

Paducah Small Urban Area Study

McCracken County
KYTC Item No. N/A

May 2019



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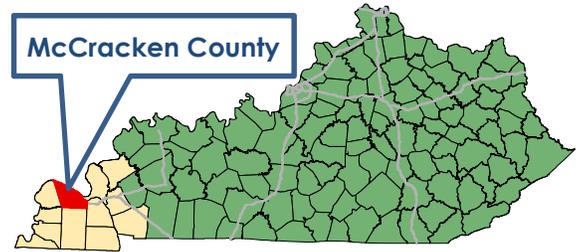
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Paducah Small Urban Area Study Executive Summary

The Kentucky Transportation Cabinet (KYTC) initiated a Small Urban Area (SUA) study for the city of Paducah, Kentucky in McCracken County in April 2018. The goal of the study is to identify and examine highway and multimodal transportation issues related to safety and congestion in Paducah and the surrounding area. The study area includes the city limits of Paducah and some surrounding portions of McCracken County, totaling 91.1 square miles. The City of Paducah requested the development of an urban transportation study for the Paducah area, as the last Paducah-McCracken County Transportation Study was completed in 2002. This SUA planning study was funded with Federal Statewide Planning and Research (SPR) funds.



The basic elements accomplished under this SUA study include the following:

- Inventory and evaluate existing conditions, crash history, and geometric deficiencies to identify possible safety improvements.
- Evaluate existing traffic and forecast future traffic volumes on state-maintained and other major routes within the study area to evaluate capacity needs of the transportation network.
- Work with an Advisory Committee of local stakeholders and public officials to identify problem areas and improvement concepts.
- Produce a list of short-term recommendations which KYTC, City of Paducah, McCracken County, and/or private developers can take for further project development and implementation.
- Address long-term concerns by examining the future transportation needs and determining options for future improvement projects.

The first Advisory Committee meeting was held on June 27, 2018 in Paducah. At the meeting, attendees were asked to identify locations: 1) where congestion is an issue, 2) where there are trouble spots related to safety, 3) areas where growth is anticipated, and 4) locations for possible highway and multimodal transportation improvements. The Advisory Committee identified 23 locations with possible congestion issues, 36 trouble spots related to safety, 16 growth areas, and 17 locations for possible transportation and multimodal improvements.

The project team developed 25 improvement concepts, as shown in **Figure ES-1**, based on a combination of a review of the existing conditions, traffic analyses, field reconnaissance, and input from the Advisory Committee. Cost estimates were prepared for each improvement concept, shown in **Table ES-1**. KYTC District 1 assisted in this effort by providing right-of-way and utility cost estimates.

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Figure ES-1: Improvement Concepts

- Short-Term
- Short-Term / Long-Term
- Long-Term
- Local Project

ID	Route	Short-Term / Long-Term	Improvement Type
A	Kentucky Ave (US 45X)	Short-Term	Road Diet
B	Joe Clifton Drive (US 45)	Short-Term	Road Diet
C	Intersection at Joe Clifton Drive and US 60	Short-Term	Dual Left Turn Lanes
D	H C Mathis Drive (US 45)	Short-Term	Road Diet
E	Martin Luther King Jr Drive and Park Avenue (US 60X & US 45X)	Short-Term	Pavement Striping
F	Paducah Convention Center Entrance (US 45X / US 60X)	Long-Term	Intersection Reconfiguration
G	3rd Street and 4th Street (US 45X and US 60X)	Short-Term	Pavement Striping
		Long-Term	Two-Way Conversion
H	Southern Split (US 60X)	Long-Term	Intersection Reconfiguration
I	Jefferson Street and Broadway Street	Local Project: Short-Term	Pavement Striping
		Local Project: Long-Term	Two-Way Conversion
J	Friendship Road (KY 1286)	Short-Term	High Friction Pavement
		Long-Term	Reconstruction
K	Olivet Church Road (KY 998)	Long-Term	Minor Widening
L	Berger Road (KY 1310)	Long-Term	Sidewalk on One Side
			Reconstruction
M	South Friendship Road (KY 1286)	Long-Term	Minor Widening or Reconstruction
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Long-Term	Right Turn Lane on Jackson Street
		Long-Term	Major Widening of US 62
O	Lone Oak Road (US 45)	Long-Term	Sidewalks and Driveway Consolidation
		Long-Term	Reversible Lanes
P	Cairo Road (KY 305)	Long-Term	Major Widening and Reconstruction
Q	KY 731 including Intersections at Broadway Street	Long-Term	Major Widening and Intersection Reconfiguration
R	New Holt Road	Local Project: Long-Term	Major Widening
S	Clarks River Ferry Road	Local Project: Short-Term	Road Closure

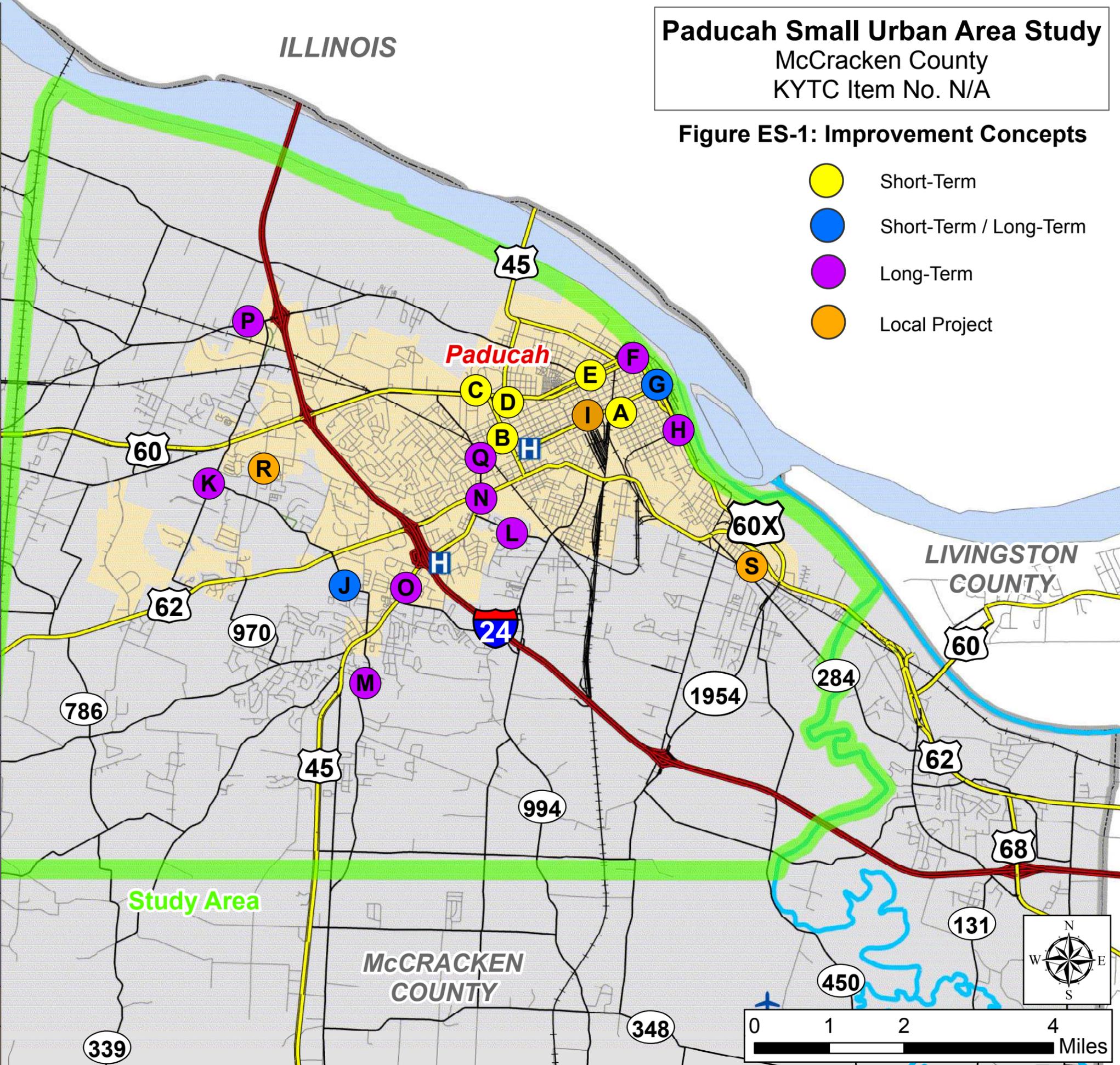


Table ES-1: 2018 Cost Estimates

ID	Route	Improvement Type	2018 Cost Estimates				
			Design	Right-of-Way	Utility Relocation	Construction	Total Cost
A	Kentucky Ave (US 45X)	Road Diet	\$100,000	\$0	\$0	\$300,000	\$400,000
B	Joe Clifton Drive (US 45)	Road Diet	\$100,000	\$0	\$0	\$500,000	\$600,000
C	Intersection at Joe Clifton Drive and US 60	Dual Left-Turn Lanes	\$20,000	\$0	\$0	\$80,000	\$100,000
D	H C Mathis Drive (US 45)	Road Diet	\$20,000	\$0	\$0	\$130,000	\$150,000
E	Martin Luther King Jr Drive and Park Avenue (US 60X & US 45X)	Pavement Striping	\$100,000	\$0	\$0	\$900,000	\$1,000,000
F	Paducah Convention Center Entrance (US 45X / US 60X)	Intersection Reconfiguration	\$400,000	\$3,000,000	\$6,000,000	\$1,800,000	\$11,200,000
G	3rd Street and 4th Street (US 45X and US 60X)	Pavement Striping	\$100,000	\$0	\$0	\$600,000	\$700,000
		Two-Way Conversion	\$300,000	\$0	\$0	\$1,300,000	\$1,600,000
H	Southern Split (US 60X)	Intersection Reconfiguration	\$300,000	\$800,000	\$500,000	\$1,300,000	\$2,900,000
I	Jefferson Street and Broadway Street	Pavement Striping	\$100,000	\$0	\$0	\$700,000	\$800,000
		Two-Way Conversion	\$300,000	\$0	\$0	\$1,400,000	\$1,700,000
J	Friendship Road (KY 1286)	High Friction Pavement	\$10,000	\$0	\$0	\$40,000	\$50,000
		Reconstruction	\$1,900,000	\$5,000,000	\$4,600,000	\$17,600,000	\$29,100,000
K	Olivet Church Road (KY 998)	Minor Widening	\$500,000	\$1,100,000	\$700,000	\$4,000,000	\$6,300,000
L	Berger Road (KY 1310)	Sidewalk on One Side	\$70,000	\$3,500,000	\$1,000,000	\$350,000	\$4,920,000
		Reconstruction	\$1,300,000	\$4,200,000	\$3,900,000	\$7,200,000	\$16,600,000
M	South Friendship Road (KY 1286)	Minor Widening	\$900,000	\$5,000,000	\$800,000	\$6,000,000	\$12,700,000
		Reconstruction	\$1,600,000	\$10,000,000	\$5,000,000	\$10,900,000	\$27,500,000
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Right Turn Lane on Jackson Street	\$100,000	\$1,500,000	\$3,000,000	\$200,000	\$4,800,000
		Major Widening of US 62	\$2,000,000	\$8,400,000	\$6,600,000	\$9,500,000	\$26,500,000
O	Lone Oak Road (US 45)	Sidewalks and Driveway Consolidation	\$100,000	\$10,000,000	\$2,000,000	\$800,000	\$12,900,000
		Reversible Lanes	\$400,000	\$0	\$0	\$2,000,000	\$2,400,000
P	Cairo Road (KY 305)	Major Widening and Reconstruction	\$1,700,000	\$4,000,000	\$2,000,000	\$11,300,000	\$19,000,000
Q	KY 731 including Intersections at Broadway Street	Major Widening and Intersection Reconfiguration	\$1,300,000 (\$300,000 Planning)	\$4,200,000	\$3,300,000	\$7,900,000	\$17,000,000
R	New Holt Road	Major Widening	\$700,000	\$9,000,000	\$3,500,000	\$3,600,000	\$16,800,000
S	Clarks River Ferry Road	Road Closure	\$0	\$0	\$0	\$10,000	\$10,000

Three classes of improvement concepts were developed. The concepts are 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, may be implemented by KYTC as part of other regular activities.
- **Long-term:** The long-term concepts are higher-cost improvements that will require more significant resources to implement. These types of improvements are more likely to require additional right-of-way to construct and will need to be funded through Kentucky's Highway Plan.
- **Local Concepts:** The local concepts are not located on the state-maintained system and would likely need to be funded by the City of Paducah or McCracken County. A private developer may also take on this responsibility.

A second Advisory Committee Meeting was held on December 11, 2018 in Paducah. During this meeting, attendees were asked to indicate their level of support for each of the improvement concepts. Factoring in collected data and input from the Advisory Committee, the project team prioritized the conceptual improvements as high, medium, or low. **Tables ES-2, ES-3, and ES-4** present the improvement concepts based on this prioritization.

Project Team Recommendations

- 11 High Priority Improvement Concepts
- 8 Medium Priority Improvement Concepts
- 5 Low Priority Improvement Concepts
- 3 Improvement Concepts Not Recommended at this time

An additional concept discussed was a road diet along Jackson Street (US 45) and Irvin Cobb Drive (US 60) between Lone Oak Road and Bridge Street (KY 284). Stantec investigated this location further after the meeting. With modest to flat growth expected in the area, one through lane in each direction should be able to accommodate current and future travel demand with two configuration options. Option 1 would be to restripe the existing roadway to one 13.5-foot lane in each direction and a 15-foot two-way left-turn lane (TWLTL). Option 2 would be to restripe the existing roadway to one 10.5-foot lane in each direction, an 11-foot TWLTL, and a 5-foot bike lane in each direction. Because the portion of Jackson Street between Lone Oak Road and 28th Street exceed

daily volumes of 18,000 vehicles per day (VPD), additional analysis should be conducted to better understand the peak travel direction prior to implementing the road diet along this portion of Jackson Street. This concept was not prioritized.

It was noted at the second Advisory Committee Meeting that for Concepts F and H, the intersection improvement does not necessarily have to be a roundabout. Additional intersection alternatives should also be considered. Concepts F, G2, and H will need to be implemented together to make a two-way conversion work.

Table ES-2: Recommended High Priority Improvement Concepts

ID	Route	Location	Length	Short-Term or Long-Term	Improvement Type	2018 Cost Estimate (All Phases)	Priority
A1 and A2	Kentucky Ave (US 45X)	25th Street to 4th Street	1.8 Miles	Short-Term	Road Diet – one 12.5-foot lane in each direction and a 15-foot two-way left-turn lane	\$400,000	High Priority
					Road Diet – one 10.5-foot lane in each direction, an 11-foot TWLTL, and a 4-foot bike lane in each direction		
C	Intersection at Joe Clifton Drive and US 60	Joe Clifton Drive and US 60	13.22 Miles	Short-Term	Restripe to provide dual left-turn lanes on the northbound approach (Joe Clifton Drive)	\$100,000	High Priority
I1 and I2	Jefferson Street and Broadway Street	7th Street to Fountain Avenue	1.00 Miles	Short-Term	Pavement Striping to delineate on-street parking and provide a bike lane	\$800,000	High Priority
				Long-Term	Two-Way Conversion	\$1,700,000	High Priority
J1 and J2	Friendship Road (KY 1286)	US 45 to New Holt Road	2.8 Miles	Short-Term	High Friction Pavement	\$50,000	High Priority
				Long-Term	Reconstruction	\$29,100,000	High Priority
K	Olivet Church Road (KY 998)	KY 1286 to US 60	0.6 Miles	Long-Term	Widening pavement and shoulders	\$6,300,000	High Priority
O	Lone Oak Road (US 45)	KY 1286 to Martin Circle	1.2 Miles	Long-Term	Reversible Lanes and Left-turn signal modifications	\$2,400,000	High Priority
R	New Holt Road	KY 1286 to US 60	1.00 Miles	Long-Term	Major Widening – add one lane each direction with bike lanes and sidewalks	\$16,800,000	High Priority
S	Clarks River Ferry Road	Under US 60X	0.03 Miles	Short-Term	Road Closure – Add Guardrail, Signage, and Striping	\$10,000	High Priority

Table ES-3: Recommended Medium Priority Improvement Concepts

ID	Route	Location	Length	Short-Term or Long-Term	Improvement Type	2018 Cost Estimate (All Phases)	Priority
B1 and B2	Joe Clifton Drive (US 45)	Jackson Street to Ross Avenue	1.04 Miles	Short-Term	Road Diet – one 12.5-foot lane in each direction and a 15-foot two-way left-turn lane	\$600,000	Medium Priority
					Road Diet – one 10.5-foot lane in each direction, an 11-foot TWLTL, and a 4-foot bike lane in each direction		
F	Paducah Convention Center Entrance (US 45X/US 60X)	Martin Luther King Jr Drive and Park Avenue at Convention Center Entrance	0.3 Miles	Long-Term	Intersection Reconfiguration – Roundabout at Park Avenue, Martin Luther King Jr. Drive, 3rd Street, 4th Street, and Convention Center Entrance	\$11,200,000	Medium Priority
G1 and G2	3rd Street and 4th Street (US 45X and US 60X)	5th Street to Adams Street	0.8 Miles	Short-Term	Pavement Striping to delineate on-street parking and provide a bike lane	\$700,000	Medium Priority
				Long-Term	Two-Way Conversion	\$1,600,000	Medium Priority
H	Southern Split (US 60X)	Adams Street to Tennessee Street	0.2 Miles	Long-Term	Intersection Reconfiguration – Roundabout at 3rd Street, 4th Street, and US 60X	\$2,900,000	Medium Priority
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Westbound Jackson Street	9.2 Miles	Long-Term	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62) (MP 9.2)	\$4,920,000	Medium Priority
Q	KY 731 including Intersections at Broadway Street	KY 731 from US 62 to Broadway Street	0.45 Miles	Long-Term	Intersection Reconfiguration with drainage improvements, pedestrian accommodations, and access management	\$17,000,000	Medium Priority

Table ES-4: Recommended Low Priority Improvement Concepts

ID	Route	Location	Length	Short-Term or Long-Term	Improvement Type	2018 Cost Estimate (All Phases)	Priority
D	H C Mathis Drive (US 45)	Joe Clifton Drive to US 60	0.24 Miles	Short-Term	Road Diet – one 11-foot lane in each direction and a 14-foot two-way left-turn lane	\$150,000	Low Priority
L1 and L2	Berger Road (KY 1310)	US 45 to KY 994	1.02 Miles	Long-Term	Sidewalk on one side Reconstruction	\$4,920,000 \$16,600,000	Low Priority
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Westbound Jackson Street	9.2 Miles	Long-Term	Right Turn Lane on westbound Jackson Street to northbound KY 731	\$4,920,000	Low Priority
P	Cairo Road (KY 305)	Charter Oak Drive to Commerce Drive	1.45 Miles	Long-Term	Major Widening and Reconstruction	\$19,000,000	Low Priority



FINAL REPORT

Paducah Small Urban Area Study



Kentucky Transportation Cabinet
Central Office, Division of Planning
Highway District 1, Paducah

In partnership with:



May 2019

1.0 INTRODUCTION

The Kentucky Transportation Cabinet (KYTC) initiated a Small Urban Area (SUA) study for the city of Paducah, Kentucky in McCracken County. The purpose of the study was to identify and examine transportation issues related to safety and congestion in the city and the surrounding area. The study's focus and primary goal was to determine the need for and preliminary scope of transportation improvements which the KYTC, City of Paducah, McCracken County, and/or private developers can quickly and effectively implement at both an individual intersection level and at an area-wide level. The study also sought to address long-term concerns by examining the future transportation needs and determining options for future improvement projects.

The KYTC Division of Planning conducts SUA transportation studies in Kentucky for areas with populations of 5,000 to 50,000. A SUA study provides a thorough examination of an area's transportation network, including an analysis of existing and future traffic conditions, with the goal of identifying needs and potential solutions to provide a more efficient transportation network.

The City of Paducah requested the development of an urban transportation study for the Paducah area, as the last Paducah-McCracken County Transportation Study was completed in 2002. This SUA planning study was funded with Federal Statewide Planning and Research (SPR) funds. Future planning, design, right-of-way, utility, and construction phases for any projects identified are not included in Kentucky's FY 2018 – FY 2024 Highway Plan.

1.1 STUDY AREA

The study area includes the Paducah incorporated limits and surrounding area, which is a little over 91 square miles, as shown in **Figure 1**. There are several planned and committed transportation improvements in the study area from Kentucky's FY 2018 – FY 2024 Highway Plan and Continuous Highway Analysis Framework (CHAF) database that were sponsored in the Strategic Highway Investment Formula for Tomorrow (SHIFT) program, also shown in **Figure 1**.

Paducah SUA Study Area

- 25,000 Paducah Residents
- Largest Urban Area in KYTC District 1

With an area of 268 square miles, McCracken County is the 85th largest county in Kentucky. Population projections provided by the Kentucky State Data Center and the US Census Bureau show McCracken County is the 12th most populous county in Kentucky with a current population of 65,385 and is anticipated to experience a 1.7 percent decrease in population from 2017 to 2040. Population projections are not available for individual cities, but Paducah's current population of 24,941 is essentially unchanged from its 2010 Census estimate of 25,024 and down slightly from 26,300 in the 2000 Census. Paducah is the largest urban area in KYTC District 1. Although I-24 runs through the study area, interstate analysis, including analysis of interstate ramps, is not included in the scope of this study. Developing potential improvement options on interstates and interstate ramps requires more in-depth analysis than an SUA can provide, as well as requiring concurrence from the Federal Highway Administration.

1.2 STUDY GOALS

The Paducah SUA study has been conducted under the direction of KYTC District 1 and the KYTC Division of Planning. The study examined existing transportation conditions in terms of both safety and operational characteristics. Following the analysis of these characteristics, the study recommends a list of transportation improvement concepts to address existing and long-term transportation needs for this portion of McCracken County. The basic work items accomplished under the transportation study include the following:

- Review previous planning documents and committed transportation projects.
- Collect data and analyze the existing transportation system.
- Update the Paducah/McCracken County Regional Travel Demand Model.
- Develop traffic forecast to analyze anticipated future conditions.
- Develop recommended improvement concepts, cost estimates, and strategies.
- Coordination with KYTC, City of Paducah, Purchase Area Development District (PADD), McCracken County staff, and by the Paducah SUA Advisory Committee, made up of local officials, emergency responders, transit, and other stakeholders.
- Disseminate information, gather input, and identify needs and goals during the public involvement process.
- Document study.

2.0 EXISTING CONDITIONS

Existing transportation network conditions are examined in the following sections. The information compiled includes roadway facilities and geometrics, crash history, and traffic volumes within the study area. Data for this section were collected from KYTC's Highway Information System (HIS) database, the Paducah/McCracken County Regional Travel Demand Model, and from field review.

2.1 ROADWAY SYSTEMS

Functional classification is the grouping of roads, streets, and highways into integrated systems ranked by the level of mobility for through movements and access to adjoining land. This grouping acknowledges that roads serve multiple functions and it provides a basis for comparing roads fairly. Functional classification can be used for, but is not limited to, the following purposes:

- Provide a framework for highways serving mobility and connecting regions and cities within a state.

- Provide a basis for assigning jurisdictional responsibility according to the roadway's importance.
- Provide a basis for development of minimum design standards according to function.
- Provide a basis for evaluating present and future needs.
- Provide a basis for allocation of limited financial resources.

Figure 2 shows the functional classification of roadways within the study area. In the central portion, I-24 provides east-west regional connectivity, stretching from Illinois to Tennessee. There are four interchanges along I-24 within the study area, at KY 305 (Cairo Road, Exit 3), US 60 (Hinkleville Road, Exit 4), US 45 (Lone Oak Road, Exit 7), and KY 1954 (Husband Road, Exit 11).

Other important roadways, which are functionally classified as Principal Arterials, include the following:

- US 60 / US 60X (Hinkleville Road/Park Avenue/MLK Jr. Drive/3rd Street/4th Street/Wayne Sullivan Drive) – This route provides an east-west connection from rural McCracken County to downtown Paducah, providing access to the Kentucky Oaks Mall and the Paducah-McCracken County Riverport on the Ohio River.
- US 62 (Irvin Cobb Drive) – This route also provides an east-west connection from rural McCracken County to downtown Paducah to the south of US 60.
- US 45 (Lone Oak Road/Jackson Street/Joe Clifton Drive) – This route provides a north-south connection to the growing Lone Oak area south of Paducah and a connection to Illinois via the Irving S Cobb Bridge.



North 4th Street (US 60X)

Figure 3 depicts the truck weight classifications of the study area roadways.

