

KENTUCKY TRANSPORTATION CABINET

FRANKLIN SMALL URBAN AREA (SUA) STUDY

PROJECT NO. 30902062.LA7

Final Executive Summary | November 2024





Executive Summary

The Franklin Small Urban Area (SUA) study was initiated by the Kentucky Transportation Cabinet (KYTC) due to the current and potential growth in Franklin, Kentucky, and Simpson County. The objective of this study is to examine roadways in the study area, analyze existing and future traffic and multimodal conditions, safety issues, and roadway characteristics to identify needs and potential solutions to improve the safe and efficient movement of people and goods. The SUA study includes prioritized short-term potential improvement concepts that can be quickly implemented for a relatively low cost, and longer-term improvement concepts for consideration in future project development and implementation.

The objective of the Franklin SUA Study is to identify and evaluate potential transportation concepts to improve mobility and traffic safety while examining potential new regional connections within the study area.

Study Process

The study process consists of four major elements:

- ▶ Examine the existing conditions and identify areas with safety or mobility concerns.
- ▶ Develop potential improvement strategies.
- ▶ Evaluate the improvement strategies addressing safety or mobility concerns.
- ▶ Provide a list of short-term and long-term improvement recommendations.

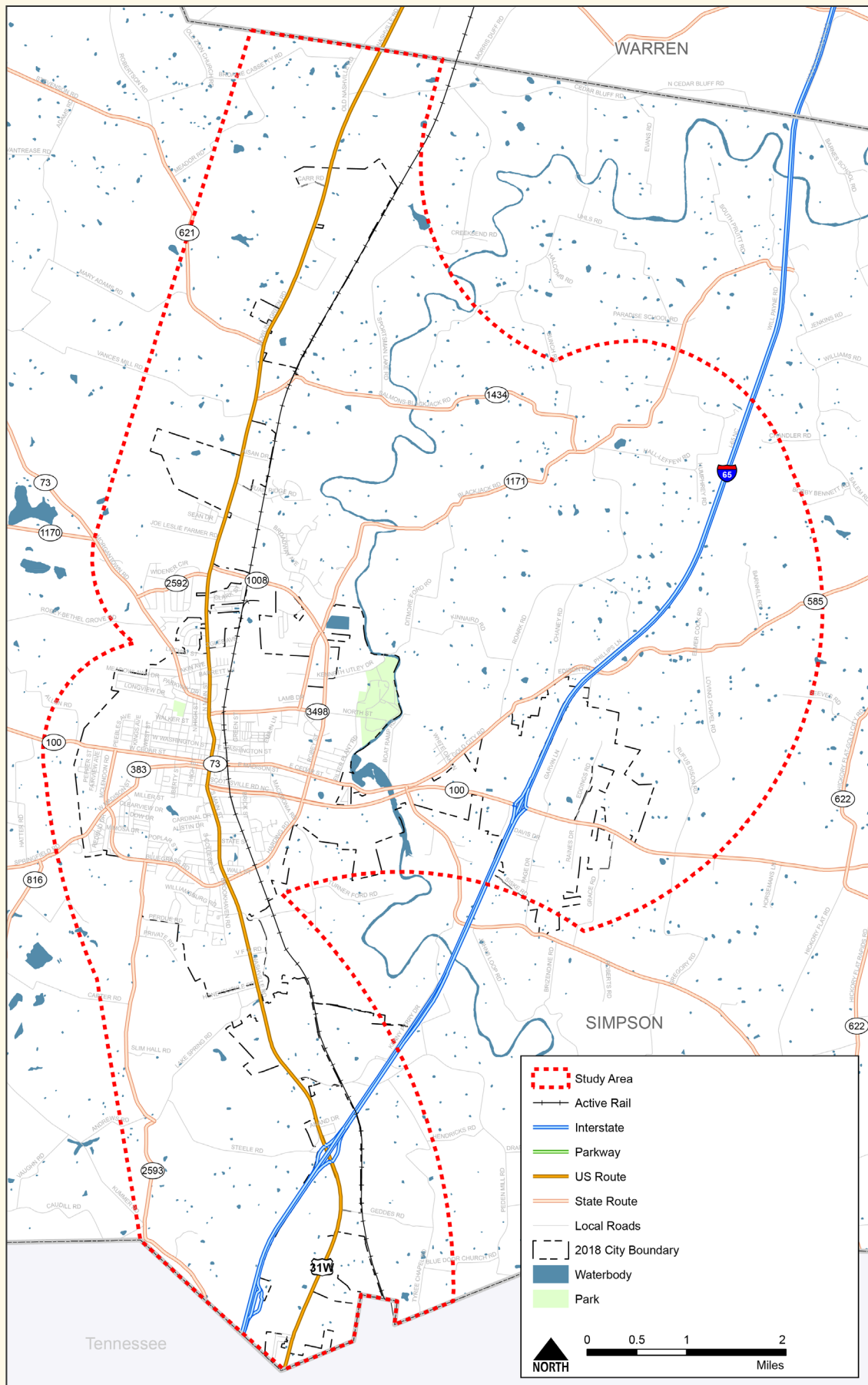
EXISTING CONDITIONS

Existing conditions were evaluated to align with the goals and objectives of the study, specifically by identifying areas with safety or mobility concerns. The existing conditions included:

- ▶ Functional Classification and Roadway Systems
- ▶ Roadway Geometrics
 - Speed Limits
 - Lane and Shoulder Widths
 - Horizontal and Vertical Curves
 - Bridges
