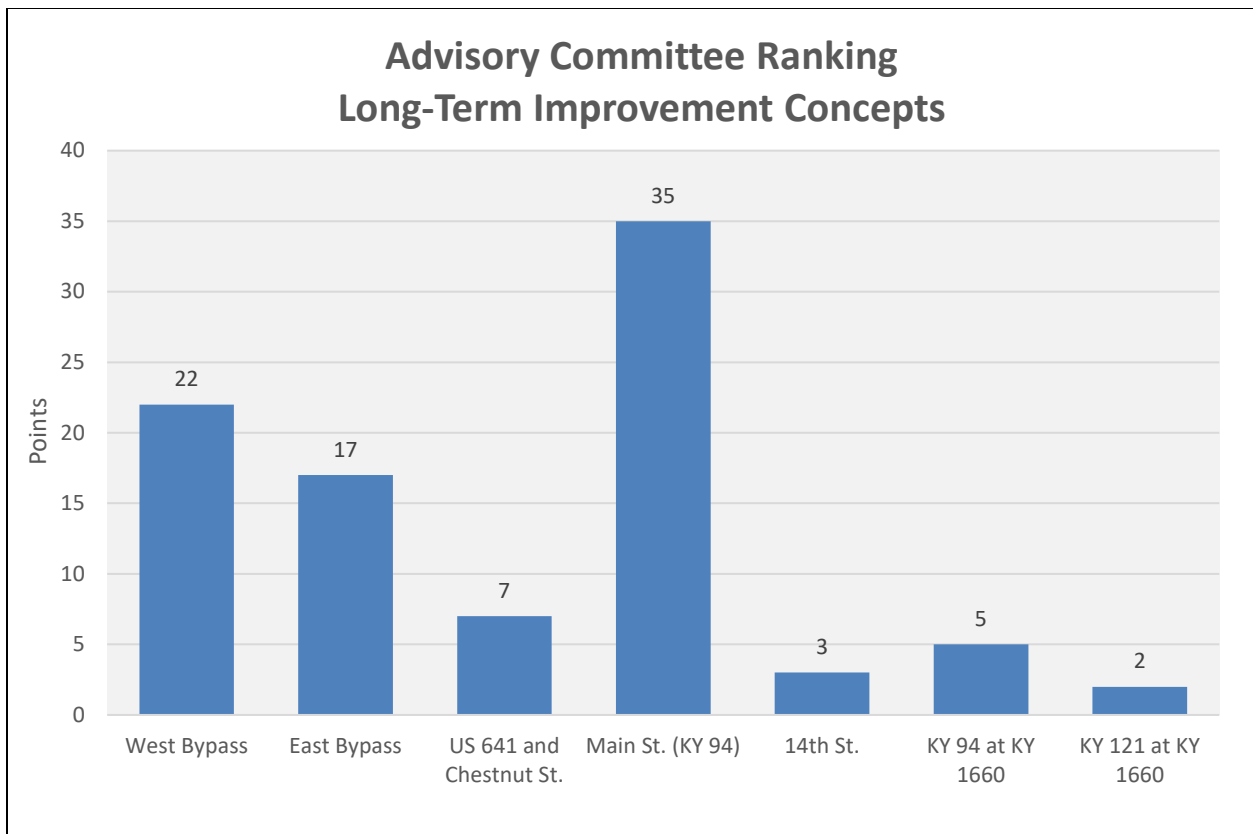


Figure 2: Advisory Committee Ranking of Long-Term Improvement Concepts

The Main Street (KY 94) concept to construct a two-way left-turn lane (TWLTL) between US 641 and 16th Street received the highest score (35 points), with the two bypass concepts receiving the second and third highest scores. While scoring the long-term improvement concepts, the Advisory Committee provided the following comments:

- Long-Term Improvement Concepts:
 - Eastern Bypass: Four people wanted to move this concept to align it with the Murray Business Loop and extend it to KY 80.

- US 641 at Chestnut Street: As part of this concept, two people wanted to see the frontage road at Cracker Barrel extended through the signal by Panera Bread.
- Main Street (KY 94): As part of this concept, five people wanted to see the skewed intersection at 13th Street realigned.

The Advisory Committee members were then given 12 points to allocate amongst the 12 bicycle/pedestrian improvement concepts, shown in **Attachment B**. The members were directed to vote for at least two concepts. **Figure 3** presents the results.