In compliance with the Surface Transportation Assistance Act of 1982 (STAA), Kentucky has established a network of highways on which commercial vehicles with increased dimensions may operate. These "STAA" vehicles include semi-tractor trailers with 53-foot long trailers and single-unit trucks with a total length of 45 feet. These designated truck routes are shown on **Figure 4**. I-24, US 45, and US 62 are federally-designated truck routes. US 60 is a state-designated truck route.

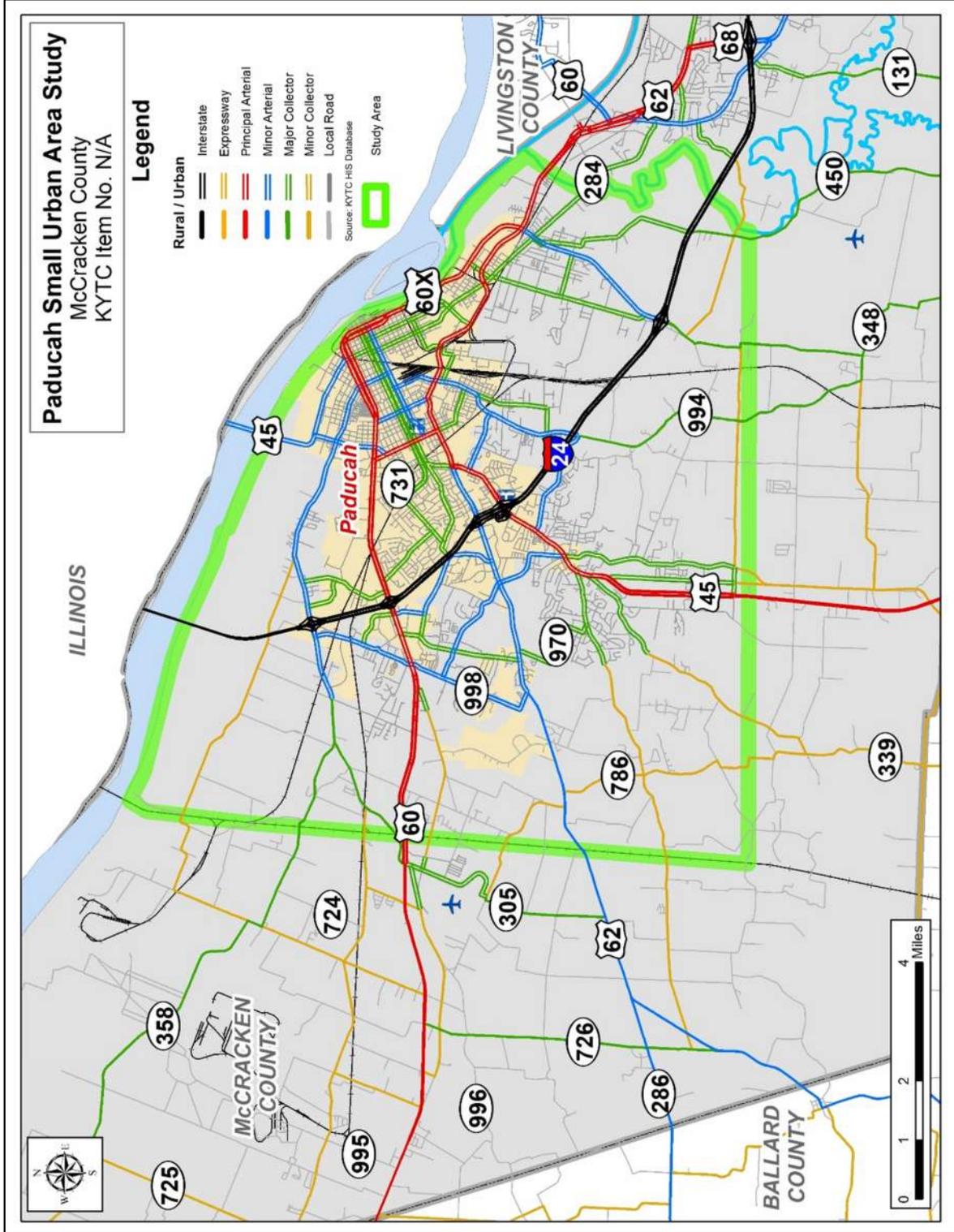


Figure 2: Functional Classification of Study Area Roadways

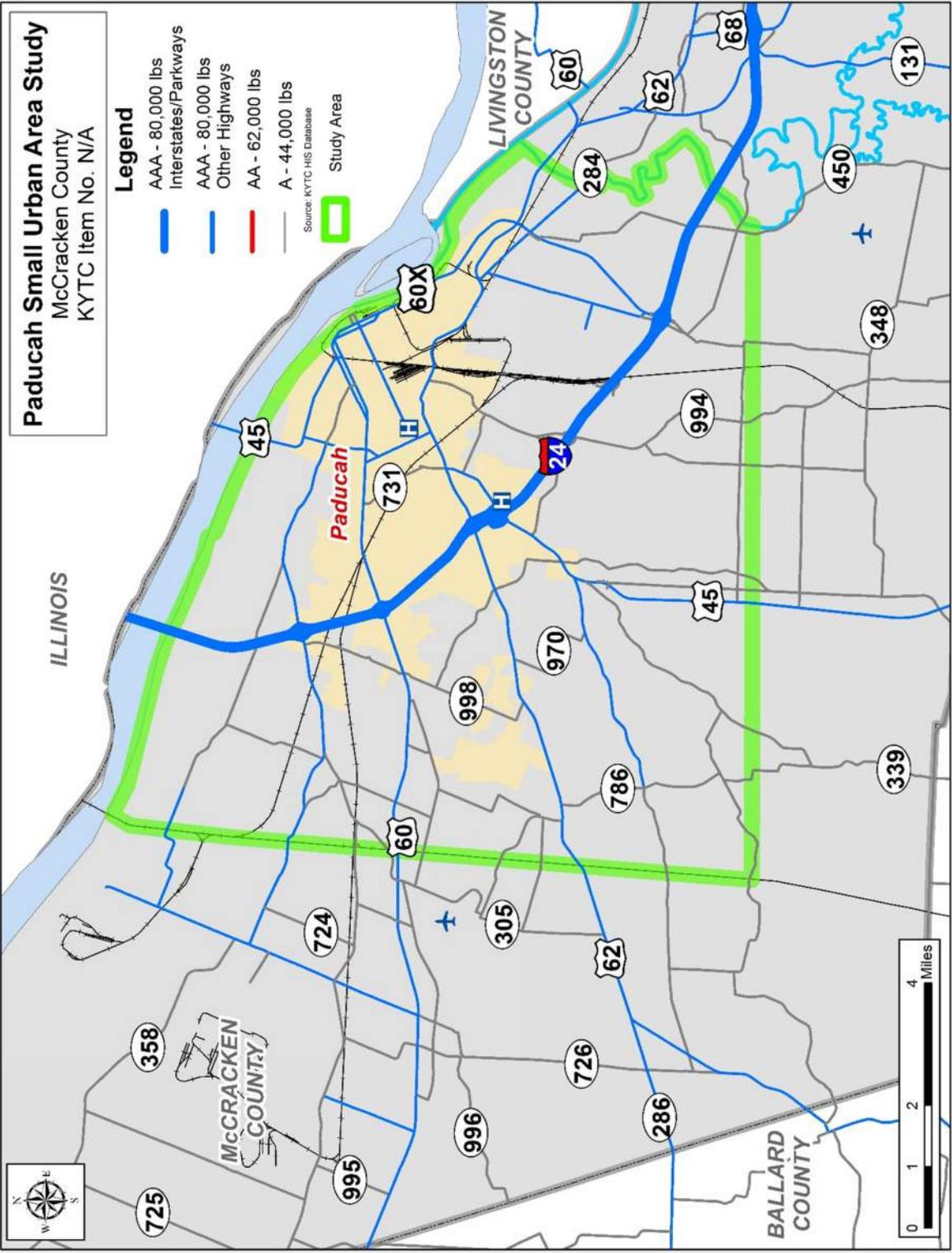


Figure 3: Truck Weight Classifications

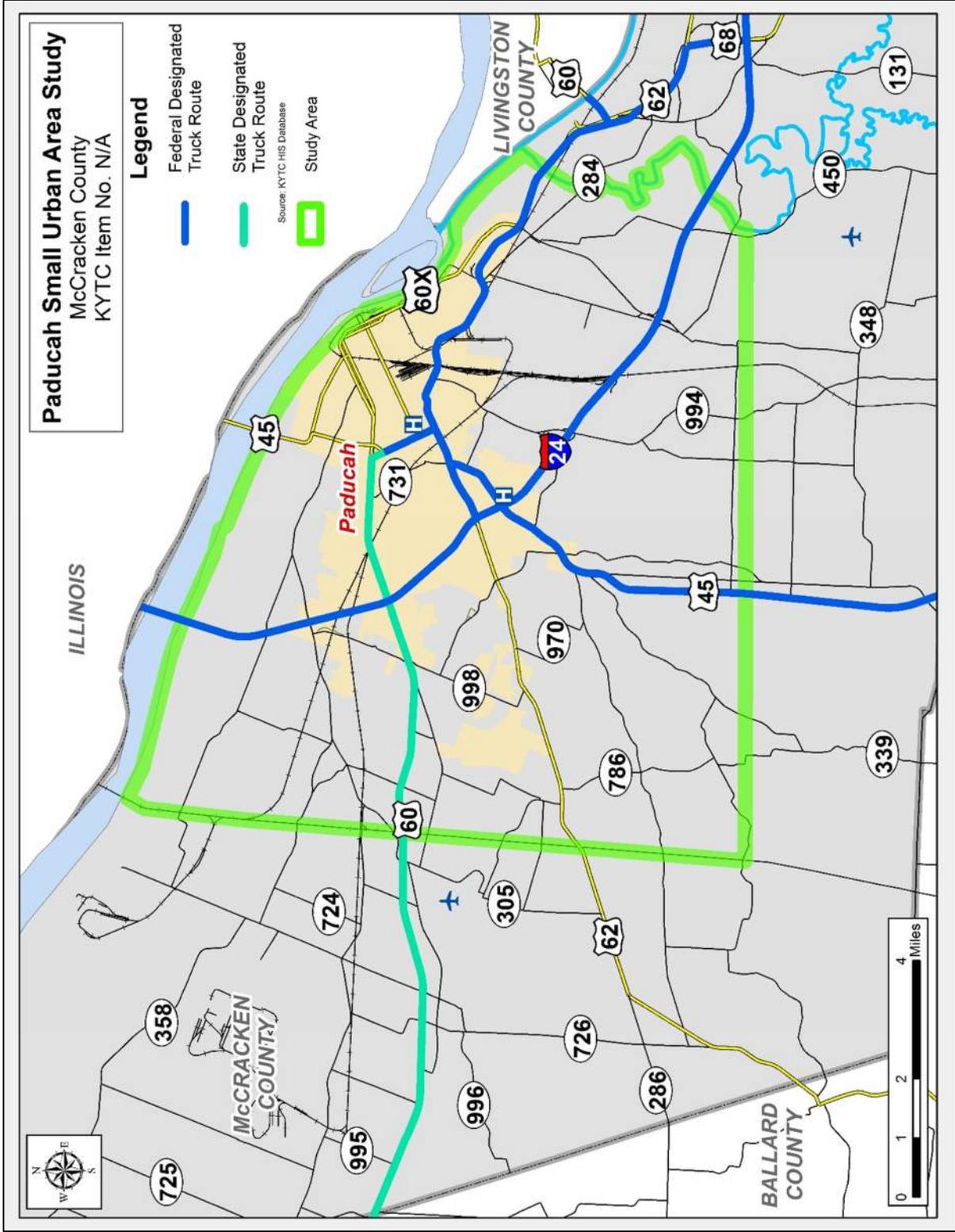


Figure 4: Designated Truck Routes

2.2 ROADWAY GEOMETRIC CONDITIONS

The current number of lanes and estimated lane widths along study area roadways are shown on **Figure 5**. Current KYTC design guidelines suggest a minimum of 11-foot-wide lanes on arterials and collector roadways. Several study area arterials have less than 11-foot-wide lanes, as shown in **Table 1**.

Table 1: Study Area Arterials with Less than 11-foot Wide Lanes

Route	From	To
US 45 (Lone Oak Road)	KY 339 (Clinton Road)	I-24
US 45 (Joe Clifton Drive)	US 45 / US 60 (Jackson Street)	US 60 (Park Avenue)
US 45 (H.C. Mathis Drive)	US 45 (Joe Clifton Drive)	US 45X (North 8th Street)
US 45 (Paducah-Brookport Road)	H.C. Mathis Drive	Irvin S. Cobb Bridge
US 45X (Kentucky Avenue)	South 21st Street	South 4th Street
US 45X (North 8th Street)	US 60X (Park Avenue)	H.C. Mathis Drive
US 45 / US 60 (Jackson Street)	US 45 (Lone Oak Road)	KY 994 (Mayfield Paducah Road)
US 62 (Blandville Road)	Mayfield Metropolis Road	KY 998 (Olivet Church Road)
US 62 (Irvin Cobb Drive)	Broad Street	Bridge Street
US 62 (Alben Barkley Drive)	I-24	US 45 (Lone Oak Road)
KY 994 (Old Mayfield Road)	Broyles Avenue	Schneidman Road
KY 998 (Olivet Church Road)	US 62 (Blandville Road)	US 60 (Hinkleville Road)
KY 1286 (Friendship Road)	US 45 (Lone Oak Road)	KY 998 (Olivet Church Road)
KY 1310 (Berger Road)	US 45 (Lone Oak Road)	KY 994 (Old Mayfield Road)
KY 3074 (Bleich Road)	US 45 (Lone Oak Road)	KY 994 (Old Mayfield Road)

Estimated shoulder widths are shown on **Figure 6**. Most of the study area arterial routes have shoulders less than eight feet wide, the KYTC recommended minimum for such roadways. Many downtown streets have curb and gutter.

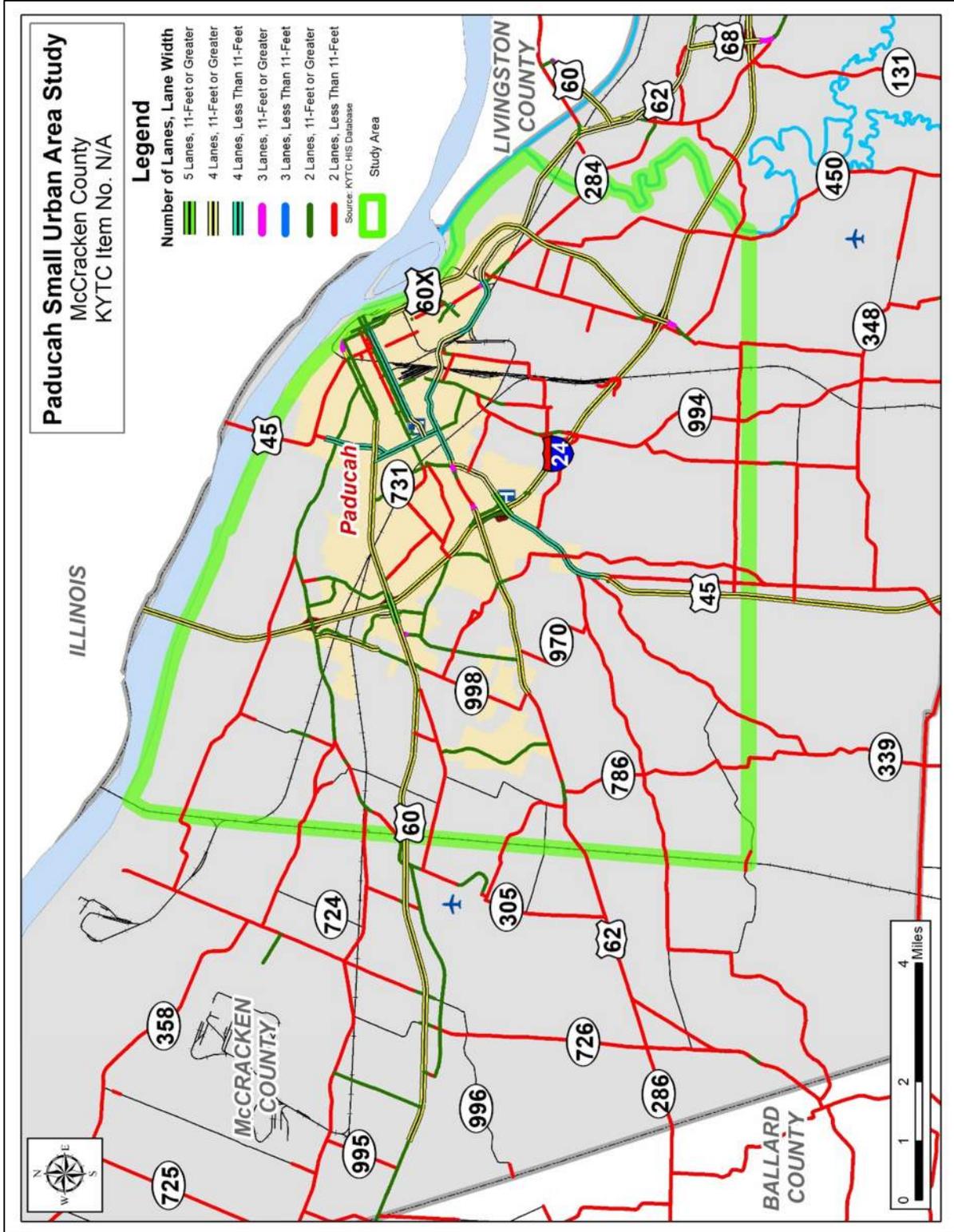


Figure 5: Number of Lanes and Lane Width

2.3 EXISTING TRAFFIC VOLUMES

The most current average daily traffic (ADT) volumes from KYTC's traffic count stations are shown on **Figure 7**. ADT volumes on state-maintained routes in the study area range from under 100 vehicles per day (VPD) to 28,500 VPD on US 60 (Hinkleville Road) near the I-24 interchange.

To evaluate the adequacy of roadway segments, existing ADT volumes were compared to the road's theoretical capacity. This is the preferred KYTC methodology for evaluating the adequacy of roadway segments. A volume-to-capacity ratio (V/C) represents proportion of traffic demand for using the roadway for the designated time period in relation to its capacity to serve the demand.

The Volume to Capacity (V/C) Ratio
reflects the percentage of a road's carrying capacity that is currently utilized.

	Rural	Urban
0.9 <	A V/C Ratio over 0.9 indicates that the roadway is carrying more traffic than it is designated to carry	A V/C Ratio over 1.0 indicates that the roadway is carrying more traffic than it is designated to carry
0.9 >		1.0 <
		1.0 >

The threshold V/C ratio is 1.0 for urban areas. A V/C greater than 1.0 indicates the road is operating above its design capacity and may be congested. After performing a V/C analysis using Highway Capacity Manual (HCM) procedures, portions of US 60, US 62, US 45, and KY 305 have a V/C greater than 1.0, indicating that mitigation measures (including the possibility of constructing additional lanes) may be warranted. All other roadway segments currently operate at less than capacity with a V/C less than 1.0, as shown in **Figure 8**.

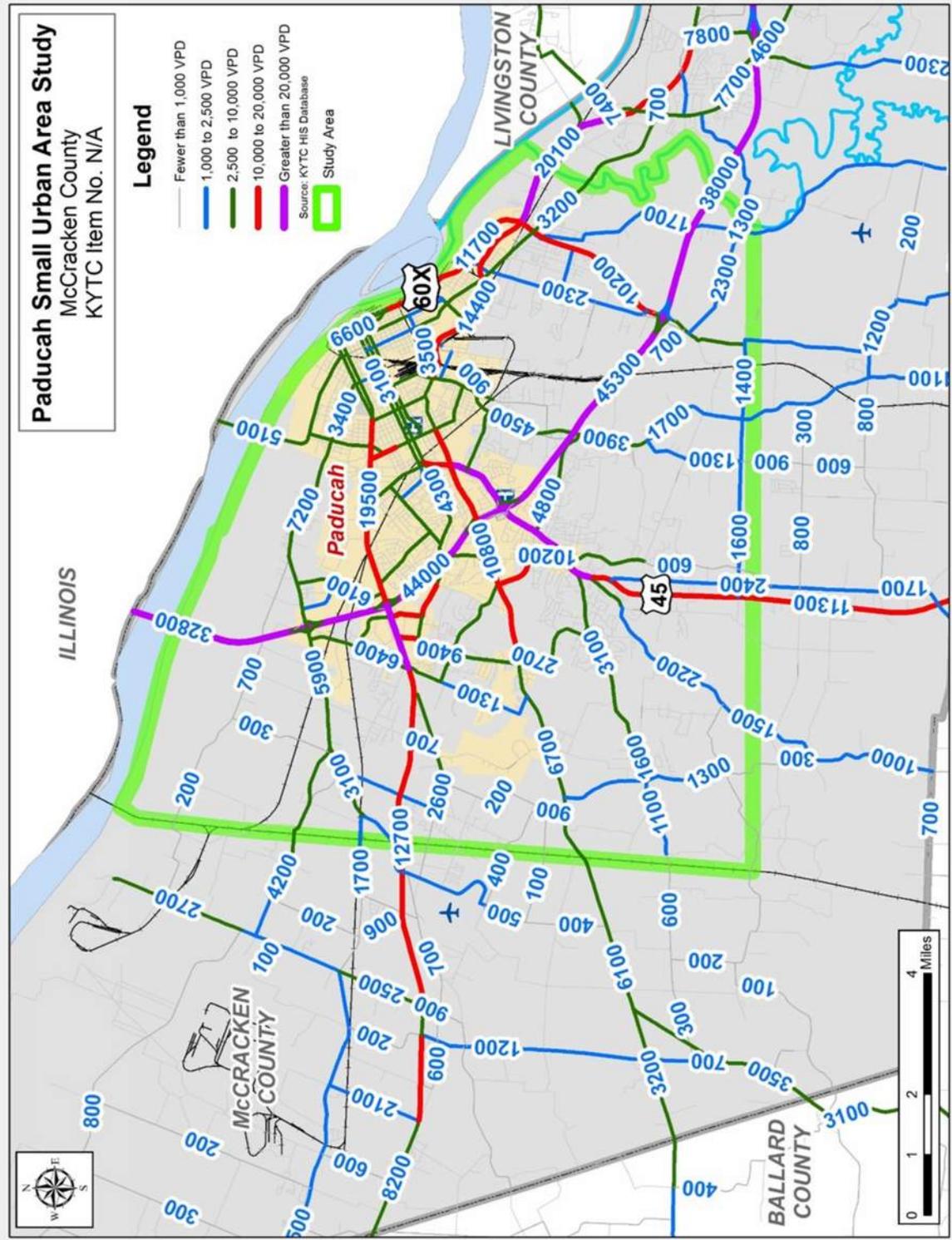


Figure 7: Average Daily Traffic (ADT) Volumes from KYTC's Traffic Count Stations

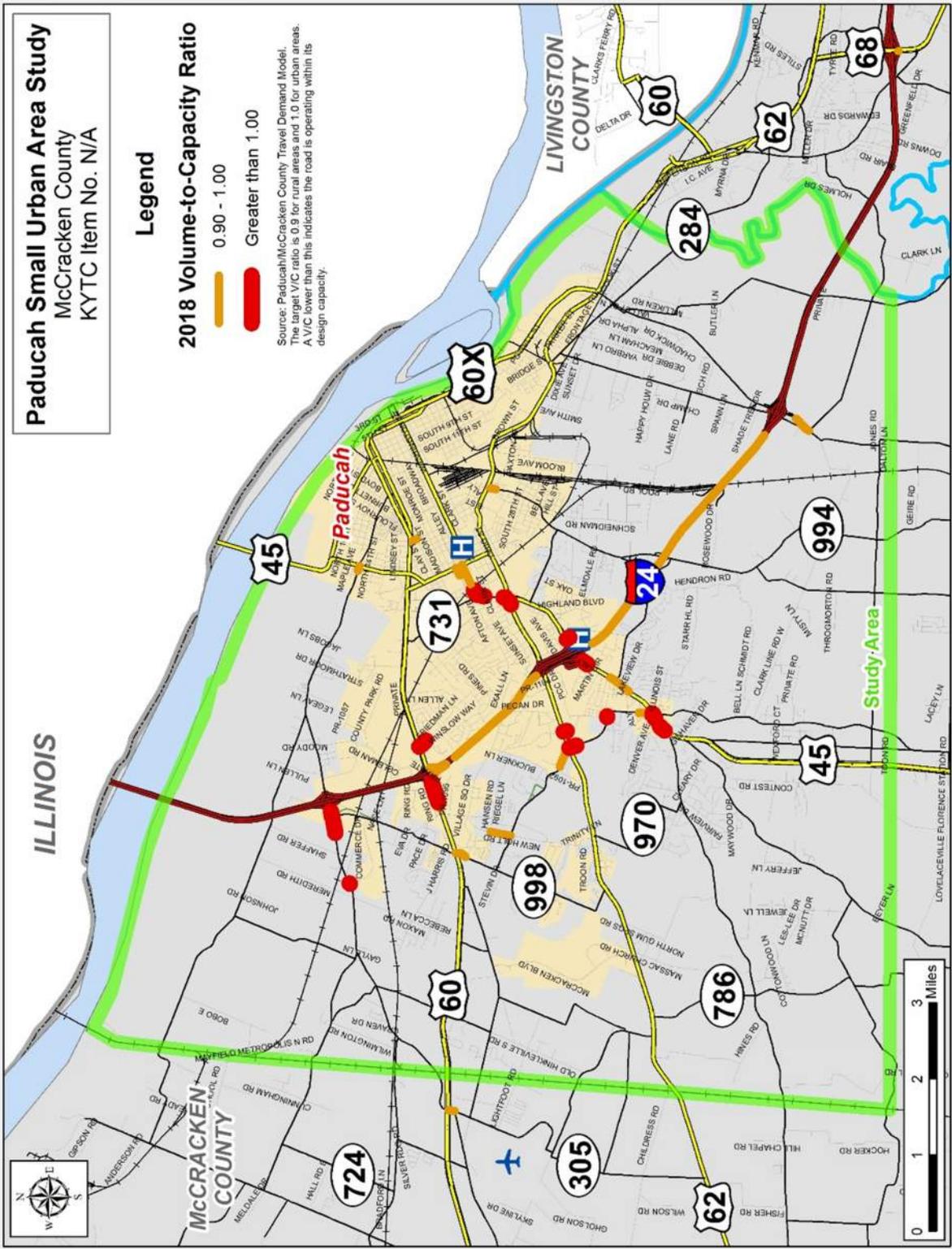


Figure 8: 2018 Volume-to-Capacity Ratios

2.4 CRASH HISTORY

Crash data were collected along existing roadways within the study area for a three-year period between January 1, 2015 and December 31, 2017. A total of 7,376 crashes were reported within the study area, as shown in **Figure 9**. The crash records and locations are included in **Appendix A**.