- ▶ Intersections and Access Points
- ▶ Multimodal Activity
- ▶ ITS/Wayfinding Signs
- ▶ Traffic Volumes and Operations
- ▶ Safety



Figure ES-1: Franklin SUA Study Area



The study area includes all functional classifications as outlined by the Federal Highway Administration (FHWA). I-65 travels through the study area but was not evaluated as part of the study besides the two existing interchanges. The National Highway Freight Network (NHFN) and Kentucky Highway Freight Network (KHFN) both pass through the study area along US 31W and other arterials through and around downtown.

Several potential concerns were raised with the review of speed limits in the study area:

- ▶ KY 100 is 55 mph in the FHWA-defined urbanized area and near Simpson County schools.
- ▶ Several state routes are 35 mph or faster in higher pedestrian activity areas.
- ▶ There are transition zones with speed limits decreasing from 55 mph to 45 mph to 35 mph in quick succession.
- ▶ The bypass ranges from 35 mph to 55 mph.

27 bridges are within the study area and none are in poor condition. Access control is “By Permit” for most of the study area besides KY 100 where access control is “Partially Controlled” from KY 1008 to I-65. Access point density varies by corridor from higher density in the urbanized segments where most of the 19 signalized intersections are present to lower density in the rural segments.

Bicycle infrastructure is not present within the study area besides signage for the US Bike Route 23 traveling through Simpson County. Pedestrian infrastructure is present throughout the study area, primarily concentrated in the downtown core with sidewalk constraints including gaps to schools, parks, and commercial destinations and non-compliant ADA ramps/facilities. An Amish/Mennonite community is active in the area and should be included as part of any study or project development.