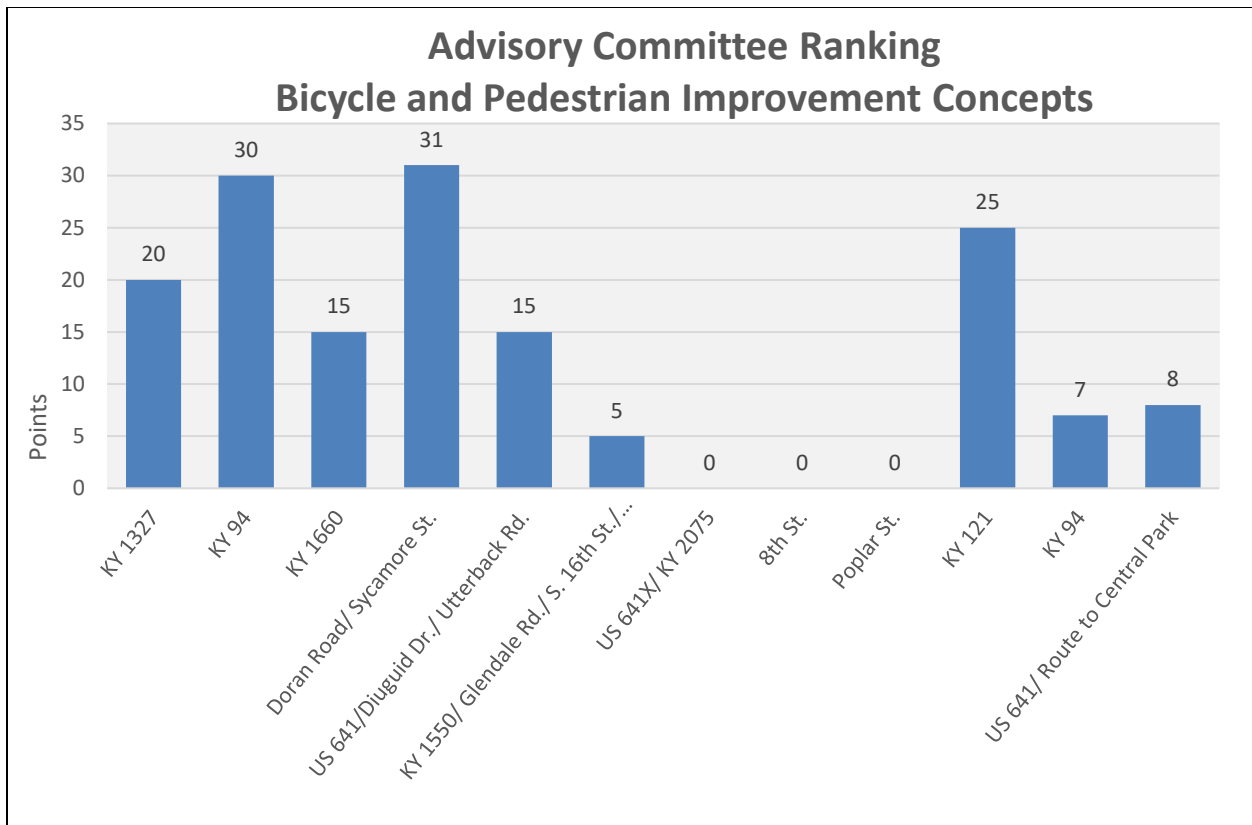


Figure 3: Advisory Committee Ranking of Bike/Ped Improvement Concepts

Constructing sidewalks on Doran Road and a buffered on-street bike lane with sidewalks on Sycamore Street received the highest score (31 points), followed closely by constructing a multi-use path along Main Street (KY 94) (30 points). While scoring the bicycle and pedestrian improvement concepts, the Advisory Committee provided the following comments:

- KY 121 Multi-Use Path: Four people wanted this option expanded to include a multi-use path from the housing/apartments on Bailey Road to the MSU Campus.

4. **Short-Term Improvement Concept Priorities:** Concepts were prioritized based on results from the traffic analysis, safety analysis, public outreach, Advisory Committee feedback, and Project Team feedback.

The short-term improvement concepts, shown in **Attachment A**, were categorized as maintenance projects, high priority, medium priority, and low priority. Maintenance projects are improvements that the KYTC Division of Maintenance can implement internally.

Maintenance Projects

- KY 121 at Lowes Drive (S5 Improvement Concept): End the westbound KY 121 through lane at Lowes Drive.
- KY 1550 at Oxford Drive (S8 Improvement Concept): Enhance signing and striping on the KY 1550 horizontal curve at Oxford Drive.