Crashes were geospatially referenced and compared to statewide data to identify locations experiencing above-average crash rates. The methodology is defined in the Kentucky Transportation Center research report *Analysis of Traffic Crash Data in Kentucky* (2012 - 2016)¹. As defined in the methodology report,

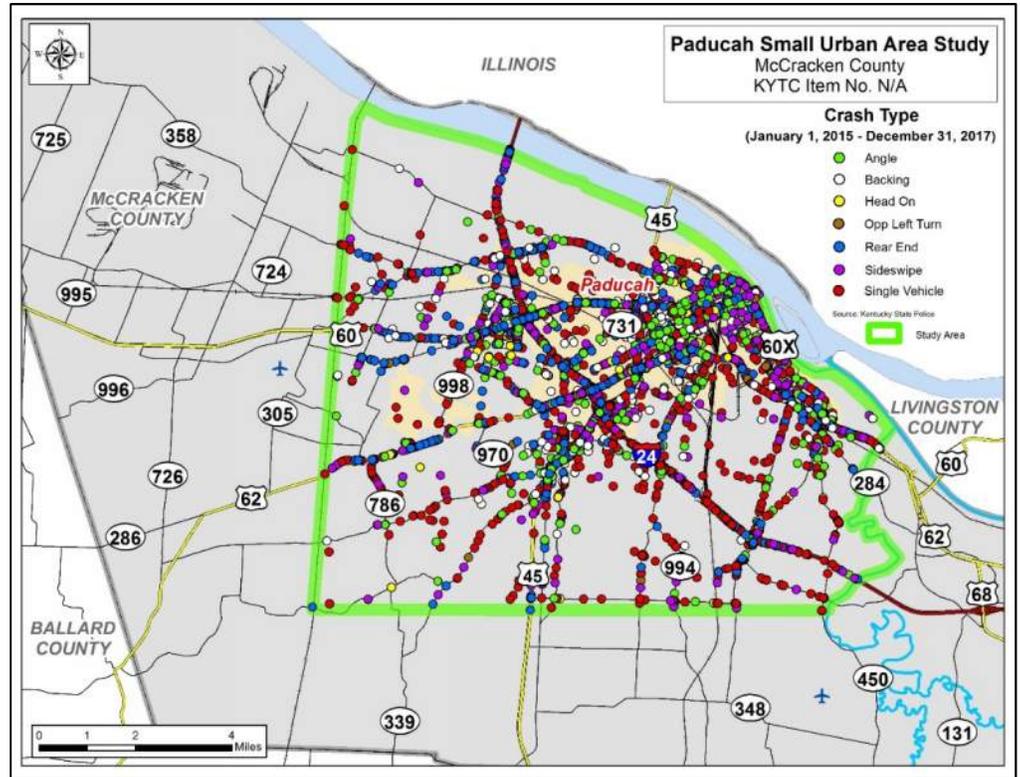


Figure 9: Study Area Crash History

segments vary in length and are divided along roadways where geometry or traffic volumes change. For each segment, analysts examined the number of crashes, traffic volume,

High CRF Locations

- CRF > 1.0 indicates crashes are likely not occurring at random
- 34 segments with a CRF > 1.0

rural/urban, number of lanes, and segment length to determine the critical rate factor (CRF). The CRF is one measure of the safety of a road, expressed as a ratio of the crash rate at the location compared to the critical crash rate for similar roadways throughout the state. A CRF of 1.00 or greater may indicate that crashes could be occurring due to circumstances not attributed to random occurrence.

Segment locations with CRF values greater than 1.0 are shown in **Figure 10** and listed in **Table 2**.

¹ Green, E. R., et al. *Analysis of Traffic Crash Data in Kentucky*. KTC-15-21, September, 2017.

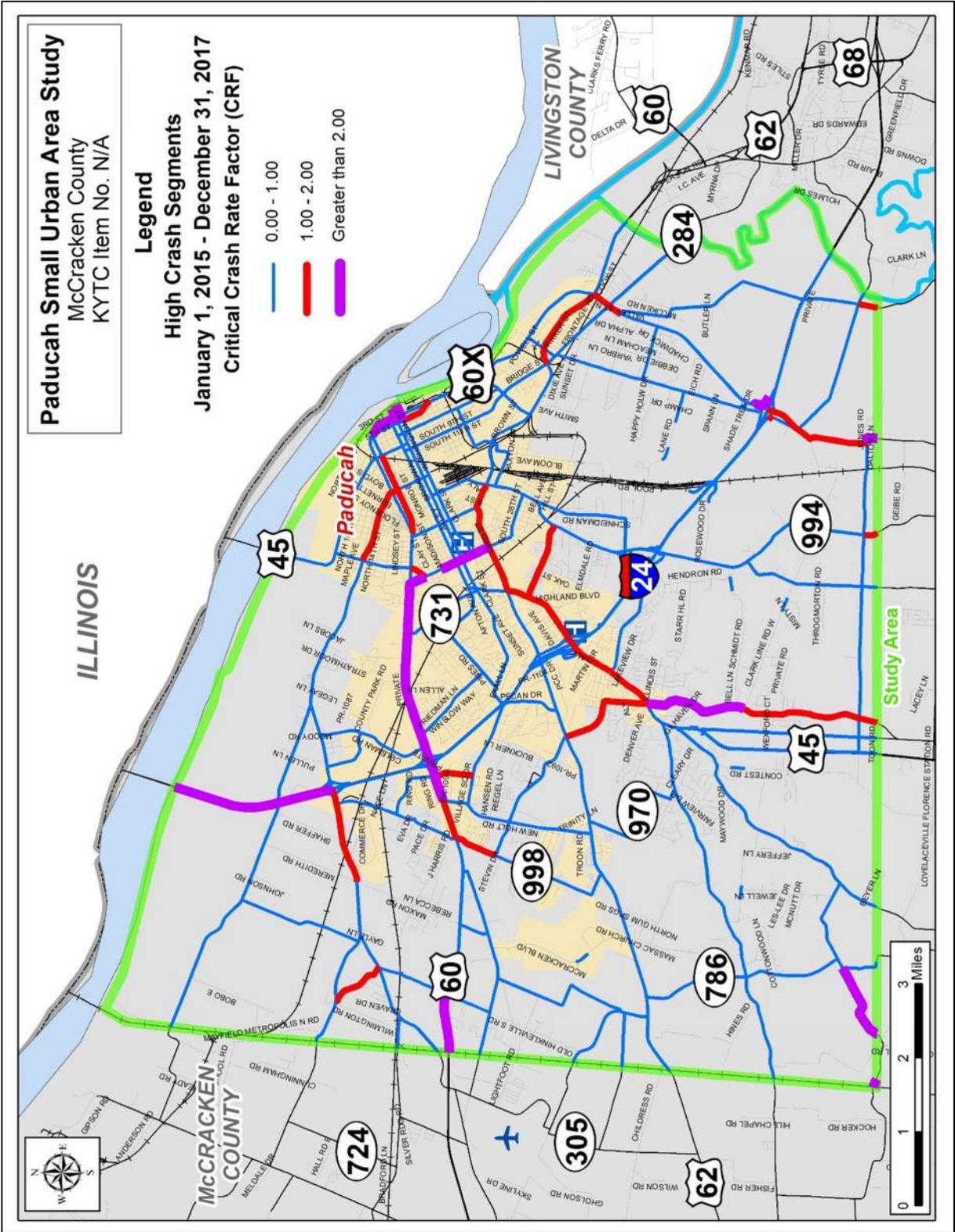


Figure 10: Critical Crash Rate Factors (CRF)

Table 2: High CRF Segments

Route	Begin Milepoint	End Milepoint	ADT	Number of Crashes	CRF
US 60	6.172	7.454	12,700	134	5.96
KY 1954	0.000	2.142	1,300	17	5.04
KY 3238	0.000	0.383	400	12	4.19
KY 6038	0.000	0.301	100	5	4.15
US 60	10.686	13.402	19,500	311	3.51
US 60	10.13	10.686	28,500	319	2.81
US 45X	2.039	2.608	4,700	67	2.68
KY 1286	2.230	3.623	2,600	26	2.57
I-24	0.000	2.956	32,800	294	2.49
US 45	9.870	10.572	7,500	96	2.19
KY 6036	0.000	0.055	800	2	1.80
KY 1565	5.529	6.310	200	4	1.80
US 60	9.587	10.130	21,500	152	1.74
US 45	10.806	11.052	5,300	24	1.73
US 60X	1.823	2.230	7,300	49	1.64
KY 998	1.718	2.314	5,700	15	1.57
US 60	13.402	14.300	8,800	103	1.54
KY 1286	3.623	5.000	10,200	96	1.50
US 45	7.367	8.018	26,700	119	1.50
KY 450	0.000	4.282	1,500	9	1.48
KY 1286	0.000	2.230	600	7	1.48
US 60	16.324	17.552	14,600	116	1.45
US 60X	0.698	1.823	5,200	70	1.43
KY 1954	2.142	3.634	6,400	29	1.37
James Sanders Blvd.	0.864	1.394	13,400	23	1.36
US 45	9.224	9.870	18,700	116	1.27
US 45	8.018	9.224	20,100	207	1.24
US 45	6.699	7.367	24,500	139	1.20
KY 305	11.851	12.951	3,400	25	1.16
KY 994	1.532	3.804	1,300	5	1.16
KY 305	7.252	8.565	5,900	65	1.09
KY 1310	0.000	1.055	3,000	29	1.02
KY 1954	6.076	6.537	12,100	14	1.01

3.0 ENVIRONMENTAL OVERVIEW

An environmental overview was performed to identify environmental resources of significance, potential jurisdictional features, and other environmental areas of concern that should be considered during project development. Natural and human environment resources within the study area were identified from a literature/database review, as well as a windshield survey. The complete document is included in **Appendix B**.

More detailed environmental studies may be required as individual projects are further developed. If a future project is federally-funded, the National Environmental Policy Act (NEPA) requires that potential environmental impacts regarding jurisdictional wetlands, archaeological sites, cultural historic sites, and federally endangered species must be avoided if possible. If not, then impact minimization efforts are required. Mitigation for unavoidable impacts may also be necessary.

3.1 NATURAL ENVIRONMENT

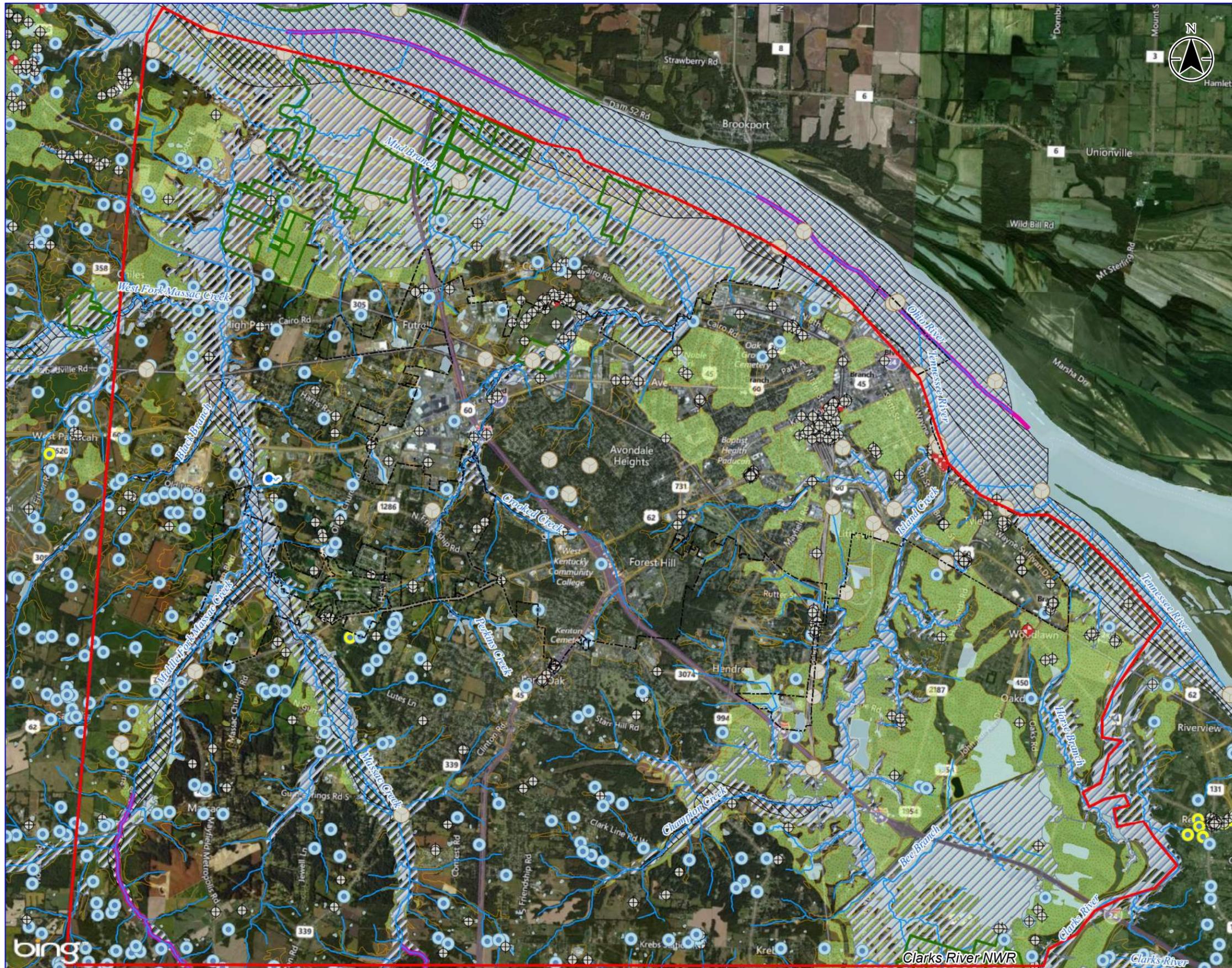
Natural environment resources include surface streams, floodplains, wetlands, ponds, groundwater, threatened, endangered, and special concern species and habitat, woodland and terrestrial areas, and parks. Through a literature/database review and field reconnaissance, potentially sensitive resources that affect the natural environment were identified in the study area and are discussed in the following sections and presented in **Figure 11**.

3.1.1 USGS Streams

Eleven US Geological Survey (USGS) named streams (Massac Creek, Middle Fork Massac Creek, West Fork Massac Creek, Champion Creek, and seven additional USGS named streams) and 155 unnamed streams are mapped within the study area. Two streams in the study area are designated as Special Use Waters as defined by the Kentucky Division of Water (KDOW): Middle Fork Massac Creek and an unnamed tributary to Massac Creek, both of which are designated as Outstanding State Resource Waters (OSRW). Ohio River is designated as an OSRW for known Threatened and Endangered Species (T&E) presence along most of the northern boundary of the study area; Clarks River along the east boundary is a candidate OSRW for T&E. Watersheds in the study area, from north to south, respectively, include Park City, Little Beaver Creek-Beaver Creek, South Fork Beaver Creek, and Boyd's Creek-Skaggs Creek.

The study area crosses two Watershed Cataloging Units: Lower Ohio (HUC-8: 05140206) and Lower Tennessee (HUC-8: 06040006). No KDOW designated Priority Watersheds are present in the study area. The study area lies within two Source Water Assessment and Protection Program (SWAPP) areas; the US Enrichment Corporation (Lower Ohio watershed) covers the study area west of US 45, and the Paducah Water Works (Lower Tennessee watershed) east of US 45.

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Legend

- Study Area
- Streams (NHD)
- OSRW (KDOW)
- NWI Wetland (USFWS)
- T&E Record (KSNPC)
- Spring (KGS)
- Water Wells (KGS)**
- Domestic
- Public
- + Remediation
- Other
- NFHL (FEMA)**
- Floodway
- 100-Year Floodplain
- Hydic Soils (USDA)**
- Partial
- All
- Conservation Easement (NCED)
- City Boundary



- Notes**
1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base features: see Sources and References
 3. Base Imagery: Bing map services, (C) Microsoft Corp 2018.



Project Location: City of Paducah and surrounding area, McCracken County, Kentucky
 178556010 LA#6
 Prepared by BL on 2018-06-26

Client/Project: KYTC-DEA, KYTC District 1
 Environmental Overview
 Paducah Small Urban Area Study, KYTC Item #NA

Figure No. **11**

Title: **Environmental Footprint
 Natural Environment**

3.1.2 Other Streams

Additional surface streams are likely present in the study area and would most likely consist of small, headwater streams and roadside drainage features.

3.1.3 Wetlands

There are 611 National Wetlands Inventory (NWI) wetlands mapped in the study area, with the highest number being ponds (56 percent by number).

Hydric soils occur across approximately 54 percent of the study area, concentrated in the Ohio River and Massac Creek floodplains and all areas east of Island Creek to Clarks River. This soil type indicates the potential for additional non-NWI mapped wetlands to be present in the study area.

3.1.4 Ponds

There are 356 ponds mapped within the study area. Most occur in agricultural areas and are less than two acres in size.

3.1.5 United States Fish and Wildlife Service Species List

The United States Fish and Wildlife Service (USFWS) lists three species of threatened or endangered mammals have the potential to appear within the study area: gray bat (endangered), Indiana bat (endangered), and northern long-eared bat (threatened). Ten species of endangered mussels have the potential to appear within the study area: clubshell, fanshell, fat pocketbook, northern riffleshell, orangefoot pimpleback, purple cat's paw, ring pink, rough pigtoe, sheepsnose and spectaclecase. One species of threatened mussel, the rabbitsfoot, has the potential to appear within the study area. One species of endangered bird, the least tern, has the potential to appear within the study area.

The northeastern half of the study area (north and east of I-24) lies within a Known Summer 1 habitat designated area for Indiana bat and northern long-eared bat. Potential summer roost and foraging habitat for Indiana bat and northern long-eared bat (woodlots and riparian woodlands) is present in scattered woodlots.

Six of the 11 mussel species listed for the project area are considered medium to large river species and likely restricted to the Ohio and Tennessee rivers; the remaining five mussel species may be found in large creeks to small rivers which are present in and along the boundaries of the study area.

Least tern habitat includes foraging and nesting on sparsely vegetated and infrequently flooded sandbars. Potential habitat is most likely restricted to the banks of the Ohio River.

3.1.6 Kentucky Department of Fish and Wildlife Resources Species List

The Kentucky Department of Fish and Wildlife Resources (KDFWR) lists 56 additional (beyond the nine species listed by the USFWS in Section 3.1.5) State Threatened, Endangered, and Special Concern species as occurring (either recently or historically) in McCracken County. These include:

- Sixteen state-endangered species (six birds, four fish, three mussels, two crustaceans, one mammal)
- Sixteen state-threatened species (seven birds, six fish, one insect, one mammal, one reptile)
- Twenty-four state-special concern species (nine birds, four gastropods, four fish, two amphibians, two reptiles, one mussel, one insect, one mammal)

3.1.7 KSNPC Species Database

The Kentucky State Nature Preserves Commission (KSNPC) provided 54 records for 38 federal or state endangered, threatened, or special concern listed species and communities within one-mile of the study area. These include:

- Eleven plants (three endangered, three threatened, two species of concern, one historic, two unspecified)
- Nine mussels (seven endangered, two species of concern)
- Five birds (one endangered, three species of concern, one unspecified)
- Four fish (one threatened, three species of concern)
- Three insects (two threatened, one species of concern)
- Three mammals (two endangered, one species of concern)
- One each amphibian (historic), gastropod (species of concern), and reptile (threatened)

KSNPC data indicates critical habitat for the federally threatened rabbitsfoot mussel has been designated in the Ohio River and the Tennessee River along the border of the study area. The Clarks River National Wildlife Sanctuary, managed by USFWS, extends into the southeast corner of the study area.

3.1.8 Groundwater

There are 745 water wells within the study area, of which 411 are listed as monitoring wells, 190 are domestic use, 35 are listed as remediation use, and one is listed as public use. One spring is mapped within the study area, an unnamed spring with intermittent flow located to the east of Massac Creek south of US 60. No wellhead protection areas occur in the study area.

3.1.9 Karst

The project area is underlain by bedrock with no potential for karst development, with no sinkholes mapped within the study area or vicinity.

3.1.10 Floodplain

Federal Emergency Management Agency (FEMA) 100-Year floodplains are located within the study area at multiple locations, including: Ohio River west of Paducah, Massac Creek and its main tributaries extending through the study area, Perkins Creek (and Crooked Creek tributary), Island Creek and tributaries, Horse Branch, and Clarks River. A large expanse of area mapped as floodplain is present in the southeast corner of the study area, between Oaks Road and John Puryear Drive.



Ohio River Floodwall

3.1.11 Floodway

FEMA designated floodway occurs at several locations in the study area, including Massac Creek south of the railroad crossing, Middle Fork Massac Creek to its confluence, West Fork Massac Creek upstream of Wilmington Road, Perkins Creek (and Crooked Creek tributary) upstream of North 13th Street, Champion Creek, Ohio River, and Tennessee River.

3.1.12 Farmland

The majority of the soils in the study area and vicinity are identified as Prime Farmland (21 percent), Farmland of Statewide Importance (8 percent), and Prime Farmland if drained or protected from flooding (41 percent). Extensive portions of the study area are currently utilized as hay/pasture and cultivated crop fields in the floodplains and the west and south portions.

3.1.13 Section 4(f)

Twenty-one parks are located in the study area, including 18 city parks and three county parks. The Perkins Creek Nature Preserve, operated by the City of Paducah and a small portion of the Clarks River National Wildlife Refuge, operated by the USFWS are also located within the study area.

3.1.14 Section 6(f)

Based on historic (2013) Land and Water Conservation Fund (LWCF) records, multiple LWCF properties are present in the study area including Noble Park, Kolb Park, Lone Oak Park, Paxton Park, Stuart Nelson Park, McCracken County Soccer Fields, and Riverfront Park. Additional Section 6(f) resources may be present, as the 2013 list does not include sufficient information to determine precise locations of all fund recipients.

3.1.15 Air Quality

The study area is not located in a non-attainment area for 8-hour ozone (2008 standard) or a maintenance area for PM 2.5 (1997 standard or 2012 standard) for the transportation-related criteria pollutants for which the Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS).

3.1.16 Noise

Noise sensitive land use areas are present throughout the study area, primarily Activity Category "B" and "C" land uses – residential neighborhoods and sport areas, parks, cemeteries, and exterior use areas of libraries, houses of worship, schools, and similar uses.

3.2 HUMAN ENVIRONMENT

Human environment is defined as what we live in and around and what we have built. Through a literature/database review and field reconnaissance, potentially sensitive resources that affect the human environment were identified in the study area and are discussed in the following sections and presented in **Figure 12**.