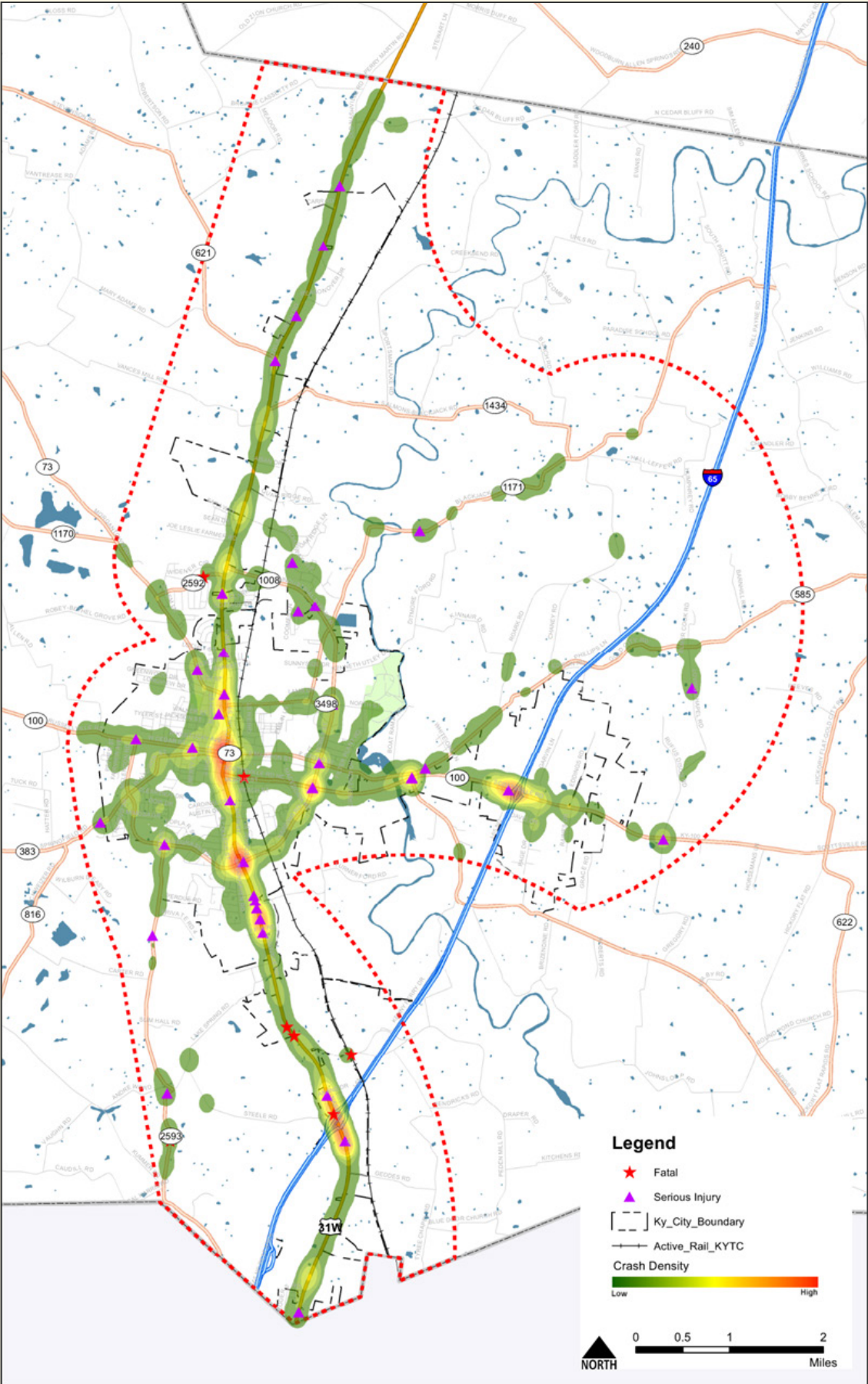
TRAFFIC

A traffic analysis and forecast were conducted for 2023 and 2045 Build Scenarios. A traffic operations analysis was performed to establish the level of service (LOS) for the study area roadway segments. Segments with existing Average Annual Daily Traffic (AADT) of less than 4,000 were presumed to have a LOS ranging from A to C. The remaining segment volumes were analyzed using the Highway Capacity Software (HCS) 2022, which is based on the Highway Capacity Manual 7th edition. LOS D or poorer is predominantly found in the downtown area, suggesting higher traffic stress. Most of the study area does not have traffic capacity issues, indicating adequate transportation infrastructure.

SAFETY

A total of 1,843 crashes were reported between 2018 and 2022 through the Kentucky State Police database. Among these, commercial vehicles constituted 8.6% of crashes, underscoring the role of commercial transportation in the area's traffic dynamics. Vulnerable road users, including bicyclists and pedestrians, resulted in nine pedestrian crashes (one fatal, two serious injuries) and three bicyclist crashes. The crash data reveal a diverse range of incident types. Property damage only (1,537 crashes) represents most of the crashes. However, the severity of crashes cannot be understated, with seven crashes proving fatal and 42 serious injury crashes. These figures not only reflect the human cost of traffic incidents but also underline the need for enhanced safety measures and policies. The analysis also points to a notable occurrence of single-vehicle crashes (485), which accounted for the highest portion of the fatal crashes. **Figure ES-2** is a heat map highlighting where crashes occur most and points where fatal and serious injury crashes have occurred in the past five years.

Figure ES-2: Crash Heat Map (2018-2022 Crash Data)



Excess Expected Crashes (EEC) from KYTC and the Kentucky Transportation Center are based on a crash prediction model that estimates the number of crashes expected on a roadway segment of a given type and length. It represents the number of excess crashes a segment has experienced compared to other roadways of its type, adjusting for traffic volumes, physical characteristics (for two-lane highways), and the actual crash history. EEC is positive when more crashes have occurred than were expected and negative when fewer crashes occurred than were expected. **Table ES-1** shows EECs by roadway type and provides an overview of EECs for all roadways in the study area. Intersections have a negative EEC overall, while segments are seeing more crashes compared to similar facilities across the state.