High Priority

- US 641 Corridor Study between Glendale Road and KY 80 (S1 Improvement Concept): Perform a detailed traffic operations analysis with turning movement counts and a simulation model along US 641. Examine the need for updated traffic signal timing and signage as part of this effort. Because the following improvement concepts would impact traffic operations along US 641, the project team decided to analyze these further as part of a more comprehensive US 641 Corridor Study.
 - US 641 at Keepers Way and Lowes Drive (S2 Improvement Concept): Construct a raised median on US 641 between Keepers Way and Lowes Drive.
 - KY 121 at US 641 (S3 Improvement Concept): Restripe the eastbound KY 121 approach and improve signal timing at the US 641 intersection.
 - US 641 and Chestnut Street (L3 Improvement Concept): Construct a raised median on US 641 and perform access management on Chestnut Street.

Medium Priority

- Courthouse Square (S4 Improvement Concept): Close 5th Street to traffic and convert to a pedestrian area. Convert on-street parking to back-in parking.
 - This improvement concept was tied with the fourth highest score from the Advisory Committee.
 - The project team noted that this project would likely be developed further at the local level through the use of federal grants.
- KY 94 at 8th Street (S6 Improvement Concept): Install a four-way stop a curb bump out on KY 94 at 8th Street.
 - This improvement concept was tied with the fourth highest score from the Advisory Committee.
 - Between 2017 and 2019 there were 17 reported crashes at this intersection with 88 percent of those being angle collisions.
 - Pedestrian crossings are high at this intersection due to the proximity of Murray Middle School.
 - A stop-controlled intersection would make the crossing safer for pedestrians and vehicles.

Low Priority

- US 641X at Sycamore Street (S7 Improvement Concept): Remove the channelized right-turn lane from US 641X to Sycamore Street and consider replacing it with a standard right-turn lane.
 - This improvement concept did not receive a high score from the Advisory Committee and there have been no crashes which can be directly attributed to the channelized right-turn lane in the last ten years.
5. **Long-Term Improvement Concept Priorities:** Concepts were prioritized based on results from the traffic analysis, safety analysis, public outreach, Advisory Committee feedback, and project team feedback.

The long-term improvement concepts, shown in **Attachment A**, were categorized as high, medium, and low priority.

High Priority

- East Bypass (L2 Improvement Concept): Construct a new route from the Murray Business Loop to KY 80.
 - This improvement concept received the third highest score from the Advisory Committee.
 - Based on traffic projections, this route is projected to carry more vehicles and divert more traffic away from US 641 than the proposed West Bypass (Improvement Concept L1). The project is also significantly less expensive compared to the West Bypass.
 - Per the comments provided by the Advisory Committee, it may be desirable to implement an eastern connector around Murray by extending the Murray Business Loop.
- Main Street (L4 Improvement Concept): Construct a center two-way left-turn lane (TWLTL) and a multi-use path along Main Street between US 641 and 16th Street. Consideration should also be given in future phases for access management near 13th Street and the realignment of the skewed intersections at 13th Street and 14th Street.
 - This improvement concept received the highest score from the Advisory Committee.
 - KY 94 at 13th Street (S9 Improvement Concept): Perform access management on KY 94 near 13th Street. The Advisory Committee showed a preference for this long-term improvement concept so the project team decided to analyze this concept further as part of the L4 Improvement Concept.
 - Realign 14th Street at KY 94 (L5 Improvement Concept). This was combined with L4 for consideration in future phases of project development.

Medium Priority

- KY 94 at KY 1660 (L6 Improvement Concept): Convert the KY 94 intersection with KY 1660 (Robertson Road) to a roundabout.
 - Over the past five years there have been 11 reported crashes including one fatal collision and three injury collisions with 45 percent of those collisions being angle crashes.
- KY 121 at KY 1660 (L7 Improvement Concept) : Convert the KY 121 intersection with KY 1660 (Robertson Road) to a roundabout.
 - Over the past ten years there have been 19 reported crashes including six injury collisions with 61 percent of those collisions being angel or opposing left-turn crashes.

Low Priority

- West Bypass (L1 Improvement Concept): Construct a new route between US 641 and KY 80 west of Murray. While having the second highest score from the Advisory Committee, the project team decided to assign this a low priority for the following reasons:
 - Based on traffic projections, this route is projected to carry less traffic and divert less traffic away from US 641 than the proposed East Bypass (Improvement Concept L2) which is designated as a high priority.
 - The construction cost estimate for this project is \$45 million.
 - There are existing roadways that provide a north-south connection between KY 1550 and KY 80 on the West side of Murray.

6. **Bicycle/Pedestrian Improvement Concept Priorities:** Concepts were prioritized based on results from the safety analysis, public outreach, Advisory Committee feedback, and project team feedback.

The bicycle/pedestrian improvement concepts, shown in **Attachment B**, were categorized as high, medium, and low priority.