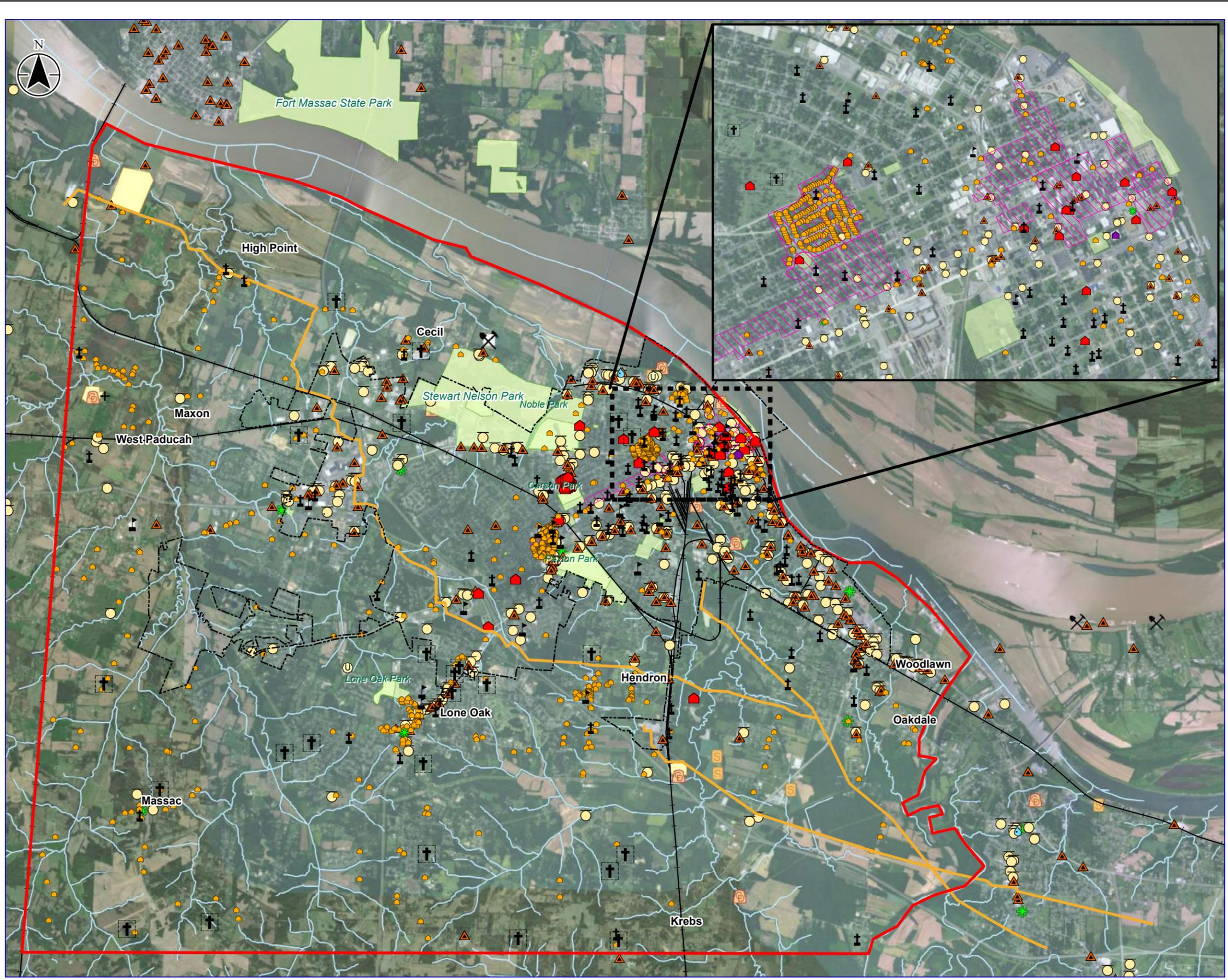
3.2.1 Hazardous Materials

A total of 169 Resource Conservation and Recovery Act (RCRA) records, 29 Aerometric Information Retrieval System (AIRS) records, 10 biennial reporting (BR) records, one Assessment, Cleanup, and Redevelopment Exchange System (ACRES) record, one Toxic Substances Control Act (TSCA) record, nine solid waste landfills, four wastewater treatment plants, and one water treatment plant are present in the study area.

The statewide Underground Storage Tank (UST) database indicates 290 UST sites in the study area.

The Ohio Valley Gravel & Sand mine is active within the study area.

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Legend

- Study Area
- + Cemetery
- * Fire Departments
- + Historic Marker
- + House of Worship
- + School
- + Utility
- Pipeline (NPMS and USGS)
- ▲ HazMat Record (USEPA)
- UST Record (KDWM)
- + Water Treatment Plant (KDOW)
- + Wastewater Treatment Plant (KDWM)
- + Landfill (KDWM)
- Landfill Boundary
- + Quarry (KDNR)
- Park
- Cultural-Historic Sites (KHC)**
- ▲ NRHP Listed
- ▲ NRHP Pending
- ▲ Potentially Historic
- NR Historic District
- + Railroad
- + Streams (NHD)
- City Boundary

0 1 2 Miles
1:80,000 (At original document size of 11x17)

- Notes**
1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base features: see Sources and References
 3. Base Imagery: ESRI.



Project Location
City of Paducah and surrounding area
McCracken County, Kentucky
178556010 LA#6
Prepared by BL on 2018-06-26

Client/Project
KYTC-DEA, KYTC District 1
Environmental Overview
Paducah Small Urban Area Study, KYTC Item #NA

Figure No.
12

Title
**Environmental Footprint
Human Environment**

3.2.2 Socioeconomic Study

Socioeconomic issues pertaining to minority, elderly, disability, and low income (persons living in poverty) populations in the project study area were evaluated and documented by the PADD in a Socioeconomic Study completed in June 2018. A copy of the Socioeconomic Study is found in **Appendix C**. The study area includes portions of Census Tracts 301-311 and 312-316 in McCracken County.

Overall, approximately 16.3 percent of McCracken County population is minority, which is greater than the state percentage of 14.6 percent. Approximately 17.8 percent of the McCracken County population is low income, which is slightly greater than the state percentage of 18.8 percent.

3.2.3 Archaeology

Based on a review of the Kentucky Office of State Archaeology (KOSA) records, 131 archaeological sites are located within the study area. Three of these are listed on the National Register of Historic Places (NRHP), two described as "historic farm/residence" and one as "open habitation w/o mounds". One additional site is listed as Eligible for National Register, described as "open habitation without mounds." Of the remaining recorded archaeological sites, 96 have not had National Register status assessed, 26 do not presently meet NRHP criteria, and five have no record for NRHP status. The number of each type of site listed for the 131 archaeological sites include: two Cemetery, two Earth mound, 22 Historic farm / residence, four Industrial, one Military, one Non-mound earthwork, one Open habitation w/ mounds, 75 Open habitation w/o mounds, 14 Other, eight Undetermined, and one Workshop. Seventy-one prior archaeological surveys are listed as being within the study area.

3.2.4 Historic

Based on a review of publicly available information available from NPS and Kentucky Heritage Council (KHC) records, the following resources were identified:

- Seven National Register Districts
- Twenty National Register of Historic Places
- One site with a Pending National Register status (Paducah City Hall)
- Three sites suggested for inclusion as contributing buildings for National Register Districts
- Six-hundred-fifty-six sites with National Register status undetermined, concentrated in Paducah, and the unincorporated communities of Hendron and Lone Oak

An additional 148 sites were provided as KHC-Coded Properties, indicative of sites of cultural-historic interests that were recorded several decades ago during informal surveys, mostly in rural portions of the study area.

USGS historical topographic mapping depicts one Historical Marker on Wilmington Road south of KY 358, near the western boundary of the study area. No other information regarding this site was found.

3.2.5 Churches

There are 87 houses of worship (church, mosque, synagogue, etc.) identified in the study area from current and historical mapping resources.

3.2.6 Schools

There are 21 school facilities identified in the study area from current and historical mapping resources, including 14 elementary/middle schools, four high schools and four colleges/universities.

3.2.7 Cemeteries

There are 24 cemeteries identified in the study area from current and historical mapping resources, including 17 named cemeteries, such as Oak Grove Cemetery and White Oak Cemetery, and seven unnamed cemeteries.

3.2.8 Public Services

There are multiple public service facilities concentrated in the city center, including:

- Four railroad lines operated by Paducah & Louisville RR cross into/out of the study area
- The Paducah-McCracken County Riverport Authority
- Two Paducah & Louisville RR rail yards are present in the center of Paducah
- One railroad line operated by Illinois Central RR runs along the western boundary of the study area
- Nine fire department stations (Paducah-5 stations, Lone Oak-2 stations, Concord and Farley)



Railroad Crossing Over US 45

3.2.9 Residences and Businesses

Paducah is the single incorporated city in McCracken County, with an estimated 2017 population of 25,024, approximately 38 percent of the population of the county (65,565) as a whole. The top industries for employment in the county include Health Care and Social Assistance, Retail Trade and Accommodations, and Food Services.

4.0 ADVISORY COMMITTEE MEETING NO. 1

Comprehensive stakeholder involvement plays a critical role in the success of a SUA study. The purpose of the public outreach component of the Paducah SUA Study was to bring different groups of people together to identify transportation related issues, needs, and opportunities. The public involvement component of this study was used to:

- Inform and educate stakeholders on the study and its goals
- Gauge the interest in the desire for transportation improvement concepts
- Identify the needs of the study area
- Identify the project issues and goals
- Identify and prioritize potential improvement options



Public involvement during the study was guided by the Paducah SUA Advisory Committee, made up of local public officials, emergency responders, transit agency representatives, and other stakeholders. Invitations to serve on the committee were sent to a diverse array of individuals. Two meetings were held with the Advisory Committee over the course of the study. At these meetings, the project team provided information and listened to local concerns. Summaries for all project meetings are found in **Appendix D**.

The first Advisory Committee Meeting was held on June 27, 2018. The primary goal of the meeting was to present the existing conditions analysis and to get feedback from the Advisory Committee on problem areas before developing improvement concepts. A group exercise was undertaken at the first meeting to provide attendees an opportunity to work with each other to identify existing transportation issues and potential improvements. The committee was divided into small groups and provided maps depicting the study area and asked to identify key areas the study should focus on, referred to as “trouble spots”. **Figure 13** presents the results from the identification of trouble spots related to congestion and **Figure 14** presents the trouble spots related to safety.

The Advisory Committee was then asked to identify potential residential and commercial growth areas in Paducah. During that discussion, it was mentioned that utility infrastructure was limited on the northeast side of town, which can limit growth. In addition, the terrain to the east is less desirable for development.

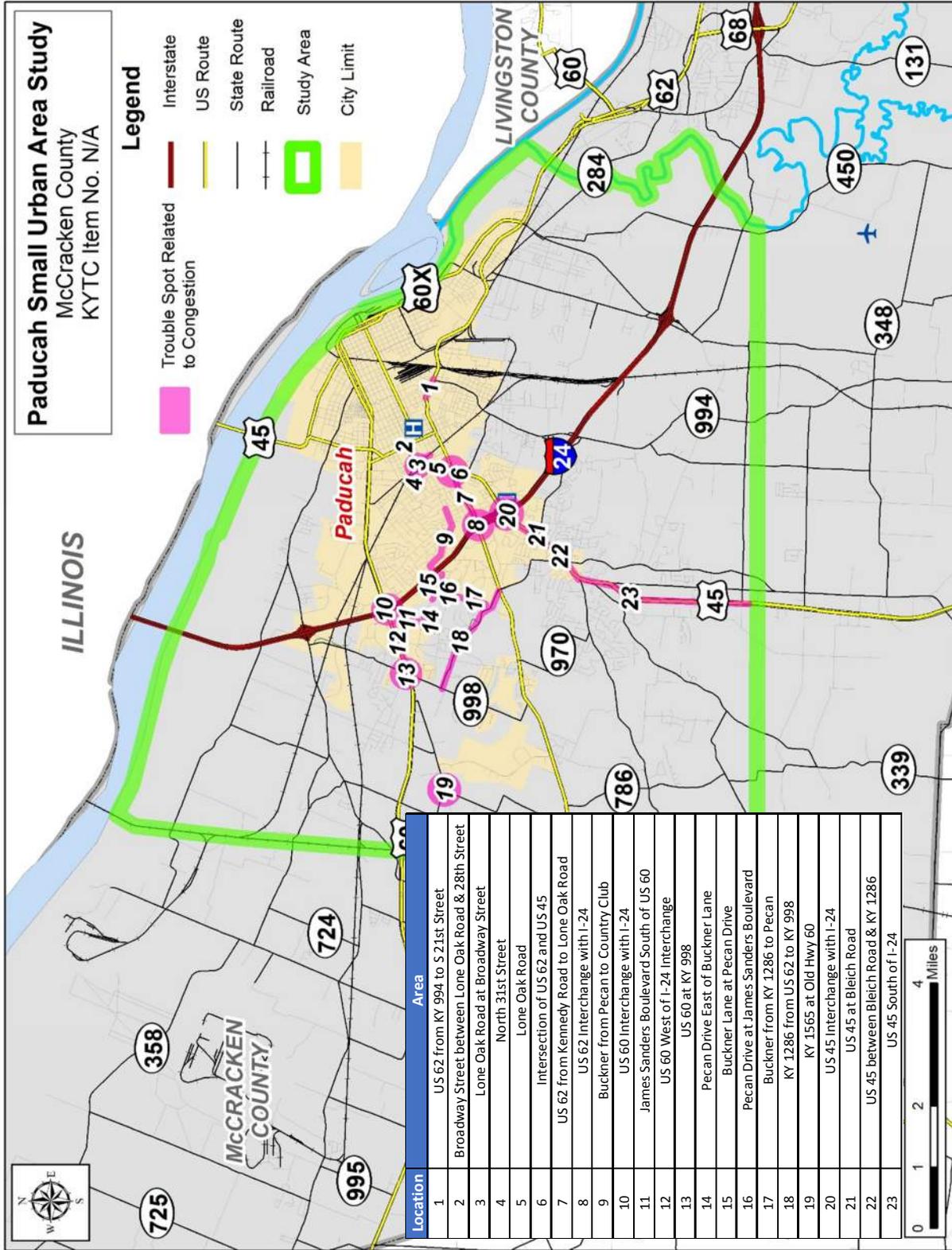


Figure 13: Congestion "Trouble Spots" Identified by the Paducah SUA Advisory Committee

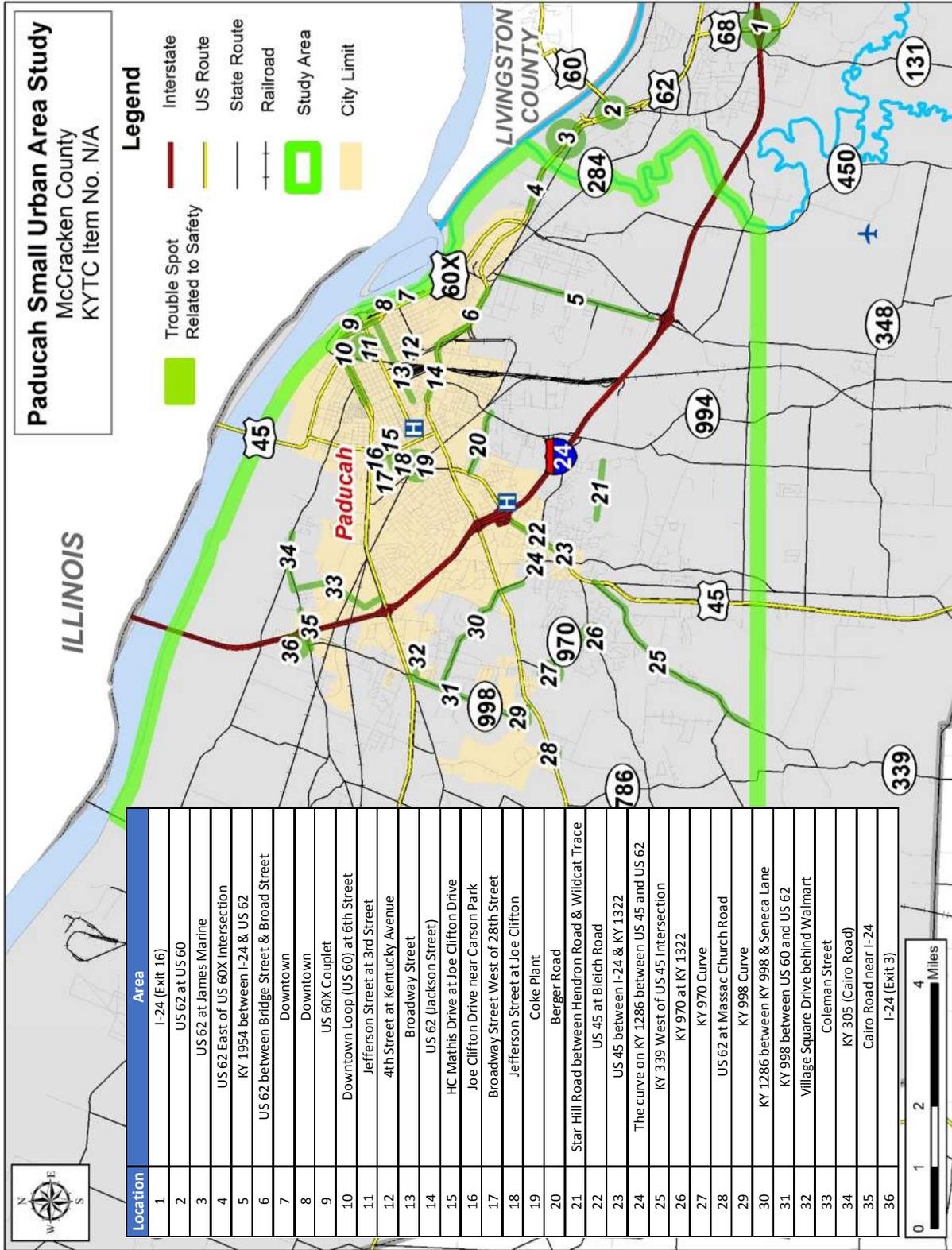


Figure 14: Safety "Trouble Spots" Identified by the Paducah SUA Advisory Committee

There is more potential for growth in the west where utilities are more readily available, and the terrain is more conducive to development. **Figure 15** presents the growth areas that were identified by the committee members. The areas identified were to be used to update the Paducah/McCracken County Regional Travel Demand Model, which was used to develop 2045 traffic forecasts for the study (discussed in Chapter 5).

At the end of the meeting, the Advisory Committee was asked to identify locations for possible transportation and multimodal improvements. The identified locations are shown on **Figure 16**. The 17 locations identified by the Advisory Committee served as a starting point for the development of improvement concepts.

5.0 TRAFFIC FORECAST AND FUTURE YEAR ANALYSES

To determine the need for and purpose of potential transportation improvement options, it is necessary to estimate future conditions. This chapter summarizes the anticipated future conditions within the study area portion of McCracken County. The complete Travel Demand Model Technical Memorandum can be found in **Appendix E**.

5.1 PADUCAH/MCCRACKEN COUNTY REGIONAL TRAVEL DEMAND MODEL

The Paducah/McCracken County Regional Travel Demand Model ("the model"), which is maintained by the KYTC Division of Planning, was used to develop ADT volume forecasts for the SUA. The last update of the model reflected a 2013 base year and 2030 forecast horizon year. As part of the Paducah SUA Study, the model's base year was updated to 2015 and the horizon year extended to 2045. The specific revisions include updates to the model's socioeconomic data, the model's roadway network databases, and traffic counts. The model structure, script, and estimation parameters were not changed.

5.1.1 Socioeconomic Data

Traffic Analysis Zones (TAZs) form the geographical basis for delineating and organizing the socioeconomic data used by the model to generate the vehicular trips that are assigned to the roadway network. Household and population data, as well as employment and school enrollment, are stored in each of the model's 513 internal TAZs which are depicted in **Figure 17**. These socioeconomic data are used to generate the vehicular trips that are distributed and assigned to McCracken County's road network. Traffic count data are stored in the model's 23 external TAZs to represent external trips traveling to, from, and through McCracken County. The model uses separate TAZ map files for each model scenario, including the 2015 base year and the 2045 future year. For the purposes of presentation, TAZs with similar employment and population characteristics were grouped geographically into larger display districts, as shown in **Figure 17**.

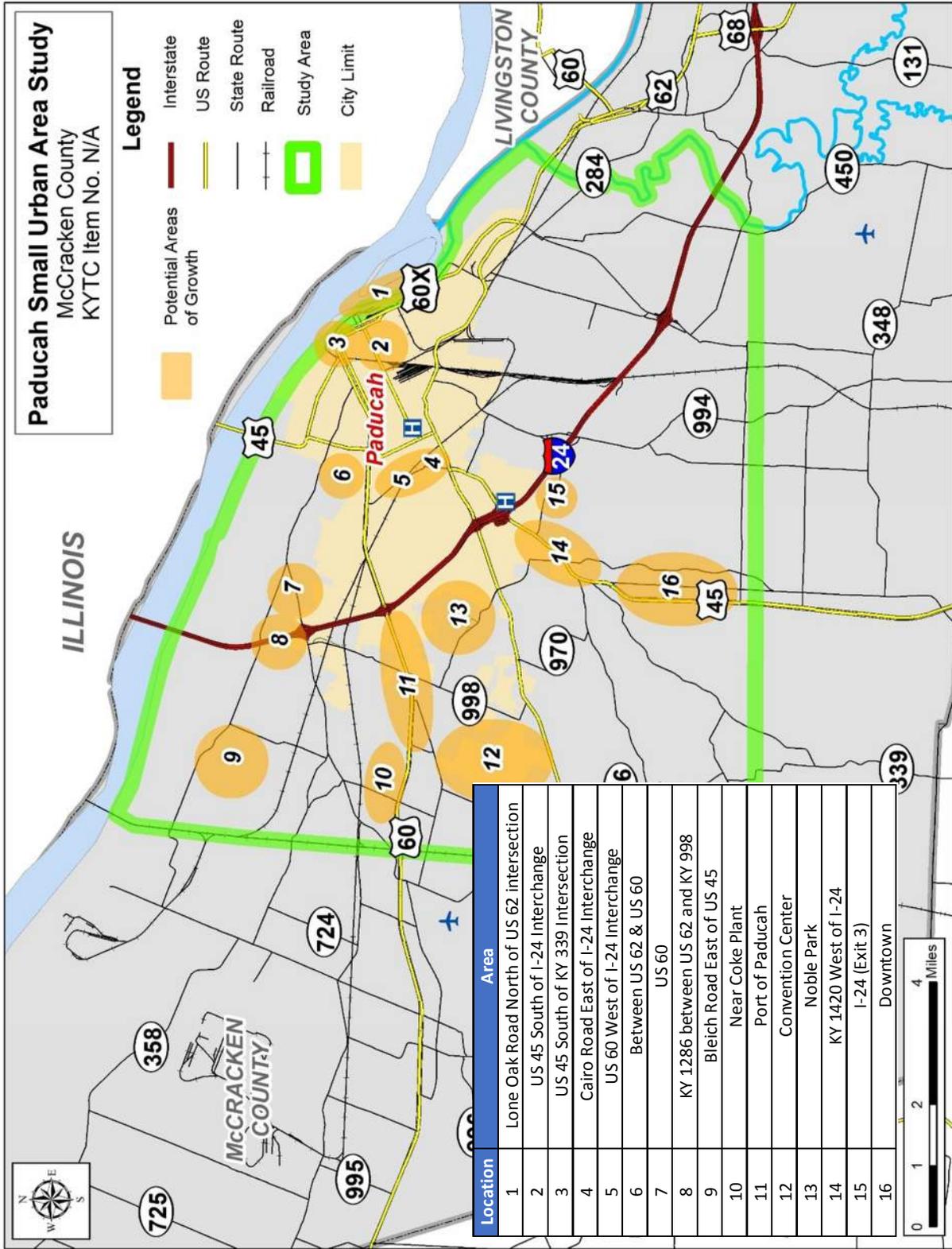


Figure 15: Growth Areas Identified by the Paducah SUA Advisory Committee

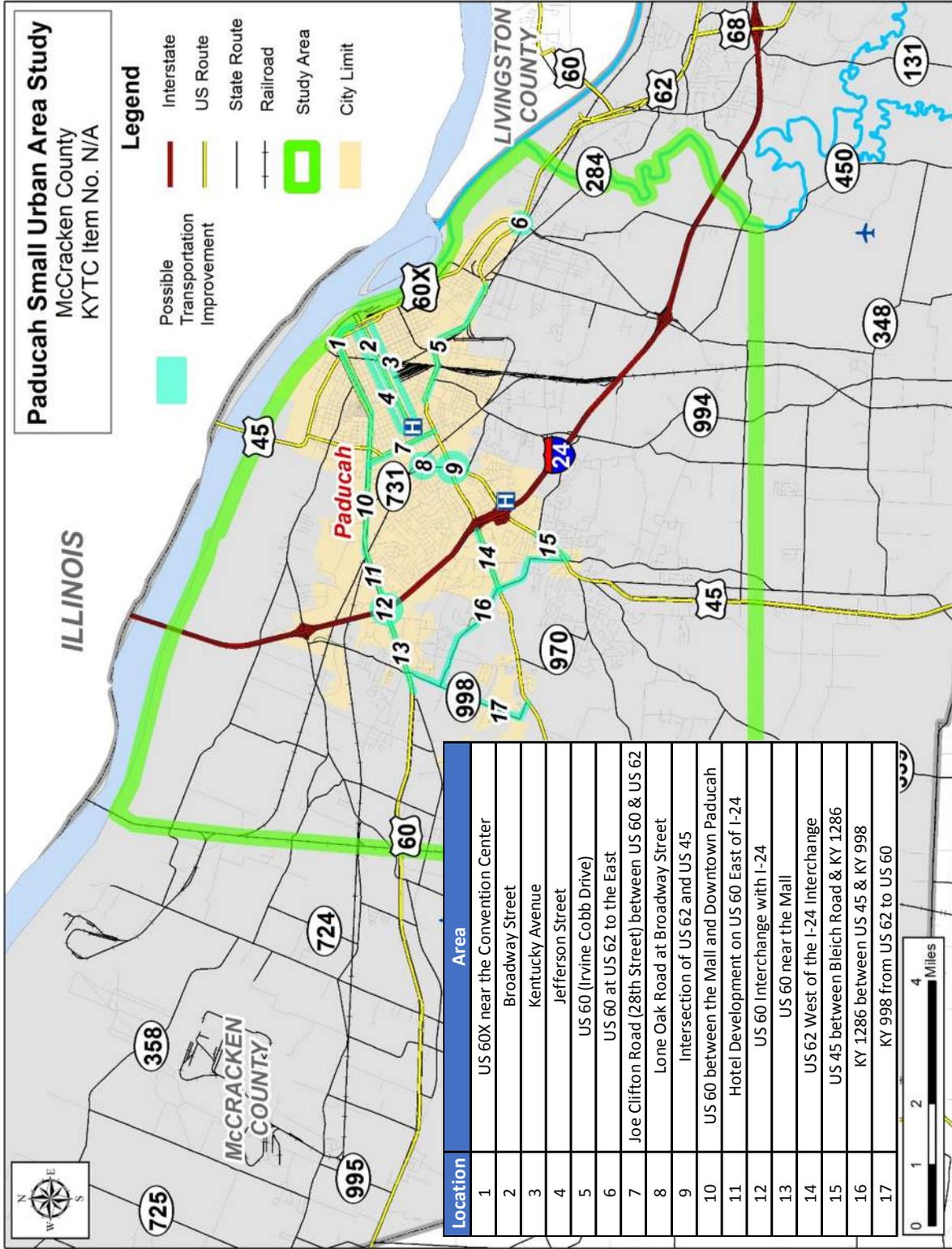


Figure 16: Transportation Improvements Identified by the Paducah SUA Advisory Committee

5.1.2 Population

Population estimates and projections from the Kentucky State Data Center (KSDC) were used as the county control total for the model's household distribution across TAZs. KSDC estimates McCracken County's population in 2015 to be 65,000 persons and forecasts it to drop slightly to 64,300 by 2040, a decline of just over one percent. Paducah's 2015 Census population estimate is 25,000, which is basically unchanged from its 2010 Census estimate, but down slightly from 26,300 in the 2000 Census. **Figure 17** presents the distribution of residential growth patterns reflected in the model. Discussions with local officials concluded that the slight population declines within the older core and rural periphery of Paducah will continue to be balanced out by growth in suburban areas and some urban districts. The project Advisory Committee identified Lone Oak, US 60, and the area near Noble Park as areas of modest potential residential growth.