COORDINATION

The Project Team met four times throughout the study with an initial study kickoff and three Project Team meetings. Two Local Elected Officials and Stakeholders (LO/S) meetings were held and paired with a public survey to identify opportunities and concerns within the study area. This feedback prepared the Project Team for concept consideration and development.

POTENTIAL IMPROVEMENT CONCEPT DEVELOPMENT

Using the existing conditions, safety analysis, input from Local Elected Officials and Stakeholders (LO/S), and a public survey, an initial list of 37 potential improvement concepts (PICs) was developed. A high-level analysis of each concept was performed to refine the list of improvements for a detailed evaluation to 25 PICs which included Design, Right-of-Way, Utility, and Construction cost estimates in 2024 dollars with scheduling contingency, a benefit-cost ratio based on predicted safety benefit, the 20-year total crash reduction and crash savings benefit, and environmental impacts. A planning-level benefit-cost analysis was conducted to determine the value each improvement concept provided. The improvement concepts within the study area were categorized into short-term and long-term improvements, and these along with bicycle and pedestrian improvements were provided as future projects.

Table ES-1: Summary of EEC Values, 2018-2022

Location	KAB EEC*	CO EEC*	Location Total EEC
Urban Two-Lane	-2.21	-201.52	-203.73
Urban Multilane Undivided	4.48	13.68	18.16
Urban Multilane Divided	-0.09	-4.66	-4.75
Rural Two-Lane	3.41	44.25	47.66
Rural Multilane Undivided	3.95	42.07	46.02
Rural Multilane Divided	8.35	113.31	121.66
Segment Totals	17.89	7.13	25.02
Intersections	-3.39	-259.55	-262.94

*K = Fatal Injury, A = Serious Injury, B = Minor Injury, C = Possible Injury, O = Property Damage Only

RECOMMENDATIONS

Using the feedback from the LO/S along with the detailed evaluation of the potential improvement concepts, the Project Team finalized 12 short-term and long-term potential improvement concepts and added bicycle and pedestrian projects to be completed separately. Project sheets were created for each improvement concept that was recommended

for future project development. Project sheets provide information on the issue identified, the improvement concept, the safety benefits and a cost estimate that includes Design, Right-of-Way, Utilities and Construction (DRUC) costs, as well the priority. **Table ES-2** lists short-term and long-term recommended improvements concepts within the Franklin SUA study area. The locations are shown in **Figure ES-3**.

Table ES-2: Recommended Short-Term and Long-Term Potential Improvement Concepts

Project	Short-Term Potential Improvement Concept
ST-A	Short-Term intersection improvements along KY 1008 between KY 100 in the west to KY 100 in the east, including lighting, signage, striping, and turn lanes.
ST-B	Provide access management along US 31W near I-65 Exit 2.
ST-C	Add lighting, improve striping, and construct left turn lanes on KY 1008.
ST-D	Provide access management (closing and consolidating access points) adjacent to the intersection of KY 73 and US 31W (North).
Project	Long-Term Potential Improvement Concept
LT-A	Convert 4-way stop intersections to roundabouts, add turn lanes and edge lines, and fill in missing sidewalks along KY 1008 from KY 100 west of Franklin to KY 100 east of Franklin.
LT-B	Convert the intersection of KY 1008 and US 31W to a roundabout.
LT-C	Complete the KY 1008 Bypass around Franklin.
LT-D	Improve KY 100 from I-65 to US 31W by creating an urban curb and gutter typical section with sidewalks inside of the bypass, creating a four-to-five lane typical section outside of the bypass, and intersection improvements including an RCUT at KY 73 and a roundabout at KY 1008.
LT-E	Provide access management and evaluate a roundabout or signalized corridor at the interchange of I-65 on KY 100 and nearby intersections.
LT-F	Provide a curb and gutter typical section, sidewalk, and a shared use path to connect downtown to Roberts Park and influence traffic calming.
LT-G	Perform a planning study to evaluate a new connection from I-65 to Franklin, north of Exit 6.
LT-H	Fill in sidewalk gaps, add a curb and gutter typical section to create traffic calming and accommodate multimodal users along KY 73.



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