High Priority

- Doran Road/Sycamore Street: Construct sidewalks on Doran Road from KY 94 at Sycamore Street and construct a buffered on-street bike lanes and sidewalks on Sycamore Street between Doran Road and US 641X.
 - This improvement concept received the highest score from the Advisory Committee.
 - This is a major east-west connection between residential areas, MSU, and the Murray High School.
- KY 94: Construct a multi-use path on KY 94 (Main Street) between Belle Meade Drive to Industrial Road.
 - The portion between US 641 and 16th Street was added for consideration as part of the Main Street Long-Term Improvement Concept (L2).
 - This improvement concept received the second highest score from the Advisory Committee.

- This is a major east-west connection between residential areas, MSU, Murray Elementary School, the commercial area along US 641, and Murray Middle School.
- KY 121: Construct a multi-use path on KY 121 between KY 1660 and Bailey Road.
 - Based on feedback from the Advisory Committee, providing multimodal access from the housing/apartments on Bailey Road to the MSU Campus was added to this concept and should be the first priority.
 - This improvement concept received the third highest score from the Advisory Committee.
 - This is a major connection between the high-density housing/apartments on Bailey Road and the MSU Campus.
- US 641 North of KY 121: Construct a multi-use path on US 641 from Utterback Road to KY 121 with crosswalks at the signalized Lowes Drive and Center Drive intersections. It also includes sidewalks on 16th Street from the existing sidewalk to Diuguid Drive, sidewalks on Diuguid Drive from 16th Street to US 641, and sidewalks on Utterback Drive from Opportunity Drive to US 641.
 - Currently there are no bicycle or pedestrian facilities along this portion of US 641.
 - This improvement concept was tied with the fifth highest score from the Advisory Committee.
 - This will provide a multimodal connection between three manufactured housing developments and important shopping centers such as Walmart and Kroger.

Medium Priority

- KY 1327: Construct a multi-use path on KY 1327 between KY 1660 and KY 2075.
 - This improvement concept received the fourth highest score from the Advisory Committee.
 - This is a major east-west connection between residential areas, Calloway County High School, Calloway County Middle School, MSU, and the commercial area along US 641.
- KY 1660: Construct a multi-use path on KY 1660 between KY 1550 and KY 121.
 - This improvement concept was tied with the fifth highest score from the Advisory Committee.
 - This is a major north-south connection between a growing residential areas and multiple schools.
- US 641 South of KY 121: Construct a multi-use path on US 641 from KY 121 to Glendale Road. Construct a buffered on-street bike lane and sidewalk on Arcadia Circle from US 641 to Gil Hobson Drive and on Hobson Drive from Arcadia Circle to Central Park.
 - Currently sidewalks exist along the majority of US 641. Bicycles are expected to share the road with motorists.
 - This improvement concept received the seventh highest score from the Advisory Committee.
 - This concept will provide a dedicated bicycle facility along the commercial area of US 641 and a new multimodal connection to Central Park.

- KY 1550: Construct a multi-use path on KY 1550 from King Drive to 16th Street.
Construct a multi-use path on 16th Street from KY 1550 to Glendale Road.
Construct a multi-use path on Glendale Road from S. 16th Street to US 641.
Construct sidewalks on Doran Road from KY 1550 to Azalea Drive.
 - This improvement concept received the ninth highest score from the Advisory Committee.
 - This will provide a multimodal connection between the growing residential area along KY 1550, two manufactured housing developments, the proposed sidewalk project along 16th Street currently under project development, and the commercial area along US 641.

Low Priority

- KY 94 to Land Between the Lakes: Construct a buffered on-street bike lane on KY 94 from Industrial Road to Land Between the Lakes.
 - This improvement concept received the eight highest score from the Advisory Committee.
 - This is a project that would likely need to be developed as part of a larger regional bike trail project.
 - US 641X/KY 2075: Construct a buffered on-street bike lane and sidewalk on US 641X from US 641 to Sycamore Street.
 - This improvement concept did not receive any points from the Advisory Committee
 - 8th Street: Construct a buffered on-street bike lane and sidewalk on 8th Street from KY 1327 to Sycamore Street.
 - This improvement concept did not receive any points from the Advisory Committee
 - Poplar Street: Construct a buffered on-street bike lane and sidewalk on Poplar Street from S. Broach Avenue to US 641X.
 - This improvement concept did not receive any points from the Advisory Committee
7. The next step will be for Stantec to develop project sheets for the improvement concepts and to develop the draft report. As part of that effort, Stantec will provide approximate right-of-way limits for the Long-Term Improvement Concepts so District 1 can develop utility and right-way cost estimates.

The meeting ended at approximately 2:30 p.m. CDT.