The overall population of McCracken County will remain relatively stable. For the model update, the total population benchmark was extrapolated to the 2045 horizon year, to 64,100.

5.1.3 Employment

Current employment estimates for each of the model's internal TAZs were provided by KYTC using employer-reported data to the U.S. Bureau of Labor Statistics. Employment was categorized as basic, retail, and service jobs. The total estimate of McCracken employment used in the 2015 base model is 37,600. Future estimates of employment growth in the model were originally informed by third party economic forecasts which extrapolate historic employment growth into the future. For the model update to 2045, employment growth was coordinated with the forecast population, but still reflects growth in regional industries that draw workers from the counties surrounding Paducah, as well as strong workforce participation. Discussions with the Advisory Committee concluded that downtown Paducah and the Lone Oak area are expected to see commercial growth while industrial growth is likely adjacent to I-24 and the proposed Ohio River MegaPark to the north. The 2045 estimate of total employment is 42,400. Growth is expected to occur within the established areas for commercial and industrial activity, with new growth in the light industrial park development offsetting the decline in employment at the old Gaseous Diffusion Plant site. **Figure 18** presents the projected distribution of employment changes.

5.1.4 Network Updates

The model's 2015 base year network was reviewed to ensure it includes all existing road construction projects open by 2015. A review of aerial photography from 2015 was used to verify the status of existing projects. The review confirmed that the 2015 network was an accurate representation of the existing network in 2015.

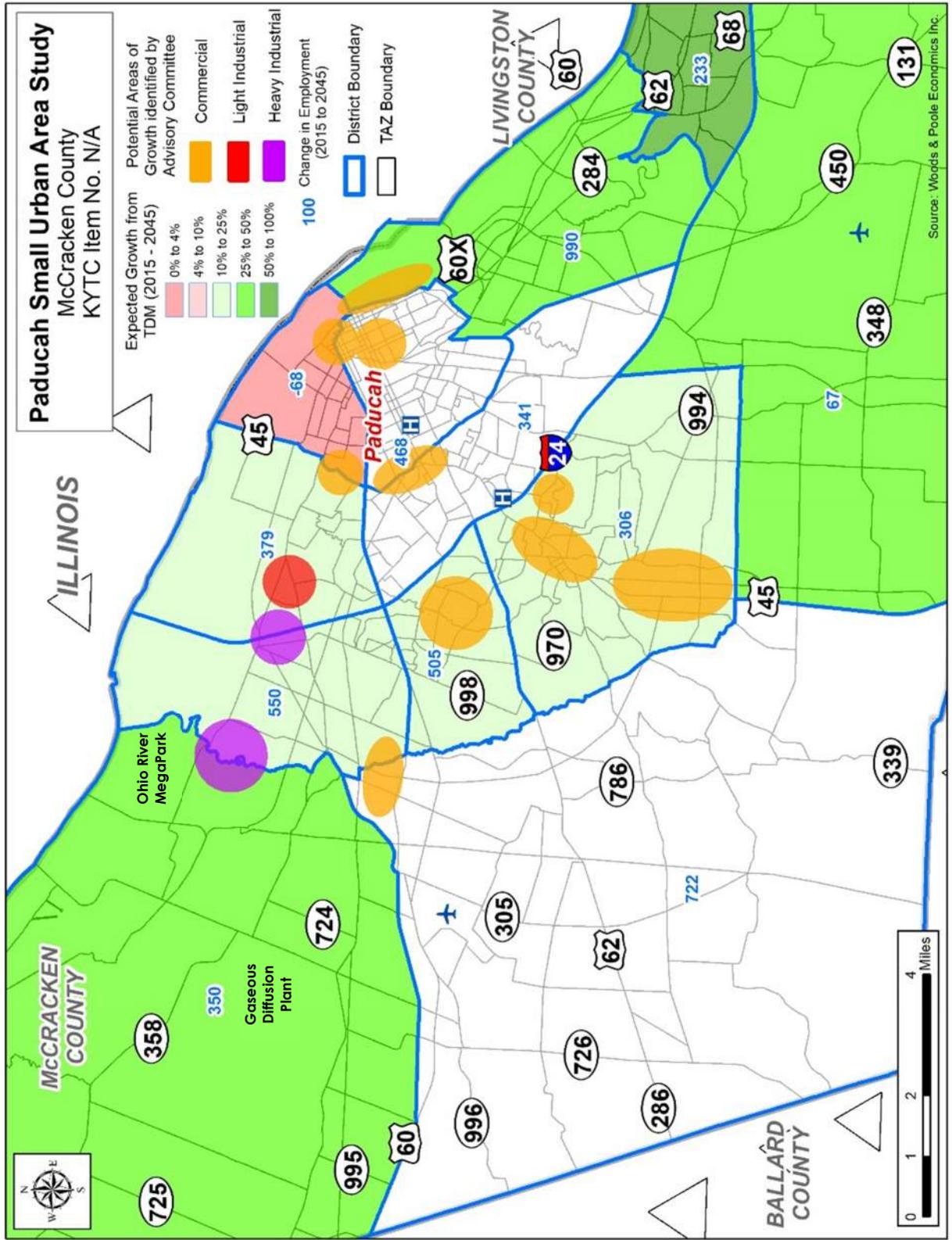


Figure 18: Projected Employment Growth (2015 - 2045)

The 2045 network includes "Existing plus Committed" (E+C) projects that either create a new route or increase the number of directional lanes of an existing facility. Further, a project had to have been constructed since 2015 or have utility or construction funds committed in Kentucky's FY 2018 – FY 2024 Highway Plan. Four new projects were included in the 2045 network and these projects are presented in **Figure 19**.

5.2 2045 TRAFFIC FORECAST

The 2045 total daily traffic volumes as assigned by the updated Paducah/McCracken County Regional Travel Demand Model are shown on **Figure 20**. To evaluate the adequacy of individual roadway segments, the 2045 assigned volumes are compared to each segment's daily capacity to create a V/C ratio. For the purposes of the Paducah SUA study, a V/C ratio greater than 1.0 indicates that mitigation measures (including the possibility of constructing additional lanes) may be warranted. **Figure 20** identifies each roadway segment with a 2045 V/C ratio greater than 1.0, and also presents the segments with V/C ratios approaching 1.0. While segments along I-24 are approaching and/or exceeding 1.0, SUA studies do not consider projects on the interstate.

6.0 ALTERNATIVE DEVELOPMENT

The initial improvement concepts were based on a combination of a review of the existing conditions, traffic analyses, field reconnaissance, and input from the first Advisory Committee meeting. 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 Kentucky's Highway Plan.
- **Local Concepts:** The local concepts are not located on the state-maintained system and would likely need to be funded by the City of Paducah or McCracken County. A private developer may also take on this responsibility.

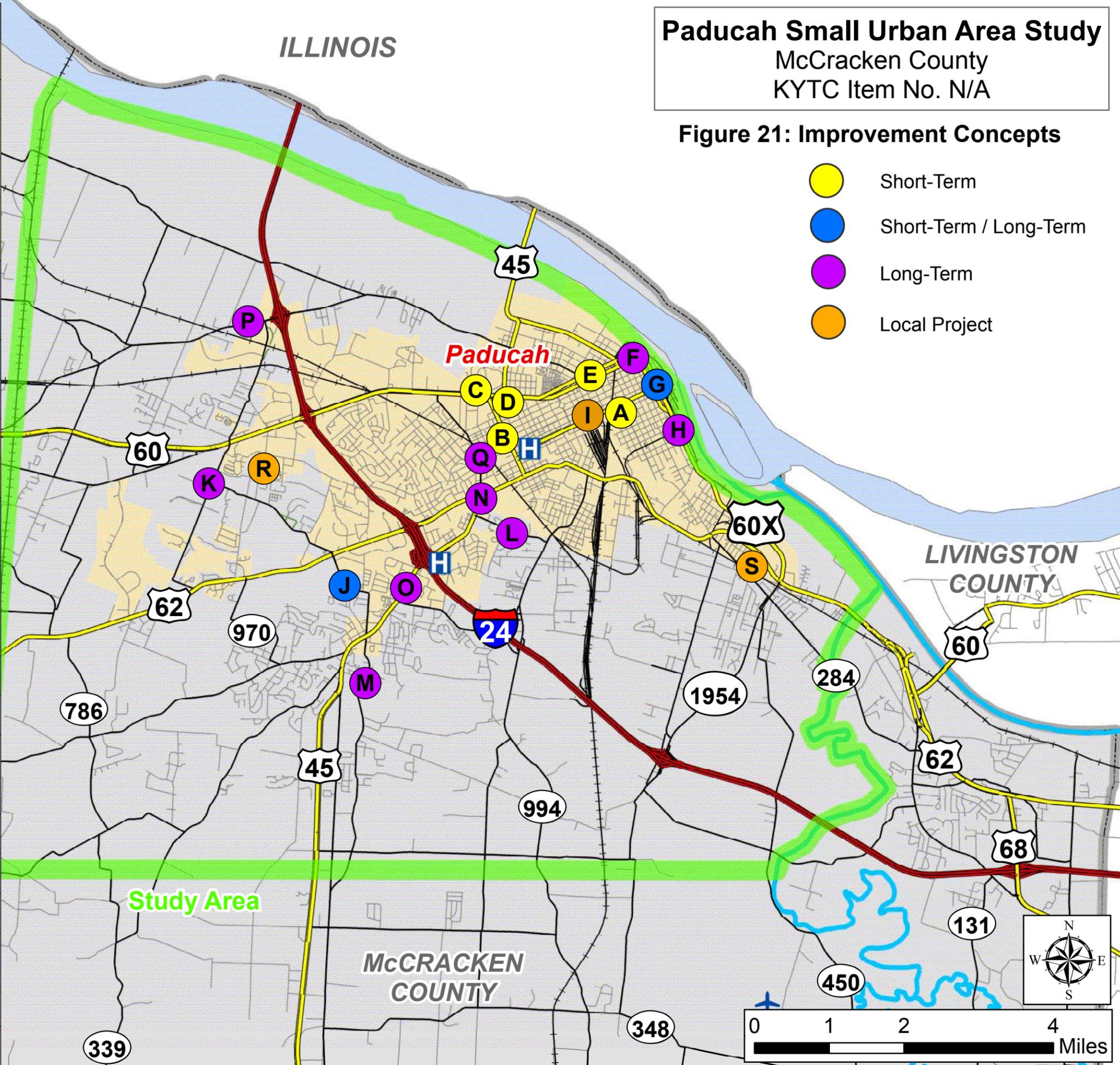
A total of 28 transportation improvement concepts were developed by the project team. The concepts are shown on **Figure 21**, described in more detail and visualized in the project sheets in Section 8, and are generally discussed as follows:

Paducah Small Urban Area Study
 McCracken County
 KYTC Item No. N/A

Figure 21: Improvement Concepts

- Short-Term
- Short-Term / Long-Term
- Long-Term
- Local Project

ID	Route	Short-Term / Long-Term	Improvement Type
A	Kentucky Ave (US 45X)	Short-Term	Road Diet
B	Joe Clifton Drive (US 45)	Short-Term	Road Diet
C	Intersection at Joe Clifton Drive and US 60	Short-Term	Dual Left Turn Lanes
D	H C Mathis Drive (US 45)	Short-Term	Road Diet
E	Martin Luther King Jr Drive and Park Avenue (US 60X & US 45X)	Short-Term	Pavement Striping
F	Paducah Convention Center Entrance (US 45X / US 60X)	Long-Term	Intersection Reconfiguration
G	3rd Street and 4th Street (US 45X and US 60X)	Short-Term	Pavement Striping
		Long-Term	Two-Way Conversion
H	Southern Split (US 60X)	Long-Term	Intersection Reconfiguration
I	Jefferson Street and Broadway Street	Local Project: Short-Term	Pavement Striping
		Local Project: Long-Term	Two-Way Conversion
J	Friendship Road (KY 1286)	Short-Term	High Friction Pavement
		Long-Term	Reconstruction
K	Olivet Church Road (KY 998)	Long-Term	Minor Widening
L	Berger Road (KY 1310)	Long-Term	Sidewalk on One Side
			Reconstruction
M	South Friendship Road (KY 1286)	Long-Term	Minor Widening or Reconstruction
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Long-Term	Right Turn Lane on Jackson Street
		Long-Term	Major Widening of US 62
O	Lone Oak Road (US 45)	Long-Term	Sidewalks and Driveway Consolidation
		Long-Term	Reversible Lanes
P	Cairo Road (KY 305)	Long-Term	Major Widening and Reconstruction
Q	KY 731 including Intersections at Broadway Street	Long-Term	Major Widening and Intersection Reconfiguration
R	New Holt Road	Local Project: Long-Term	Major Widening
S	Clarks River Ferry Road	Local Project: Short-Term	Road Closure

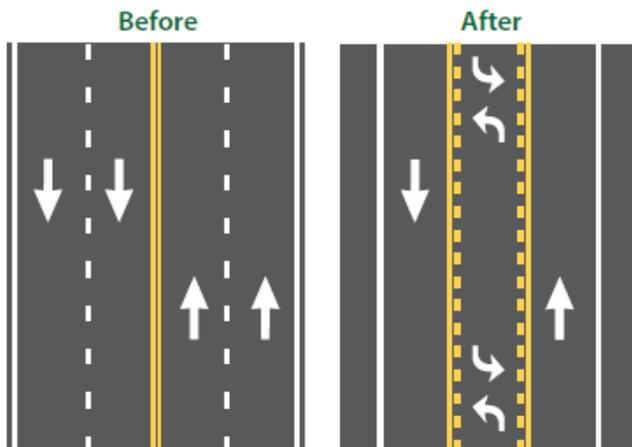


6.1 SHORT-TERM IMPROVEMENT CONCEPTS

- **Concepts A1 and A2:** Kentucky Avenue (US 45X) from 25th Street to 4th Street – This portion of US 45X is a four-lane undivided section with approximately 40 feet of existing pavement. It carries 5,700 VPD and connects the commercial sector of downtown



Kentucky Avenue (US 45X)



Road Diet Configuration

Paducah to Baptist Health Hospital and the residential areas to the west. The Paducah/McCracken County Regional Travel Demand Model shows no traffic growth along this corridor between 2018 and 2045, indicating no existing or future capacity issues. There are CRFs on this section of Kentucky Avenue as high as 4.2. Of the 82 reported crashes over the past three years, 79 percent are rear end, angle, or sideswipe collisions. With modest to flat growth expected in the area, one through lane in each direction can accommodate current and future travel demand. Therefore, a short-term project could be a road diet, which involves converting the existing four-lane roadway to a three-lane segment consisting of two through lanes and a center two-way left-turn lane (TWLTL). Road diets provide enhanced safety, mobility and access for all modes of travel at a relatively low cost. Option A1 would be to restripe the existing roadway to one 12.5-foot lane in each direction and a 15-foot TWLTL. Option A2 would be to restripe the existing roadway to one 10.5-foot lane in each direction, an 11-foot TWLTL, and a four-foot bike lane in each direction. The second option would provide a multi-modal connection to Downtown, and the Riverfront.

- **Concepts B1 and B2:** Joe Clifton Drive (US 45 / US 60) from Jackson Street to Ross Avenue – This portion of US 45 / US 60 serves as a residential connection between US 60 and US 62, with Baptist Health Hospital and Paducah Tilghman High School nearby. It is a four-lane undivided section with approximately 40 to 50 feet of existing pavement and traffic volumes between 5,200 and 12,500 VPD. The Paducah/McCracken County Regional Travel Demand Model shows no traffic growth along this portion of Joe Clifton Drive between 2018 and 2045, indicating no existing or future capacity issues. There have been 249 reported crashes (including three pedestrian collisions) over the past three years with 78 percent rear end, angle, or sideswipe collisions and a CRF of 2.2. With modest to flat growth expected in the area, one through lane in each direction should be capable of accommodating travel demand. Therefore, a short-term project could

be a road diet with two configuration options. Option B1 would include restriping the existing roadway to one 12.5-foot lane in each direction and a 15-foot TWLTL. Option B2 would include restriping the existing roadway to one 10.5-foot lane in each direction, an 11-foot TWLTL, and two four-foot bike lanes. The second option would provide a multi-modal connection to Noble Park and the Greenway Trail. Both options would include pavement milling and resurfacing. Potential improvements to the US 60 intersection should be considered when implementing Concepts B1 or B2.



Joe Clifton Drive (US 45)

- **Concept C:** Joe Clifton Drive at US 60 – This signalized intersection is located on a commercial portion of US 60 at Bob Noble Park. A recurring issue is the left-turn lane from Joe Clifton onto US 60 has heavy backups during peak periods. There were 30 reported crashes on the Joe Clifton approach over the past three years, eight of which were rear end collisions. The existing northbound approach (Joe Clifton Drive) is two lanes, with a dedicated left-turn lane and a shared right and through lane. A short-term project could be to restripe the inside southbound lane as a northbound left-turn lane to provide dual lefts. This project also includes pavement milling and resurfacing. Potential improvements on Joe Clifton Drive should be considered when implementing Concept C.



Left Turn Lane Queue at US 60 Signal Across from Noble Park

A recurring issue is the left-turn lane from Joe Clifton onto US 60 has heavy backups during peak periods. There were 30 reported crashes on the Joe Clifton approach over the past three years, eight of which were rear end collisions. The existing northbound approach (Joe Clifton Drive) is two lanes, with a dedicated left-turn lane and a shared right and through lane. A short-term project could be to restripe the inside southbound lane as a northbound left-turn lane to provide dual lefts. This project also includes pavement milling and resurfacing. Potential improvements on Joe Clifton Drive should be considered when implementing Concept C.

- **Concept D:** H. C. Mathis Drive (US 45) from Joe Clifton Drive to US 60X – This four-lane undivided section connects Joe Clifton Drive to US 60X and serves a combination of commercial and residential traffic. There have been 18 reported crashes over the past three years, with one pedestrian collision, and a CRF of 1.7. With 5,300 VPD traveling this 36-foot-wide portion of US 45 and no existing or future capacity issues based on the Paducah/McCracken County Regional Travel Demand Model, one lane in each direction can accommodate the traffic demand. Therefore, a short-term project



H. C. Mathis Drive (US 45)

could be a road diet, which includes restriping to one 11-foot lane in each direction and a 14-foot TWLTL. This project also includes pavement milling and resurfacing.

- **Concept E:** Martin Luther King Jr. Drive and Park Avenue (US 45X/US 60X) from 21st Street to 5th Street – This residential one-way couplet provides a connection between the commercial areas of US 60 and downtown Paducah. Each roadway offers two driving lanes with unmarked on-street parking and 40 to 42 feet of pavement. The traffic volumes on each roadway range from 4,700 to 5,200 VPD with the Paducah/McCracken County Regional Travel Demand Model showing no traffic growth between 2018 and



Martin Luther King Jr. Drive

2045, indicating no existing or future capacity issues. There have been 76 reported crashes over the past three years with three pedestrian and two bicycle collisions and a CRF of 1.1. A short-term project could be restriping to delineate on-street parking (where available) and to provide a bike lane that will connect to the Riverfront and the Greenway Trail. To connect the proposed bike lanes on Martin Luther King Jr. Drive and Park Avenue to the Greenway Trail in Noble Park, consideration should be given to connections through the park and local

streets (21st-26th) north of Park Avenue. This connection is not included in the cost estimate. The cost estimate does include pavement milling and resurfacing on Martin Luther King Jr. Drive and Park Avenue.

- **Concept G1:** 3rd Street and 4th Street (US 45X/US 60X) from 5th Street to Adams Street – This one-way couplet travels through the heart of downtown Paducah near the Riverfront. As a direct route in and out of the city, 3rd and 4th Streets carry a mix of through traffic and commercial traffic to and from downtown businesses, but have low ADTs ranging from 4,700 to 6,700 VPD. With no expected traffic growth between 2018 and 2045 based on the Paducah/McCracken County Regional Travel Demand Model, there are no existing or future capacity issues on these routes. There have been 173 reported



North 4th Street

crashes over the past three years, with two pedestrian and two bicycle collisions and a CRF of 1.3. Two improvement concepts have been developed for these 42-foot-wide roadways. Both options would include pavement milling and resurfacing. Concept G1 is a short-term project to restripe and delineate on-street parking (and bus stops where appropriate) and to provide a bike lane which connects to the Riverfront and the Greenway Trail. Concept G2 is a two-way street conversion which is discussed with the long-term improvement concepts.

- Concept J1:** Friendship Road (KY 1286) from US 45 to New Holt Road – Carrying around 10,200 VPD, this two-lane section of KY 1286, with a current V/C of 1.2, has a combination of undesirable geometry, narrow lanes, and narrow shoulders. Considered by local residents as part of the 'Inner Loop,' this route connects US 45 and the growing Lone Oak area to US 62 and US 60 through KY 998. The most notable issue on this section is the horizontal curve at MP 4.2, where it has been noted that many drivers travel too fast



Curve on KY 1286 (N. Friendship Road)

through the signed 20-mph curve, which has a CRF of 1.5. Of the 21 reported crashes at this curve over the past three years, 18 have been during wet weather conditions and most are run-off-the-road collisions. Concept J1 is a short-term project to apply a high friction surface treatment to the curve at MP 4.2 to help motorists maintain better control in both dry and wet driving conditions. This would require input from the KYTC Highway Safety Improvement Program (HSIP) team. Concept J2 is discussed with the long-term improvement concepts.

6.2 LONG-TERM IMPROVEMENT CONCEPTS

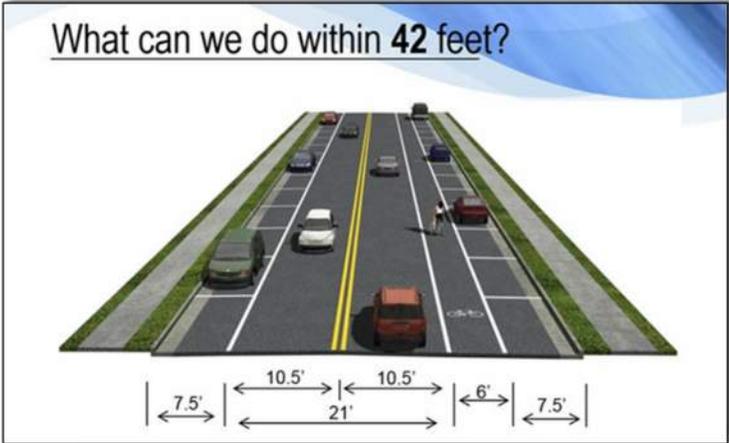
- Concept F:** Martin Luther King Jr. Drive and Park Avenue (US 45X / US 60x) at the Convention Center Entrance – The Paducah Convention Center is a 90,000 square-foot facility consisting of the Julian Carroll Convention Center and the Schroeder Expo Center. It is located on the banks of the Ohio River at a horizontal curve on Park Avenue (US 45X / US 60X) connecting downtown Paducah to the residential neighborhoods to the west. The entrance and exit are on one-way streets and are not clearly marked, creating a confusing experience for unfamiliar drivers visiting the Convention Center. Current traffic volumes range from 4,700 to 6,600 VPD, with the Paducah/McCracken County Regional Travel Demand Model showing no traffic growth between 2018 and 2045. Over the past three years, there have been 31 reported crashes, one of which was a pedestrian crash, with a CRF of 1.3. A long-term project could be to reconstruct the intersection of Park Avenue and Martin Luther King Jr. Drive to a roundabout with a clearly marked entrance to the Convention Center. This improvement concept could pair with improvement Concept G2 and H, a two-way



Paducah Convention Center Entrance

conversion of 3rd and 4th Streets and a roundabout at the southern split in Downtown Paducah.

- Concept G2:** 3rd Street and 4th Street (US 45X / US 60X) from 5th Street to Adams Street – This one-way couplet travels through the heart of downtown Paducah near the Riverfront. As a direct route in and out of the city, 3rd and 4th Streets carry a mix of through traffic and commercial traffic to and from downtown businesses, but have ADTs ranging from 4,700 to 6,700 VPD. With no expected traffic growth between 2018 and 2045 based on the Paducah/McCracken County Regional Travel Demand Model, there are no existing or future capacity issues on these routes. There have been 173 reported crashes over the past three years, with two pedestrian and two bicycle collisions and a CRF of 1.3. Two improvement concepts have been developed for these 42-foot-wide roadways. Both options would include pavement milling and resurfacing. Concept G2 is a two-way conversion where both 3rd and 4th Streets are restriped to one 10.5-foot lane in each direction with a six-foot bike lane in one direction and a 7.5-foot of on-street parking (and bus stops where needed) in each direction.



Potential Two-Way Street Conversion

- Concept H:** The southern split of US 60X from Adams Street to Tennessee Street – The southern split of US 60X in downtown Paducah is the confluence of two one-way streets, 3rd Street and 4th Street. The traffic volumes on the one-way streets range from 6,400 to 6,700 VPD with no expected traffic growth between 2018 and 2045 based on the Paducah/McCracken County Regional Travel Demand Model. There have been 32 reported crashes over the past three years, with one bicycle collision. A possible long-term project would be to reconstruct the intersection into a roundabout. This project would be paired with improvement Concept F and G2, a two-way conversion of 3rd Street and 4th Street and a roundabout at the northern split in Downtown Paducah.



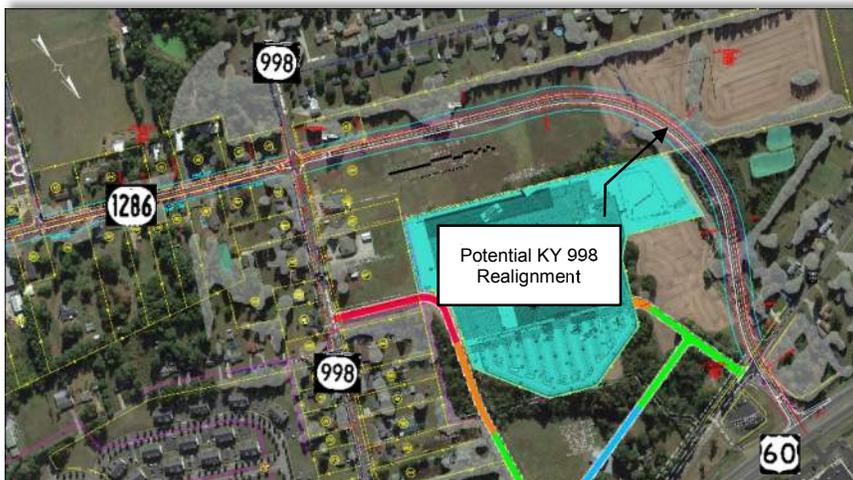
Southern Split in Downtown Paducah

- Concept J2:** Friendship Road (KY 1286) from US 45 to New Holt Road – Carrying around 10,200 VPD, this two-lane section of KY 1286, with a current V/C of 1.2, has a combination of undesirable geometry, narrow lanes, and narrow shoulders. Considered by local residents as part of the 'Inner Loop,' this route connects US 45 and the growing Lone Oak area to US 62 and US 60 through KY 998. Concept J2 is a long-term project to reconstruct KY 1286 from US 45 to New Holt Road. This is a federally funded KYTC project (Highway Plan Item No. 1-153) currently going through the environmental process as defined by the National Environmental Policy Act (NEPA). Right-of-way (ROW) funds are scheduled for year 2020. The project includes a potential realignment to remove the sharp curve at Seneca Lane and connect KY 1286 with US 45 at Lakeview Drive.



Potential Realignment of KY 1286

- Concept K:** Olivet Church Road (KY 998) from KY 1286 to US 60 – This portion of KY 998 is considered by local officials to be a portion of the 'Inner Loop' that connects KY 1286 to the commercial sector of US 60. The Advisory Committee expects this two-lane section with narrow lanes and shoulders to see substantial growth from the current traffic volumes of 5,700 VPD. The CRF is 1.6 along this portion of KY 998. A long-term project could be widening the roadway and shoulders to improve safety. This widening project has been identified as Continuous Highway Analysis Framework (CHAF) IP20120011. The



Potential Realignment of KY 998

project costs are from the CHAF project profile. Due to recent developments and high right-of-way costs along the existing corridor, realignment of KY 998 is also being considered. One of the potential realignment concepts is shown to the left.

- Concepts L1 and L2:** Berger Road (KY 1310) from US 45 to KY 994 – Berger Road is a narrow two-lane roadway with no shoulders and steep drop-offs into roadside ditches. It serves as a residential connection between US 45 and KY 994 in the Lone Oak area. The existing traffic is 3,000 VPD with no growth expected by 2045 based on the Paducah/McCracken County Regional Travel Demand Model. The CRF is 1.0 with 40 reported crashes over the past three years. One of these collisions was a pedestrian fatality. Two improvement concepts have been developed. Concept L1 is a long-term project to construct a sidewalk on one side of the road. Concept L2 is a long-term project to reconstruct Berger Road, which is included in CHAF IP20080042, which corrects geometric deficiencies and addresses safety, mobility, and access issues.



KY 1310 (Berger Road)

- Concepts M1 and M2:** South Friendship Road (KY 1286) from KY 1241 to US 45 – This portion of KY 1286 is located south of the commercial sector of US 45 in the Lone Oak area. Carrying 2,500 VPD, this narrow two-lane section has a combination of poor geometry, narrow lanes, narrow shoulders, and steep roadside ditches. The Paducah/McCracken County Regional Travel Demand Model shows no traffic growth along this corridor between 2018 and 2045, indicating no existing or future capacity issues. The CRF is 2.6 with 26 reported crashes over the past three years. Two improvement concepts have been developed. Concept M1 is a long-term project to widen the existing road to provide shoulders and wider lanes to improve safety on the existing alignment. Concept M2 is another possible long-term project involving complete reconstruction to have more desirable geometry.



KY 1286 (S. Friendship Road)

- Concepts N1 and N2:** Alben Barkley Drive (US 62) at Lone Oak Road (US 45) – This bustling intersection carries a combination of commercial and residential traffic through the growing area north of Lone Oak. Traffic volumes range from 11,300 to 19,700 VPD with a V/C of 0.7 to 1.3. The eastbound approach has a CRF of 1.3 with 82 reported crashes at the intersection over the past three years. There are several congestion-related issues with this intersection, one of which includes right turns backing up on westbound Jackson Street. Two improvement concepts have been developed. Concept N1 is a long-term project to add a dedicated right-turn lane on the westbound Jackson Street approach. To accompany this project, another long-term solution could be to widen KY 731 north of US 62, which is a local priority CHAF IP20070001. Concept N2 is another long-term project to widen US 62 between Audubon Drive and Lone Oak Road, which is another local priority CHAF IP20060059.



Alben Barkley Drive (US 62) at Lone Oak Road (US 45)

- Concepts O1 and O2:** Lone Oak Road (US 45) from KY 1286 to Martin Circle – This commercial section of Lone Oak Road (US 45) is one of the most congested roadways in the study area during AM and PM peak periods. Traffic volumes are currently around 27,200 VPD with V/C ratios up to 1.0. The CRF is 1.2, with 86 percent of the 238 reported crashes over the past three years being rear end, angle, or sideswipe collisions. There were also three pedestrian collisions over this period. Concept O1 involves extending existing sidewalks on each side of US 45 from Maryland Street or Augusta Avenue to Martin Circle to improve pedestrian safety and connect the residential neighborhoods north of Mt. Kenton Cemetery to the commercial district to the south. Consideration should also be given to improving access management by consolidating driveways where possible during the construction of the sidewalks. The project team noted that the



US 45 (Lone Oak Road)

traffic during daily commuter periods is directionally imbalanced, with most traffic traveling northbound into Paducah during the morning and southbound out of town during the afternoon. To take advantage of this imbalance, Concept O2 is to use the center TWLTL as a reversible lane for travel into Paducah during the AM peak and for out of town travel for the PM peak. In addition to the overhead reversible lane signs/signals, left-turn signal modifications will also be required. At Friendship Road, consideration should be given to changing the left turns from US 45 to protected only to begin and end the reversible operation.

- Concept P:** Cairo Road (KY 305) from Charter Oak Drive to Commerce Drive – This two-lane section of KY 305 is at I-24 Exit 3 and serves a mix of residential, industrial, and commercial traffic. With its proximity to I-24 and the Pilot truck stop, there is considerable truck traffic which causes damage to the pavement and creates the need for frequent patching and repaving. Vehicular congestion also contributes to this problem, with 8,200 to 9,000 VPD and a V/C as high as 1.3. The CRF ranges as high as 1.1 with 68 reported crashes over the past three years. A long-term project could be a major widening to four lanes with a raised median for access management. The Megapark Connector (KYTC Item No. 1-8702) will intersect KY 305 at Commerce Drive which makes it a logical terminus to this project.



KY 305 (Cairo Road)

- Concept Q:** Lone Oak Road (KY 731) including the intersection at Broadway Street – This intersection is located at the convergence of the residential and commercial areas near the old Coca-Cola Bottling Plant. The V/C gets as high as 1.4 with 3,800 to 13,800 VPD. There were 33 reported crashes at this intersection over the past three years. Residents have been vocal about poor drainage in this area with runoff going into the road



Broadway Street at Lone Oak Road

causing ponding. A long-term project would be to reconstruct the intersection. A roundabout should be considered during the design phase. Drainage at the intersection and nearby roadways (including North 32nd Street) should also be considered during intersection reconstruction. Access management and pedestrian accommodations are also needed. This project also includes widening of Lone Oak Road (KY 731) between US 62 and Broadway Street. This project is local priority CHAF IP20070001.

6.3 LOCAL IMPROVEMENT CONCEPTS

- **Concepts I1 and I2:** Jefferson Street and Broadway Street from 7th Street to Fountain Avenue – This one-way couplet of city-maintained streets connects the commercial sector of downtown Paducah to the residential areas to the west. Both routes have two lanes and unmarked on-street parking on both sides with approximately 42 feet of pavement and traffic volumes ranging from 600 to 5,100 VPD. The Paducah/McCracken County Regional Travel Demand Model shows no traffic growth along this corridor between 2018 and 2045, indicating no existing or future capacity issues. Of the reported crashes over the past three years, 89 percent of the collisions on Jefferson Street and 74 percent on Broadway Street are rear end, angle, or sideswipe collisions. Two improvement concepts have been developed for these roadways. Both options would include pavement milling and resurfacing and provide a multi-modal connection to Downtown and the Riverfront. Concept I1 is a short-term option to restripe, which includes leaving both routes as one-way and restriping to two 10.5-foot lanes, a six-foot bike lane, and two 7.5-foot designated parking lanes. Concept I2 is a two-way street conversion where both streets are converted to two-way with one 10.5-foot lane in each direction, a six-foot bike lane, and two 7.5-foot designated parking lanes.



Broadway Street

- **Concept R:** New Holt Road from KY 1286 to US 60 – New Holt Road is a city street in the growing commercial area near the Kentucky Oaks Mall on KY 60. As a result, this local street is expected to continue to receive an increase in traffic. Current traffic volumes range from 9,400 to 11,400 VPD with a V/C of 1.0. There were 71 reported crashes over the past three years, one of which was a pedestrian collision. A potential local project could be a major widening of New Holt Road to include additional lanes as well as bike lanes and sidewalks.



New Holt Road

- **Concept S:** Clarks River Ferry Road under US 60X – Clarks River Ferry Road has an eight-foot five-inch vertical clearance under US 60X (structure 073B00152N). For safety purposes, this road should be closed or re-routed to obtain a minimum clearance of 12 feet. Traffic movements should be restricted for areas without 12 feet of clearance to avoid inadvertent beam strikes.



Clarks River Ferry Road Under US 60

7.0 ADVISORY COMMITTEE MEETING NO. 2

A second Advisory Committee meeting was held on December 11, 2018. The Advisory Committee was asked to help prioritize improvement concepts. The project team presented each conceptual improvement project to the committee, allowed for discussion on each, and then asked for feedback on the priority for each concept.

Attendees were provided project sheets for each of the nine short-term improvement concepts along with a scoring sheet for the prioritization exercise. Attendees had nine points to distribute between the nine short-term concepts, with points assigned to at least two concepts. Concept A2, restriping Kentucky Avenue to one 10.5-foot lane in each direction, an 11-foot TWLTL, and a four-foot bike lane in each direction, scored the highest with 41 points. Concept C, restriping Joe Clifton Drive at US 60, received the second highest point total with 39, and J1, applying high-friction surface treatment to KY 1286, received the third highest with 30 points. **Figure 22** presents the total number of points assigned to the short-term improvement concepts.

After assigning points for the short-term improvement concepts, attendees were provided project sheets for each of the 15 long-term concepts along with a scoring sheet for the prioritization exercise. Attendees had 15 points to distribute between the long-term concepts, with points to be assigned to at least two concepts. Concept J2, reconstructing KY 1286, received the most points with 75 while Concept O2, using the TWLTL as a reversible lane on US 45, received the second most with 42. **Figure 23** presents the total number of points assigned to the long-term improvement concepts.

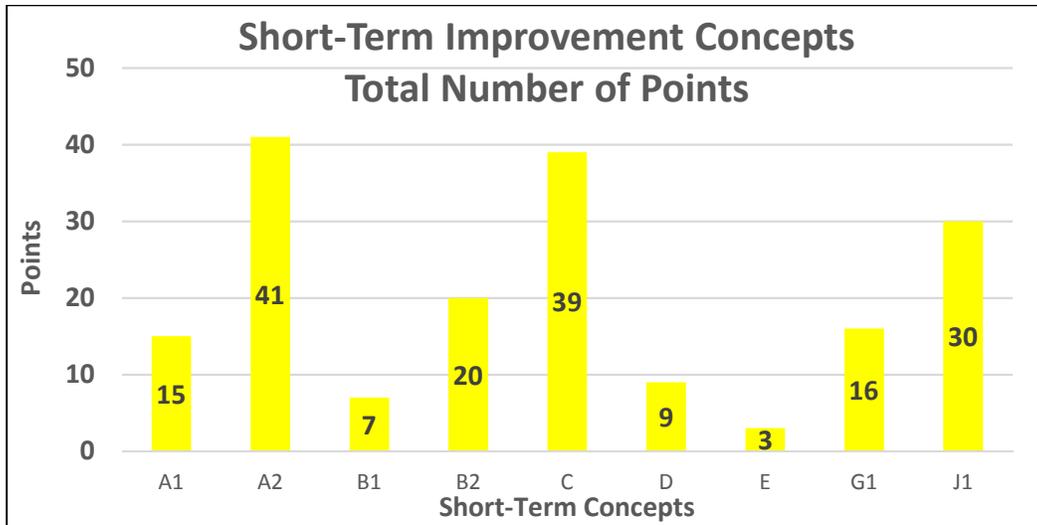


Figure 22: Short-Term Improvement Concepts – Total Points Awarded by the Advisory Committee

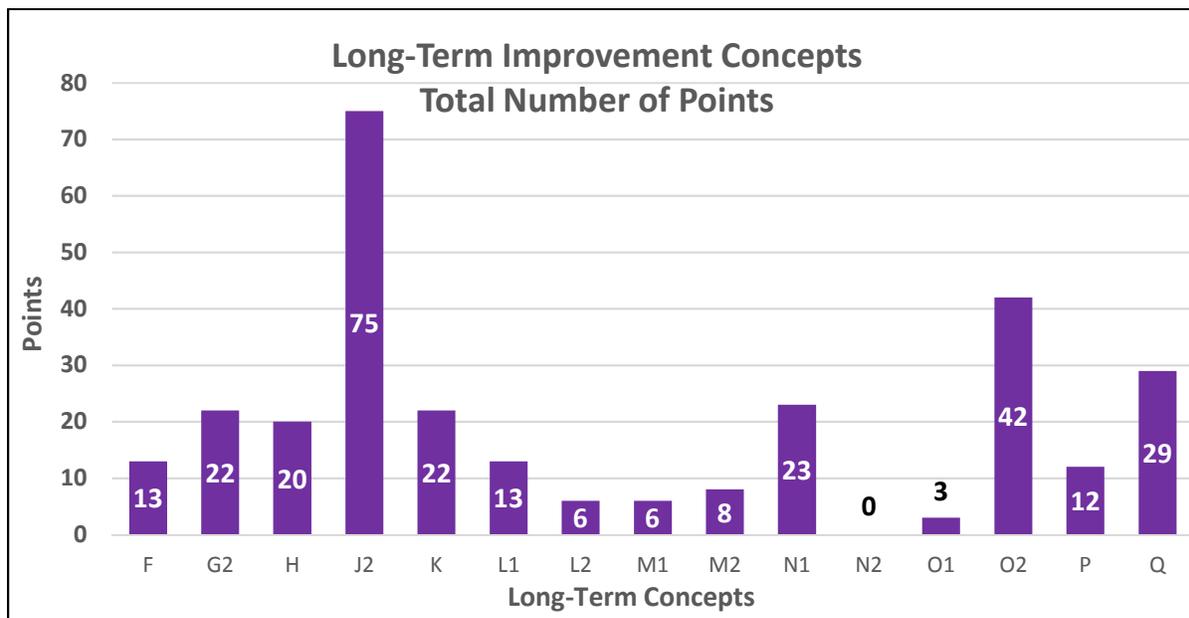


Figure 23: Long-Term Improvement Concepts – Total Points Awarded by the Advisory Committee

Attendees were then provided project sheets for each of the four local improvement concepts along with a scoring sheet for the prioritization exercise. Attendees had four points to distribute between the four improvement concepts, with points to be assigned to at least two concepts. Concept R, widening New Holt Road, and Concept I1, restriping Jefferson and Broadway Streets, received the most points. **Figure 24** presents the total number of points assigned to the local improvement concepts.

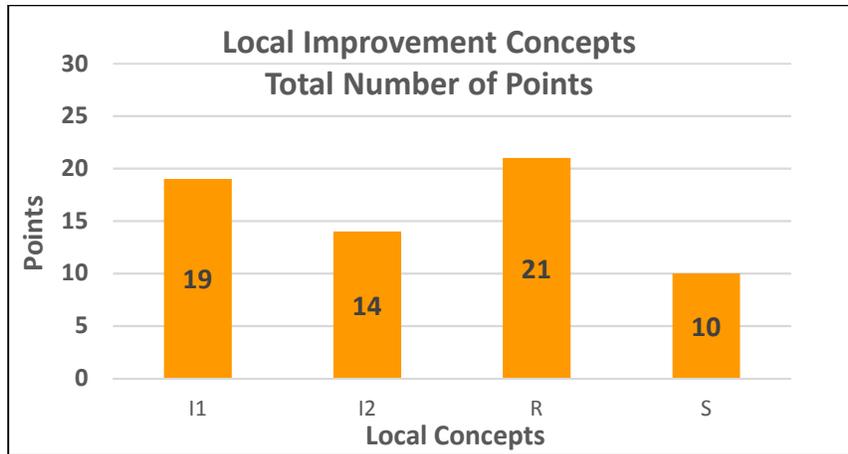


Figure 24: Local Improvement Concepts – Total Points Awarded by the Advisory Committee

Figure 25 shows the total number of points that each concept received during the prioritization exercise at the second Advisory Committee meeting.

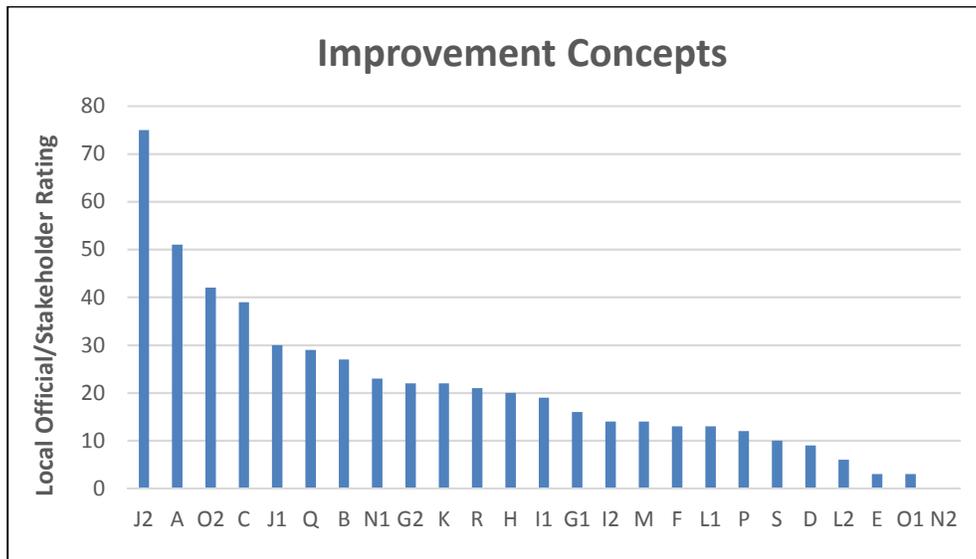


Figure 25: All Improvement Concepts – Total Points Awarded by Advisory Committee

One additional project that was discussed was a road diet along Jackson Street (US 45) and Irvin Cobb Drive (US 60) between Lone Oak Road and Bridge Street (KY 284). Stantec investigated this location further after the meeting. With modest to flat growth expected in the area, one through lane in each direction should be able to accommodate current and future travel demand. A short-term project could be a road diet with two configuration options. Option 1 would be to restripe the existing roadway to one 13.5-foot lane in each direction and a 15-foot TWLTL. Option 2 would be to restripe the existing roadway to one 10.5-foot lane in each direction, an 11-foot TWLTL, and a five-foot bike lane in each direction. Because the portion of Jackson Street between Lone Oak Road and 28th Street exceed daily volumes of 18,000 VPD, additional analysis should be conducted to better understand the peak travel direction prior to implementing the road diet along this portion of Jackson Street. This project was not prioritized.

8.0 RECOMMENDATIONS

The Paducah Small Urban Area Study resulted in a number of conceptual improvement options recommended for future implementation. These improvement options focus on areas with existing safety concerns, congestion, and other transportation deficiencies identified by the project team and Advisory Committee. The nature and likely causes of problems identified over the course of the study were examined through field reconnaissance, and improvement concepts were developed to address the identified problems. The project team developed 28 improvement concepts, as shown in **Table 3**, based upon input from the Advisory Committee.

Cost estimates were prepared for each improvement concept and are shown in **Table 3** and in the project sheets at the end of this report. KYTC District 1 assisted in this effort by providing right-of-way and utility cost estimates.

It was noted at the second Advisory Committee Meeting that for Concepts F and H, the intersection improvement does not necessarily have to be a roundabout. Additional alternatives would be considered during the design phase. It was also noted that Projects F, G2, and H will need to be considered together in the design phase to make a two-way conversion work.

Project Recommendations

- 11 High Priority Improvement Concepts
- 8 Medium Priority Improvement Concepts
- 5 Low Priority Improvement Concepts
- 3 Improvement Concepts Not Recommended at this time

Factoring in input from the Advisory Committee, the project team prioritized the conceptual improvements as high, medium, or low. **Tables 4, 5, and 6** present the improvement concepts based on this prioritization. **Figures 26, 27, and 28** present maps of the improvement concept locations.

Table 3: Conceptual Improvement Concepts and 2018 Cost Estimates

ID	Route	Improvement Type	2018 Cost Estimates					Priority
			Design	Right-of-Way	Utility Relocation	Construction	Total Cost	
A	Kentucky Ave (US 45X)	Road Diet	\$100,000	\$0	\$0	\$300,000	\$400,000	High
B	Joe Clifton Drive (US 45)	Road Diet	\$100,000	\$0	\$0	\$500,000	\$600,000	Medium
C	Intersection at Joe Clifton Drive and US 60	Dual Left-Turn Lanes	\$20,000	\$0	\$0	\$80,000	\$100,000	High
D	H C Mathis Drive (US 45)	Road Diet	\$20,000	\$0	\$0	\$130,000	\$150,000	Low
E	Martin Luther King Jr Drive and Park Avenue (US 60X & US 45X)	Pavement Striping	\$100,000	\$0	\$0	\$900,000	\$1,000,000	Not Recommended
F	Paducah Convention Center Entrance (US 45X / US 60X)	Intersection Reconfiguration	\$400,000	\$3,000,000	\$6,000,000	\$1,800,000	\$11,200,000	Medium
G	3rd Street and 4th Street (US 45X and US 60X)	Pavement Striping	\$100,000	\$0	\$0	\$600,000	\$700,000	Medium
		Two-Way Conversion	\$300,000	\$0	\$0	\$1,300,000	\$1,600,000	Medium
H	Southern Split (US 60X)	Intersection Reconfiguration	\$300,000	\$800,000	\$500,000	\$1,300,000	\$2,900,000	Medium
I	Jefferson Street and Broadway Street	Pavement Striping	\$100,000	\$0	\$0	\$700,000	\$800,000	High
		Two-Way Conversion	\$300,000	\$0	\$0	\$1,400,000	\$1,700,000	High
J	Friendship Road (KY 1286)	High Friction Pavement	\$10,000	\$0	\$0	\$40,000	\$50,000	High
		Reconstruction	\$1,900,000	\$5,000,000	\$4,600,000	\$17,600,000	\$29,100,000	High
K	Olivet Church Road (KY 998)	Minor Widening	\$500,000	\$1,100,000	\$700,000	\$4,000,000	\$6,300,000	High
L	Berger Road (KY 1310)	Sidewalk on One Side	\$70,000	\$3,500,000	\$1,000,000	\$350,000	\$4,920,000	Low
		Reconstruction	\$1,300,000	\$4,200,000	\$3,900,000	\$7,200,000	\$16,600,000	Low
M	South Friendship Road (KY 1286)	Minor Widening	\$900,000	\$5,000,000	\$800,000	\$6,000,000	\$12,700,000	Low
		Reconstruction	\$1,600,000	\$10,000,000	\$5,000,000	\$10,900,000	\$27,500,000	Low
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Right Turn Lane on Jackson Street	\$100,000	\$1,500,000	\$3,000,000	\$200,000	\$4,800,000	Medium
		Major Widening of US 62	\$2,000,000	\$8,400,000	\$6,600,000	\$9,500,000	\$26,500,000	Not Recommended
O	Lone Oak Road (US 45)	Sidewalks and Driveway Consolidation	\$100,000	\$10,000,000	\$2,000,000	\$800,000	\$12,900,000	Not Recommended
		Reversible Lanes	\$400,000	\$0	\$0	\$2,000,000	\$2,400,000	High
P	Cairo Road (KY 305)	Major Widening and Reconstruction	\$1,700,000	\$4,000,000	\$2,000,000	\$11,300,000	\$19,000,000	Low
Q	KY 731 including Intersections at Broadway Street	Major Widening and Intersection Reconfiguration	\$1,300,000 (\$300,000 Planning)	\$4,200,000	\$3,300,000	\$7,900,000	\$17,000,000	Medium
R	New Holt Road	Major Widening	\$700,000	\$9,000,000	\$3,500,000	\$3,600,000	\$16,800,000	High
S	Clarks River Ferry Road	Road Closure	\$0	\$0	\$0	\$10,000	\$10,000	High

Table 4: Recommended High Priority Improvement Concepts

ID	Route	Location	Length	Short-Term or Long-Term	Improvement Type	2018 Cost Estimate (All Phases)
A1 and A2	Kentucky Ave (US 45X)	25th Street to 4th Street	1.8 Miles	Short-Term	Road Diet – one 12.5-foot lane in each direction and a 15-foot two-way left-turn lane (TWLTL)	\$400,000
					Road Diet – one 10.5-foot lane in each direction, an 11-foot TWLTL, and a 4-foot bike lane in each direction	
C	Intersection at Joe Clifton Drive and US 60	Joe Clifton Drive and US 60	13.22 Miles	Short-Term	Restripe to provide dual left-turn lanes on the northbound approach (Joe Clifton Drive)	\$100,000
I1 and I2	Jefferson Street and Broadway Street	7th Street to Fountain Avenue	1.00 Miles	Short-Term	Pavement Striping to delineate on-street parking and provide a bike lane	\$800,000
				Long-Term	Two-Way Conversion	\$1,700,000
J1 and J2	Friendship Road (KY 1286)	US 45 to New Holt Road	2.8 Miles	Short-Term	High Friction Pavement	\$50,000
				Long-Term	Reconstruction	\$29,100,000
K	Olivet Church Road (KY 998)	KY 1286 to US 60	0.6 Miles	Long-Term	Widening pavement and shoulders	\$6,300,000
O	Lone Oak Road (US 45)	KY 1286 to Martin Circle	1.2 Miles	Long-Term	Reversible lanes and left-turn signal modifications	\$2,400,000
R	New Holt Road	KY 1286 to US 60	1.00 Miles	Long-Term	Major Widening – add one lane each direction with bike lanes and sidewalks	\$16,800,000
S	Clarks River Ferry Road	Under US 60X	0.03 Miles	Short-Term	Road Closure – Add Guardrail, Signage, and Striping	\$10,000

Table 5: Medium Priority Improvement Concepts

ID	Route	Location	Length	Short-Term or Long-Term	Improvement Type	2018 Cost Estimate (All Phases)
B1 and B2	Joe Clifton Drive (US 45)	Jackson Street to Ross Avenue	1.04 Miles	Short-Term	Road Diet – one 12.5-foot lane in each direction and a 15-foot two-way left-turn lane (TWLTL)	\$600,000
					Road Diet – one 10.5-foot lane in each direction, an 11-foot TWLTL, and a 4-foot bike lane in each direction	
F	Paducah Convention Center Entrance (US 45X/US 60X)	Martin Luther King Jr Drive and Park Avenue at Convention Center Entrance	0.3 Miles	Long-Term	Intersection Reconfiguration – Roundabout at Park Avenue, Martin Luther King Jr. Drive, 3rd Street, 4th Street, and Convention Center Entrance	\$11,200,000
G1 and G2	3rd Street and 4th Street (US 45X and US 60X)	5th Street to Adams Street	0.8 Miles	Short-Term	Pavement Striping to delineate on-street parking and provide a bike lane	\$700,000
				Long-Term	Two-Way Conversion	\$1,600,000
H	Southern Split (US 60X)	Adams Street to Tennessee Street	0.2 Miles	Long-Term	Intersection Reconfiguration – Roundabout at 3rd Street, 4th Street, and US 60X	\$2,900,000
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Westbound Jackson Street	9.2 Miles	Long-Term	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62) (MP 9.2)	\$4,920,000
Q	KY 731 including Intersections at Broadway Street	KY 731 from US 62 to Broadway Street	0.45 Miles	Long-Term	Intersection Reconfiguration with drainage improvements, pedestrian accommodations, and access management	\$17,000,000

Table 6: Low Priority Improvement Concepts

ID	Route	Location	Length	Short-Term or Long-Term	Improvement Type	2018 Cost Estimate (All Phases)
D	H C Mathis Drive (US 45)	Joe Clifton Drive to US 60	0.24 Miles	Short-Term	Road Diet – one 11-foot lane in each direction and a 14-foot two-way left-turn lane	\$150,000
L1 and L2	Berger Road (KY 1310)	US 45 to KY 994	1.02 Miles	Long-Term	Sidewalk on one side	\$4,920,000
N	Intersection at Jackson Street and Lone Oak Road (US 45 & US 62)	Westbound Jackson Street	9.2 Miles	Long-Term	Reconstruction	\$16,600,000
P	Cairo Road (KY 305)	Charter Oak Drive to Commerce Drive	1.45 Miles	Long-Term	Right Turn Lane on westbound Jackson Street to northbound KY 731	\$4,920,000
					Major Widening and Reconstruction	\$19,000,000

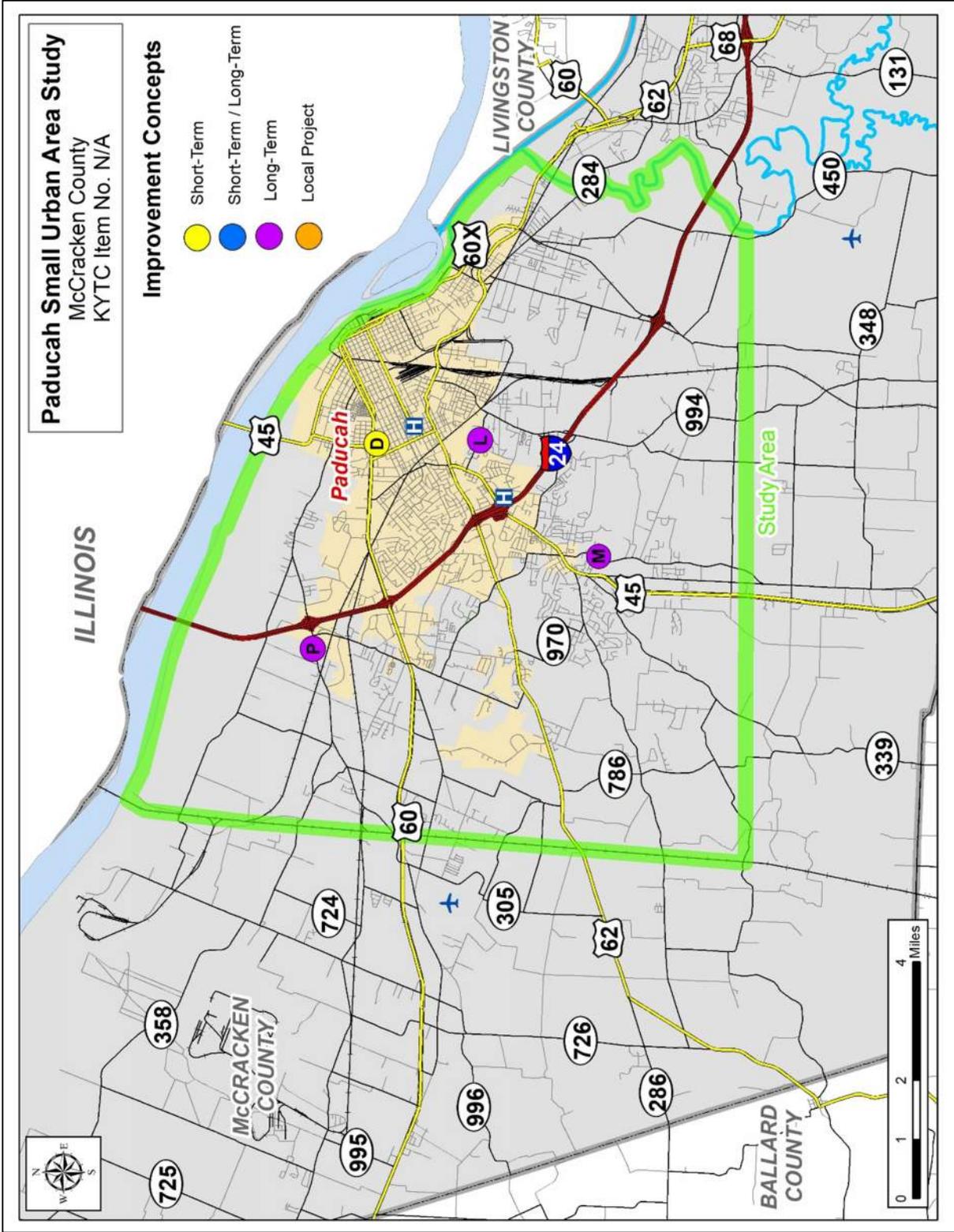


Figure 28: Low Priority Improvement Concepts

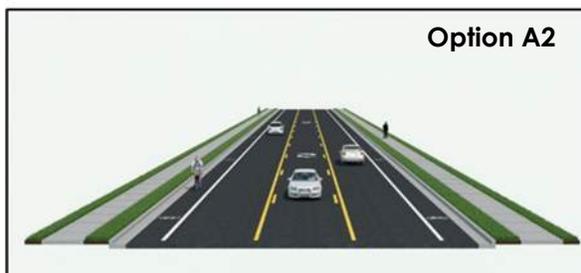
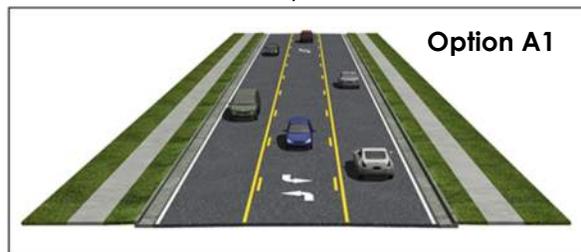
<p style="text-align: center;">A Short-Term</p>	<p>LOCATION Kentucky Avenue (US 45X) 25th Street to 4th Street (MP 0.25 - MP 2.05)</p>	<p style="text-align: center;">PROJECT PRIORITY: High Priority</p>	
<p>DESCRIPTION</p> <p>A1 – Road Diet – one 12.5-foot lane in each direction and a 15-foot TWLTL.</p> <p>A2 – Road Diet – one 10.5-foot lane in each direction, an 11-foot TWLTL, and a four-foot bike lane in each direction.</p>		<p>A1 COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$0 Utilities: \$0 Construction: \$300,000 Total: \$400,000</p>	<p>A2 COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$0 Utilities: \$0 Construction: \$300,000 Total: \$400,000</p>

This portion of US 45X is a four-lane undivided section with approximately 40 feet of existing pavement. It carries 5,700 VPD and connects the commercial sector of downtown Paducah to Baptist Health Hospital and the residential areas to the west. There are CRFs on this section of Kentucky Avenue ranging from below 1.0 to 4.2. Of the 82 reported crashes over the past three years, 79 percent are rear end, angle, or sideswipe collisions. With modest to flat growth expected in the area, one through lane in each direction can accommodate current and future travel demand. Therefore, a short-term project could be a road diet with two configuration options.

Option A1 would be to restripe the existing roadway to one 12.5-foot lane in each direction and a 15-foot TWLTL.

Option A2 would be to restripe the existing roadway to one 10.5-foot lane in each direction, an 11-foot TWLTL, and a four-foot bike lane in each direction. The second option would provide a multi-modal connection to Downtown, the Riverfront, and the Greenway Trail.

This section of Kentucky Avenue is concrete, so it is assumed that water blasting would be used for stripe removal. New striping could then be placed on the existing surface. Signal and sign adjustments will be required.



<p>B Short-Term</p>	<p>LOCATION Joe Clifton Drive (US 45 / US 60) Jackson Street to Ross Avenue (MP 9.93 - MP 10.97)</p>	<p>PROJECT PRIORITY: Medium Priority</p>	
<p>DESCRIPTION</p> <p>B1 – Road Diet – one 12.5-foot lane in each direction and a 15-foot TWLTL.</p> <p>B2 – Road Diet – one 10.5-foot lane in each direction, an 11-foot TWLTL, and a four-foot bike lane in each direction.</p>		<p>B1 COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$0 Utilities: \$0 Construction: \$500,000 Total: \$600,000</p>	<p>B2 COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$0 Utilities: \$0 Construction: \$500,000 Total: \$600,000</p>
<p>This portion of US 45 / US 60 serves as a residential connection between US 60 and US 62, with Baptist Health Hospital and Paducah Tilghman High School nearby. It is a four-lane undivided section with approximately 40 to 50 feet of existing pavement and traffic volumes between 5,200 and 12,500 VPD. There have been 249 reported crashes (including three pedestrian collisions) over the past three years with 78 percent rear end, angle, or sideswipe collisions and a CRF of 2.2. With modest to flat growth expected in the area, one through lane in each direction should be capable of accommodating travel demand. Therefore, a short-term option could be a road diet with two configuration options.</p> <p>Option B1 would include restriping the existing roadway to one 12.5-foot lane in each direction and a 15-foot TWLTL.</p> <p>Option B2 would include restriping the existing roadway to one 10.5-foot lane in each direction, an 11-foot TWLTL, and two four-foot bike lanes. The second option would provide a multi-modal connection to Noble Park and the Greenway Trail.</p> <p>Both options would include pavement milling and resurfacing.</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;">  <div style="text-align: right;">  <p>Option B1</p>  <p>Option B2</p> </div> </div>			

<p>C Short-Term</p>	<p>LOCATION Joe Clifton Drive at US 60 Intersection (MP 13.22)</p>	<p>PROJECT PRIORITY: High Priority</p>
<p>DESCRIPTION Restripe to provide dual left-turn lanes on the northbound approach (Joe Clifton Drive).</p>		<p>COST ESTIMATE Design: \$20,000 ROW: \$0 Utilities: \$0 Construction: \$80,000 Total: \$100,000</p>

This signalized intersection is located on a commercial portion of US 60 at Bob Noble Park. A recurring issue is the left-turn lane from Joe Clifton onto US 60 has heavy backups during peak periods. There were 30 reported crashes on the Joe Clifton approach over the past three years, eight of which were rear end collisions. The existing northbound approach (Joe Clifton Drive) is two lanes, with a dedicated left-turn lane and a shared right and through lane. A short-term project could be to restripe the inside southbound lane as a northbound left-turn lane to provide dual lefts. This project also includes pavement milling and resurfacing.



<p>D Short-Term</p>	<p>LOCATION H C Mathis Drive (US 45) Joe Clifton Drive to US 60X (MP 10.81 – MP 11.05)</p>	<p>PROJECT PRIORITY: Low Priority</p>
<p>DESCRIPTION Road Diet – one 11-foot lane in each direction and a 14-foot TWLTL.</p>		<p>COST ESTIMATE Design: \$20,000 ROW: \$0 Utilities: \$0 Construction: \$130,000 Total: \$150,000</p>
<p>This four-lane undivided section connects Joe Clifton Drive to US 60X and serves a combination of commercial and residential traffic. There have been 18 reported crashes over the past three years, with one pedestrian collision, and a CRF of 1.7. With only 5,300 VPD traveling this 36-foot-wide portion of US 45, one lane in each direction can accommodate the traffic demand. Therefore, a short-term option could be a road diet, which includes restriping to one 11-foot lane in each direction and a 14-foot TWLTL. This project also includes pavement milling and resurfacing.</p>		
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<p style="text-align: center;">E</p> <p style="text-align: center;">Short-Term</p>	<p>LOCATION</p> <p>Martin Luther King Jr. Drive & Park Avenue (US 45X / US 60X) 21st Street to 5th Street (1.40 Miles)</p>	<p style="text-align: center;">PROJECT PRIORITY:</p> <p style="text-align: center;">Not Recommended</p>
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<p>DESCRIPTION</p> <p>Pavement Striping to delineate on-street parking and provide a bike lane.</p>	<p>COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$0 Utilities: \$0 Construction: \$900,000 Total: \$1,000,000</p>
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This residential one-way couplet provides a connection between the commercial areas of US 60 and downtown Paducah. Each roadway offers two driving lanes with unmarked on-street parking and 40 to 42 feet of pavement. The traffic volumes on each roadway range from 4,700 to 5,200 VPD. There have been 76 reported crashes over the past three years with three pedestrian and two bicycle collisions and a CRF of 1.1. A short-term project could be restriping to delineate on-street parking (where available) and to provide a bike lane that will connect to the Riverfront and the Greenway Trail. To connect the proposed bike lanes on Martin Luther King Jr. Drive and Park Avenue to the Greenway Trail in Noble Park, consideration should be given to connections through the park and local streets (21st-26th) north of Park Avenue. This connection is not included in the cost estimate. The cost estimate does include pavement milling and resurfacing on Martin Luther King Jr. Drive and Park Avenue. This project is not recommended at this time due to a lack of local support.



F Long-Term	LOCATION Martin Luther King Jr. Drive & Park Avenue (US 45X / US 60X) at Convention Center Entrance (MP 2.50 – MP 2.80)	PROJECT PRIORITY: Medium Priority
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DESCRIPTION Intersection Reconfiguration – Roundabout at Park Avenue, Martin Luther King Jr. Drive, 3rd Street, 4th Street, and Convention Center Entrance.	COST ESTIMATE Design: \$400,000 ROW: \$3,000,000 Utilities: \$6,000,000 Construction: \$1,800,000 Total: \$11,200,000
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The Paducah Convention Center is a 90,000 square-foot facility consisting of the Julian Carroll Convention Center and the Schroeder Expo Center. It is located on the banks of the Ohio River at a horizontal curve on Park Avenue (US 45X / US 60X) connecting downtown Paducah to the residential neighborhoods to the west. The entrance and exit are on one-way streets and are not clearly marked, creating a confusing experience for unfamiliar drivers visiting the Convention Center. Traffic volumes range from 4,700 to 6,600 VPD. Over the past three years, there have been 31 reported crashes, one of which was a pedestrian crash, with a CRF of 1.3. A long-term project could be to reconstruct the intersection of Park Avenue and Martin Luther King Jr. Drive to a roundabout with a clearly marked entrance to the Convention Center. This improvement concept could pair with improvement Concept G2 and H, a two-way conversion of 3rd and 4th Streets and a roundabout at southern split in Downtown.



G Short-Term Long-Term	LOCATION 3rd St. and 4th St. (US 45X / US 60X) 5th Street to Adams Street (0.80 Miles)	PROJECT PRIORITY: Medium Priority	
	DESCRIPTION G1 – Pavement Striping to delineate on-street parking and provide a bike lane. G2 – Two-Way Conversion.	G1 COST ESTIMATE Design: \$100,000 ROW: \$0 Utilities: \$0 Construction: \$600,000 Total: \$700,000	G2 COST ESTIMATE Design: \$300,000 ROW: \$0 Utilities: \$0 Construction: \$1,300,000 Total: \$1,600,000

This one-way couplet travels through the heart of downtown Paducah near the Riverfront. As a direct route in and out of the city, 3rd and 4th Streets carry a mix of through traffic and commercial traffic to and from downtown businesses, but have low ADTs ranging from 4,700 to 6,700 VPD. There have been 173 reported crashes over the past three years, with two pedestrian and two bicycle collisions and a CRF of 1.3. Two improvement concepts have been developed for these 42 feet-wide roadways. Both options would include pavement milling and resurfacing.

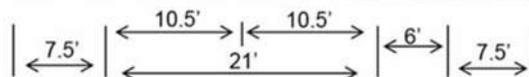
Concept G1 - A short-term project could be restriping to delineate on-street parking and to provide a bike lane which connects to the Riverfront and the Greenway Trail.

Concept G2 - A long-term project could be a two-way conversion where both 3rd and 4th Streets are restriped to one 10.5-foot lane in each direction with a six-foot bike lane in one direction and a 7.5-foot of on-street parking in each direction. Pair with F and H.



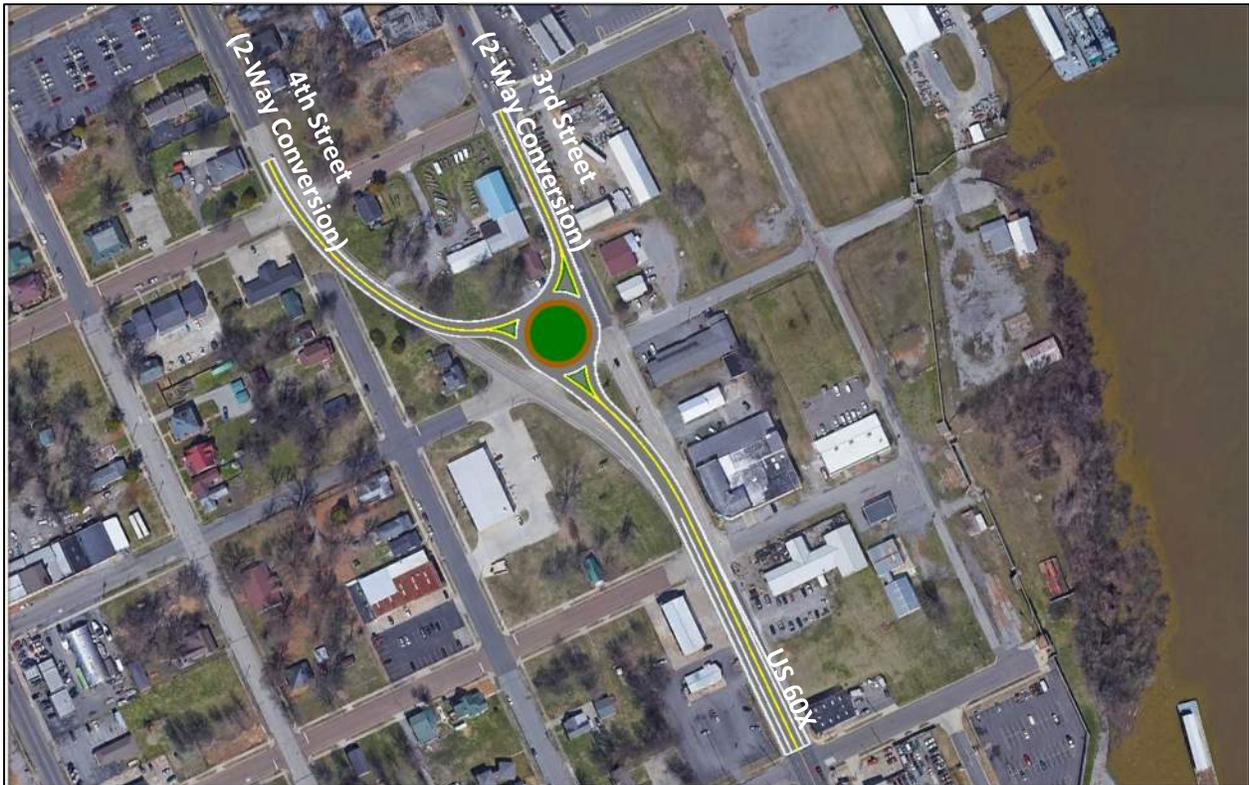
G1 - One-Way Striping Option

G2 - Two-Way Street Conversion Option



<p style="text-align: center;">H</p> <p style="text-align: center;">Long-Term</p>	<p>LOCATION</p> <p>Southern Split (US 60X) Adams Street to Tennessee Street (MP 2.10 – MP 2.30)</p>	<p style="text-align: center;">PROJECT PRIORITY:</p> <p style="text-align: center;">Medium Priority</p>
<p>DESCRIPTION</p> <p>Intersection Reconfiguration – Roundabout at 3rd Street, 4th Street, and US 60X.</p>		<p>COST ESTIMATE</p> <p>Design: \$300,000 ROW: \$800,000 Utilities: \$500,000 Construction: \$1,300,000 Total: \$2,900,000</p>

The southern split of US 60X in downtown Paducah is the confluence of two one-way streets, 3rd Street and 4th Street. The traffic volumes on the one-way streets range from 6,400 to 6,700 VPD. There have been 32 reported crashes over the past three years, with one bicycle collision. A possible long-term project would be to reconstruct the intersection into a roundabout. This project would be paired with Improvement Concept G2, a two-way conversion of 3rd Street and 4th Street.



<p style="text-align: center;">I</p> <p style="text-align: center;">Local Short-Term Long-Term</p>	<p>LOCATION Jefferson St. and Broadway St. 7th Street to Fountain Avenue (1.00 Miles)</p>	<p style="text-align: center;">PROJECT PRIORITY: High Priority</p>	
<p>DESCRIPTION</p> <p>I1 – Pavement Striping to delineate on-street parking and provide a bike lane.</p> <p>I2 – Two-Way Conversion.</p>		<p>I1 COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$0 Utilities: \$0 Construction: \$700,000 Total: \$800,000</p>	<p>I2 COST ESTIMATE</p> <p>Design: \$300,000 ROW: \$0 Utilities: \$0 Construction: \$1,400,000 Total: \$1,700,000</p>

This one-way couplet of city-maintained streets connects the commercial sector of downtown Paducah to the residential areas to the west. Both routes have two lanes and unmarked on-street parking on both sides with approximately 42 feet of pavement. Of the reported crashes over the past three years, 89 percent of the collisions on Jefferson Street and 74 percent on Broadway Street are rear end, angle, or sideswipe collisions. Two improvement concepts have been developed for these roadways. Both options would include pavement milling and resurfacing and provide a multi-modal connection to Downtown and the Riverfront.

Concept I1 - A short-term option could be restriping, which includes leaving both routes as one-way and restriping to two 10.5-foot lanes, a six-foot bike lane, and two 7.5-foot designated parking lanes.

Concept I2 - A long-term option could be a two-way street conversion where both streets are converted to two-way with one 10.5-foot lane in each direction, a six-foot bike lane, and two 7.5-foot designated parking lanes.



I1 - One-Way Striping Option

I2 - Two-Way Street Conversion Option

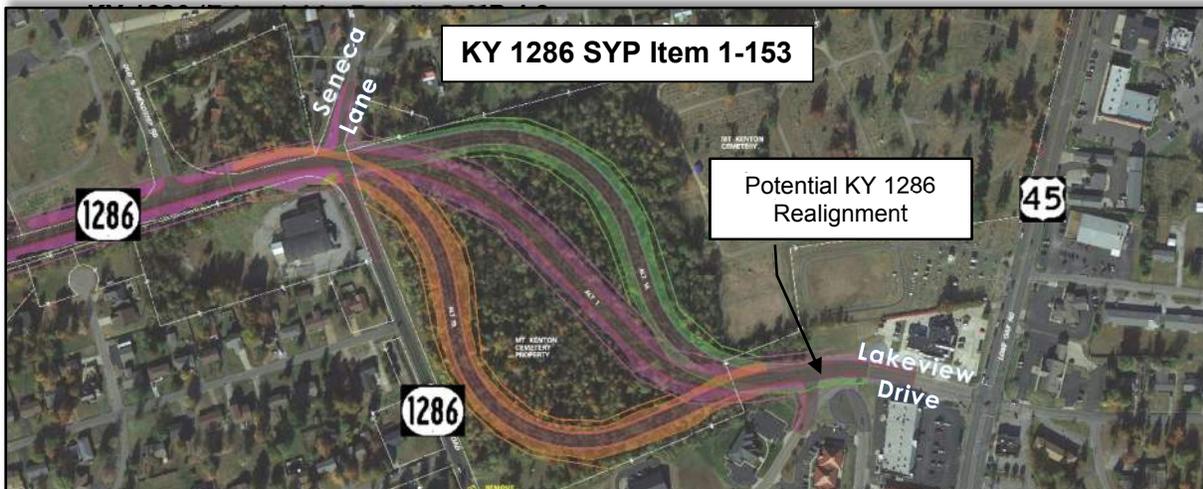


J Short-Term Long-Term	LOCATION Friendship Road (KY 1286) US 45 to New Holt Road (MP 3.62 – MP 6.42)	PROJECT PRIORITY: High Priority	
	DESCRIPTION J1 – High Friction Pavement. J2 – Reconstruction.	J1 COST ESTIMATE Design: \$10,000 ROW: \$0 Utilities: \$0 Construction: \$40,000 Total: \$50,000	J2 COST ESTIMATE Design: \$1,900,000 ROW: \$5,000,000 Utilities: \$4,600,000 Construction: \$17,600,000 Total: \$29,100,000

Carrying around 10,200 VPD, this two-lane section of KY 1286, with a current V/C of 1.2, has a combination of undesirable geometry, narrow lanes, and narrow shoulders. Considered by local residents as part of the 'Inner Loop,' this route connects US 45 and the growing Lone Oak area to US 62 and US 60 through KY 998. The most notable issue on this section is the horizontal curve at MP 4.2, where it has been noted that many drivers travel too fast through the signed 20-mph curve, which has a CRF of 1.5. Of the 21 reported crashes at this curve over the past three years, 18 have been during wet weather conditions and most are run-off-the-road collisions.

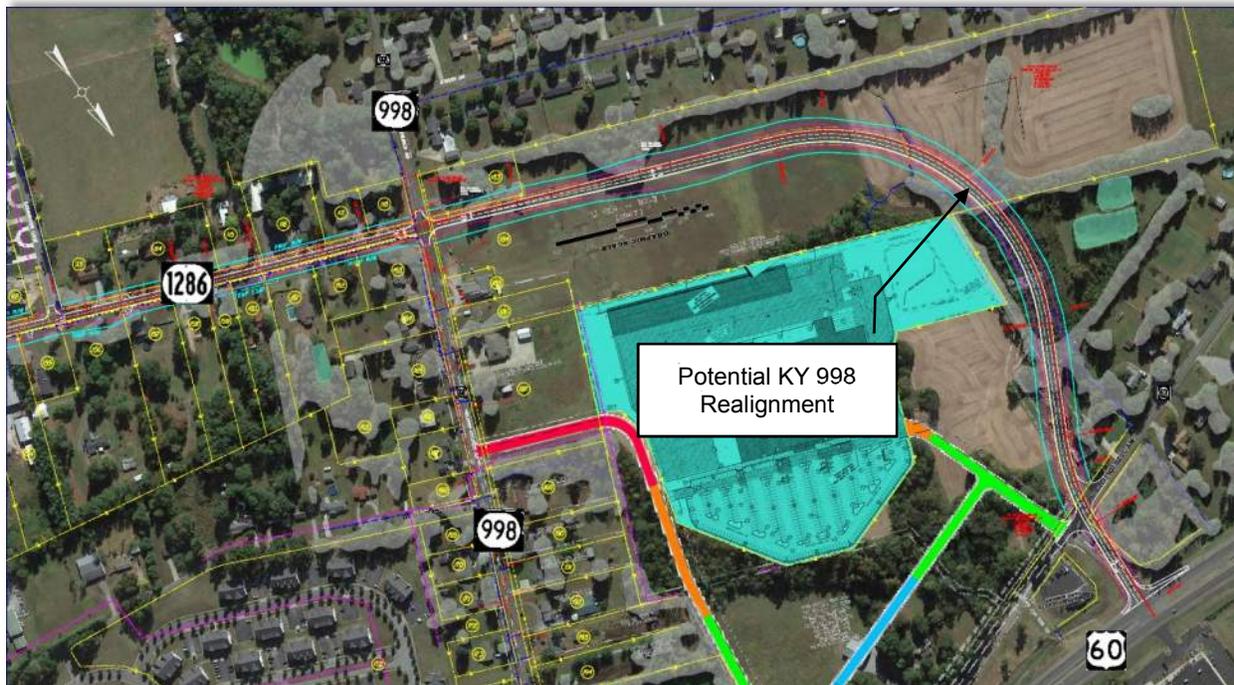
Concept J1 - A short-term project could be to apply a high friction surface treatment to the curve at Seneca Lane (MP 4.2) to help motorists maintain better control in both dry and wet driving conditions. This would require input from the KYTC HSIP team.

Concept J2 - A long-term project could be to reconstruct KY 1286 from US 45 to New Holt Road. This is a sponsored Six Year Plan (SYP) project currently in the NEPA phase with ROW funds scheduled for year 2020. Project costs are from the SYP. The project includes a potential realignment to remove the sharp curve at Seneca Lane and connect KY 1286 with US 45 at Lakeview Drive.



<p>K Long-Term</p>	<p>LOCATION Olivet Church Road (KY 998) KY 1286 to US 60 (MP 1.70 - MP 2.30)</p>	<p>PROJECT PRIORITY: High Priority</p>
<p>DESCRIPTION Widening pavement and shoulders.</p>		<p>COST ESTIMATE Design: \$500,000 ROW: \$1,100,000 Utilities: \$700,000 Construction: \$4,000,000 Total: \$6,300,000</p>

This portion of KY 998 is considered by local officials to be a portion of the 'Inner Loop' that connects KY 1286 to the commercial sector of US 60. The Advisory Committee expects this two-lane section with narrow lanes and shoulders to see substantial growth from the current traffic volumes of 5,700 VPD. The CRF is 1.6 along this portion of KY 998. A long-term project could be widening the roadway and shoulders to improve safety. This widening project is a local priority CHAF IP20120011. The project costs are from the CHAF IP20120011 project profile. Due to recent developments and high ROW costs along the existing corridor, realignment of KY 998 is also being considered. One of the potential realignment concepts is shown below.



<p style="text-align: center;">L</p> <p>Long-Term</p>	<p>LOCATION</p> <p>Berger Road (KY 1310) US 45 to KY 994 (MP 0.0 – MP 1.02)</p>	<p>PROJECT PRIORITY:</p> <p style="text-align: center;">Low Priority</p>	
<p>DESCRIPTION</p> <p>L1 – Sidewalk on one side.</p> <p>L2 – Reconstruction.</p>		<p>L1 COST ESTIMATE</p> <p>Design: \$70,000 ROW: \$3,500,000 Utilities: \$1,000,000 Construction: \$350,000 Total: \$4,920,000</p>	<p>L2 COST ESTIMATE</p> <p>Design: \$1,300,000 ROW: \$4,200,000 Utilities: \$3,900,000 Construction: \$7,200,000 Total: \$16,600,000</p>

Berger Road is a narrow two-lane roadway with no shoulders and steep drop-offs into roadside ditches. It serves as a residential connection between US 45 and KY 994 in the growing area north of Lone Oak. The existing traffic is 3,000 VPD. The CRF is 1.0 with 40 reported crashes over the past three years. One of these collisions was a pedestrian fatality where an eight-year-old was struck by a car while walking along Berger Road to a park. Two improvement concepts have been developed.

Concept L1 - A long-term solution could be to construct a sidewalk on one side of the road.

Concept L2 - A long-term solution could be to reconstruct Berger Road, which is included in local priority CHAF IP20080042, which corrects geometric deficiencies and addresses safety, mobility, and access issues. The project costs are from the CHAF IP20080042 project profile.



<p style="text-align: center;">M</p> <p>Long-Term</p>	<p>LOCATION</p> <p>South Friendship Road (KY 1286) KY 1241 to US 45 (MP 0.0 – MP 3.62)</p>	<p style="text-align: center;">PROJECT PRIORITY:</p> <p style="text-align: center;">Low Priority</p>	
<p>DESCRIPTION</p> <p>M1 – Minor Widening.</p> <p>M2 – Reconstruction.</p>		<p>M1 COST ESTIMATE</p> <p>Design: \$900,000 ROW: \$5,000,000 Utilities: \$800,000 Construction: \$6,000,000 Total: \$12,700,000</p>	<p>M2 COST ESTIMATE</p> <p>Design: \$1,600,000 ROW: \$10,000,000 Utilities: \$5,000,000 Construction: \$10,900,000 Total: \$27,500,000</p>
<p>This portion of KY 1286 is located south of the commercial sector of US 45 in the growing Lone Oak area. Carrying 2,500 VPD, this narrow two-lane section has a combination of poor geometry, narrow lanes, narrow shoulders, and steep roadside ditches. The CRF is 2.6 with 26 reported crashes over the past three years. Two improvement concepts have been developed.</p> <p>Concept M1 - A long-term project could be to widen to provide shoulders and wider lanes to improve safety on the existing alignment.</p> <p>Concept M2 - Another possible long-term solution would be complete reconstruction to provide more desirable geometry.</p> <div style="display: flex; justify-content: space-around;">   </div>			

<p style="text-align: center;">N</p> <p style="text-align: center;">Long-Term</p>	<p>LOCATION</p> <p>Intersection at Alben Barkley Drive and Lone Oak Road (US 45, US 62, and KY 731) (MP 9.2)</p>	<p style="text-align: center;">PROJECT PRIORITY:</p> <p style="text-align: center;">N1: Medium Priority N2: Not Recommended</p>	
<p>DESCRIPTION</p> <p>N1 – Right-turn Lane on westbound Jackson Street to northbound Lone Oak Road (KY 731).</p> <p>N2 – Major Widening of US 62 from Audubon Drive to Lone Oak Road.</p>		<p>N1 COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$1,500,000 Utilities: \$3,000,000 Construction: \$200,000 Total: \$4,800,000</p>	<p>N2 COST ESTIMATE</p> <p>Design: \$2,000,000 ROW: \$8,400,000 Utilities: \$6,600,000 Construction: \$9,500,000 Total: \$26,500,000</p>
<p>This bustling intersection carries a combination of commercial and residential traffic through the growing area north of Lone Oak. Traffic volumes range from 11,300 to 19,700 VPD with a V/C of 0.7 to 1.3. The CRF ranges from 0.8 to 1.3 with 82 reported crashes over the past three years. There are several congestion problems with this intersection, the worst of which includes right turns backing up on westbound Jackson Street. Two improvement concepts have been developed.</p> <p>Concept N1 - A long-term solution could be to add a dedicated right-turn lane on the westbound Jackson Street approach. To accompany this solution, another long-term solution could be to widen Lone Oak Road (KY 731) north of US 62, which is a local priority CHAF IP20070001. Concept N1 costs shown above are for the right-turn lane only. The cost for the widening of Lone Oak Road (KY 731) are from the CHAF IP20070001 project profile and are included in Improvement Concept Q.</p> <p>Concept N2 - Another long-term solution could be to widen US 62 between Audubon Drive and Lone Oak Road, which is another local priority CHAF IP20060059. The project costs are from the CHAF IP20060059 project profile. Concept N2 is not recommended at this time due to lack of local support.</p> <div style="text-align: center;">  <p>Right-Lane Queue on Jackson Street at Lone Oak Road Signal</p> </div>			

<p style="text-align: center;">○</p> <p style="text-align: center;">Long-Term</p>	<p>LOCATION</p> <p>Lone Oak Road (US 45) KY 1286 to Martin Circle (MP 6.70 – MP 7.90)</p>	<p style="text-align: center;">PROJECT PRIORITY:</p> <p style="text-align: center;">O1: Not Recommended O2: High Priority</p>	
<p>DESCRIPTION</p> <p>O1 – Sidewalks and Driveway Consolidation.</p> <p>O2 – Reversible Lanes and Left-turn signal modifications.</p>		<p>O1 COST ESTIMATE</p> <p>Design: \$100,000 ROW: \$10,000,000 Utilities: \$2,000,000 Construction: \$800,000 Total: \$12,900,000</p>	<p>O2 COST ESTIMATE</p> <p>Design: \$400,000 ROW: \$0 Utilities: \$0 Construction: \$2,000,000 Total: \$2,400,000</p>
<p>The project team considers this commercial section of Lone Oak Road (US 45) to be one of the most congested roadways in the study area during AM and PM peak periods. Traffic volumes are currently around 27,200 VPD with a V/C ranging from 0.8 to 1.0. The CRF is 1.2, with 86 percent of the 238 reported crashes over the past three years being rear end, angle, or sideswipe collisions. There were also three pedestrian collisions over this period.</p> <p>Concept O1 - Extending existing sidewalks on each side of US 45 from Maryland Street or Augusta Avenue to Martin Circle to improve pedestrian safety and connect the residential neighborhoods north of Mt. Kenton Cemetery to the commercial district to the south. Consideration should also be given to improving access management by consolidating driveways where possible during the construction of the sidewalks. Concept O1 is not recommended at this time due to lack of local support.</p> <p>Concept O2 - The project team noted that the traffic during daily commuter periods is directionally imbalanced, with most traffic traveling northbound into Paducah during the morning and southbound out of town during the afternoon. To take advantage of this imbalance, a solution could be to use the center TWLTL as a reversible lane for travel into Paducah during the AM peak and for out of town travel for the PM peak. In addition to the reversible lane signs, left-turn signal modifications will also be required. At Friendship Road, consideration should be given to changing the left turns from US 45 to protected only to begin and end the reversible operation.</p> <div style="text-align: right; margin-top: 20px;">  </div>			

<p>P Long-Term</p>	<p>LOCATION Cairo Road (KY 305) Charter Oak Dr to Commerce Dr (MP 7.45 – MP 8.90)</p>	<p>PROJECT PRIORITY: Low Priority</p>
<p>DESCRIPTION Major Widening and Reconstruction.</p>		<p>COST ESTIMATE Design: \$1,700,000 ROW: \$4,000,000 Utilities: \$2,000,000 Construction: \$11,300,000 Total: \$19,000,000</p>

This two-lane section of KY 305 is at I-24 Exit 3 and serves a mix of residential, industrial, and commercial traffic. With its proximity to I-24 and the Pilot truck stop, there is heavy truck traffic which causes damage to the pavement and creates the need for frequent patching and repaving. Vehicular congestion also contributes to this problem, with 8,200 to 9,000 VPD and a V/C ranging from 0.5 to 1.3. The CRF ranges between 0.6 and 1.1 with 68 reported crashes over the past three years. A long-term project could be a major widening to four lanes with a raised median for access management. The proposed Megapark Connector (I-8702) will intersect KY 305 at Commerce Drive which makes it a logical terminus to this project.



<p>Q Long-Term</p>	<p>LOCATION Lone Oak Road (KY 731) including Intersection at Broadway Street (MP 0.00 – 0.45)</p>	<p>PROJECT PRIORITY: Medium Priority</p>
<p>DESCRIPTION Intersection Reconfiguration with drainage improvements, pedestrian accommodations, and access management.</p>		<p>COST ESTIMATE Planning: \$300,000 Design: \$1,300,000 ROW: \$4,200,000 Utilities: \$3,300,000 Construction: \$7,900,000 Total: \$17,000,000</p>

This intersection is located at the convergence of the residential and commercial areas near the old Coca-Cola Bottling Plant. The V/C ranges between 0.5 to 1.4 with 3,800 to 13,800 VPD. There were 33 reported crashes at this intersection over the past three years. Residents have been vocal about poor drainage in this area with runoff from the bank onto the road causing ponding. A long-term project would be to reconstruct the intersection. A roundabout should be considered. Drainage at the intersection and nearby roadways (including North 32nd Street) should also be considered during intersection reconstruction. Access management and pedestrian accommodations are also needed. This project includes widening of Lone Oak Road (KY 731) between US 62 and Broadway Street. This project is local priority CHAF IP20070001. The project costs are from the CHAF IP20070001 project profile.



<p>R Local Long-Term</p>	<p>LOCATION New Holt Road KY 1286 to US 60 (1.00 Miles)</p>	<p>PROJECT PRIORITY: High Priority</p>
<p>DESCRIPTION Major Widening – add one lane each direction with bike lanes and sidewalks.</p>		<p>COST ESTIMATE Design: \$700,000 ROW: \$9,000,000 Utilities: \$3,500,000 Construction: \$3,600,000 Total: \$16,800,000</p>
<p>New Holt Road is a city street in the growing commercial area near the Kentucky Oaks Mall on KY 60. As a result, this local street is expected to continue to receive an increase in traffic. Current traffic volumes range from 9,400 to 11,400 VPD with a V/C of 1.0. There were 71 reported crashes over the past three years, one of which was a pedestrian collision. A potential local project could be a major widening of New Holt Road to include additional lanes as well as bike lanes and sidewalks.</p>		
		

<p>S Local Short-Term</p>	<p>LOCATION Clarks River Ferry Road Under US 60X (0.03 Miles)</p>	<p>PROJECT PRIORITY: High Priority</p>
<p>DESCRIPTION Road Closure – Add guardrail, signage, and striping.</p>		<p>COST ESTIMATE Design: \$0 ROW: \$0 Utilities: \$0 Construction: \$10,000 Total: \$10,000</p>
<p>Clarks River Ferry Road has an eight-foot five-inch vertical clearance under US 60X (structure 073B00152N). For safety purposes, this road should be closed or re-routed to obtain a minimum clearance of 12 feet. Traffic movements should be restricted for areas without 12 feet of clearance to avoid inadvertent beam strikes.</p>		
		

9.0 NEXT STEPS

The next phase for any of the recommended concepts would be Phase 1 Design (Preliminary Engineering and Environmental Analysis). Further funding will be necessary to advance an improvement concept to the design phase.

10.0 CONTACTS/ADDITIONAL INFORMATION

Written requests for additional information should be sent to Amanda Spencer, Director, KYTC Division of Planning, 200 Mero Street, Frankfort, KY 40622. Additional information regarding this study can also be obtained from Jessica Herring, KYTC District 1 Office, at (270) 898-2431 (email at Jessica.Herring@ky.gov).