

KENTUCKY TRANSPORTATION CABINET

FRANKLIN SMALL URBAN AREA (SUA) STUDY

PROJECT NO. 30902062.LA7

Final Report | 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



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.

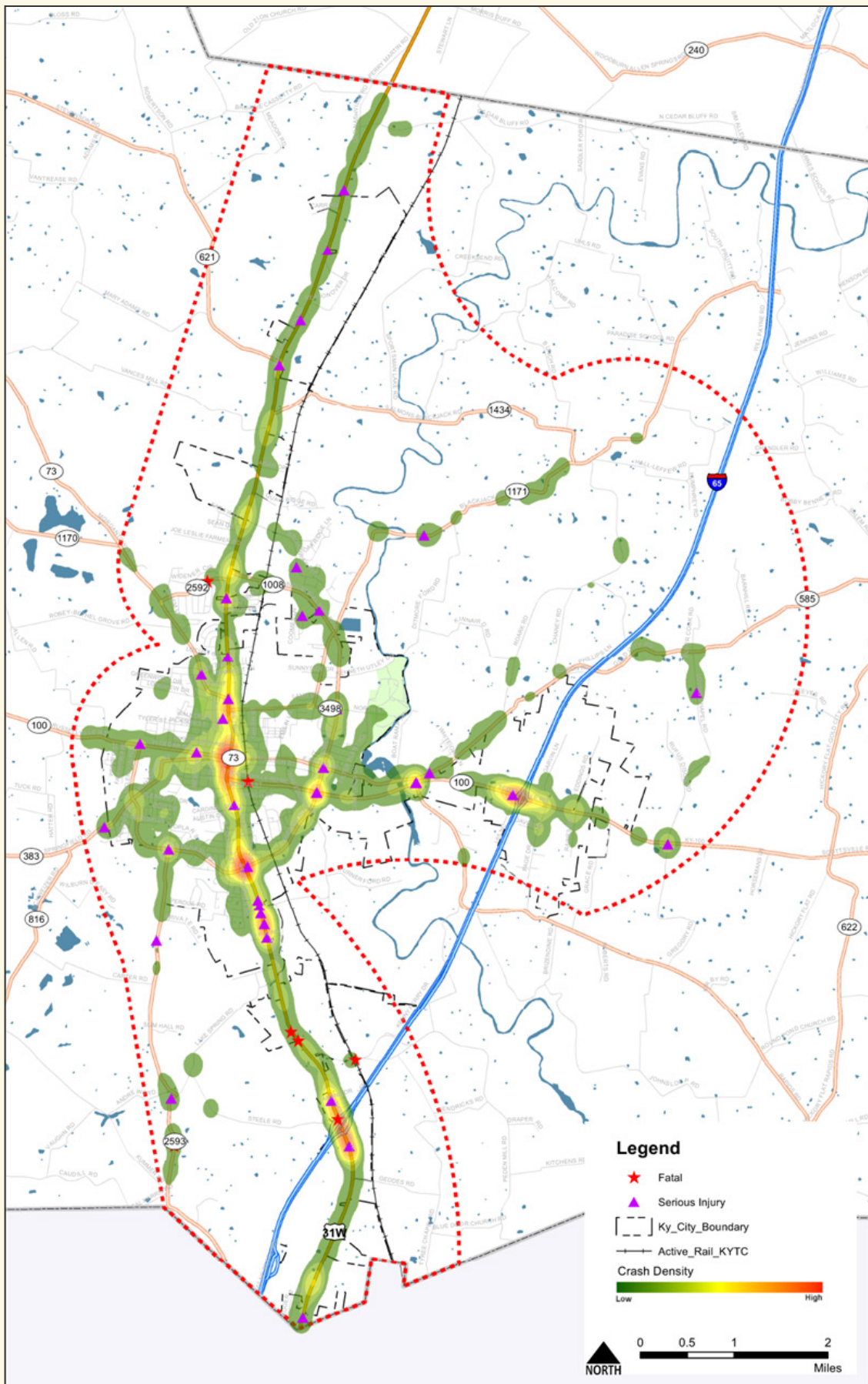
TRAFFIC

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.

The map displays the Memphis area with various transit routes. Key features include:

- Study Area:** Indicated by a red dashed line.
- Active Rail:** Represented by a black line with cross-ticks.
- Interstate:** Represented by a blue line.
- Parkway:** Represented by a green line.
- US Route:** Represented by an orange line.
- State Route:** Represented by a light orange line.
- Local Roads:** Represented by a grey line.
- 2018 City Boundary:** Represented by a black dashed line.
- Waterbody:** Represented by a blue area.
- Park:** Represented by a green area.
- Short Term PIC:** Represented by a yellow line.
- Long Term PIC:** Represented by a dark blue line.

The map includes a scale bar (0 to 2 miles) and a north arrow. Labels for cities like Warren, Simpson, and Tennessee are visible. Specific route labels include LT-A, LT-B, LT-C, LT-D, LT-E, LT-F, LT-G, LT-H, ST-A, ST-B, ST-C, and ST-D.



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1 Introduction

The Franklin Small Urban Area (SUA) study was selected by the Kentucky Transportation Cabinet (KYTC) due to the current and potential growth in Franklin, Kentucky, and Simpson County. The purpose 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 study also includes recommendations for bicyclist and pedestrian improvement concepts.

The Project Team was comprised of representatives from KYTC District 3, KYTC Central Office Division of Planning, and the Consultant Team.

1.1 Study Area

The City of Franklin is in Simpson County, bordering Tennessee and less than 20 miles south of Bowling Green along I-65. The city's population stands at just over 10,000 people, according to the 2020 Decennial Census. The urbanized area, slightly larger than the city boundary, has a population of 11,597.¹ The study area is in the Pennyroyal region of southwestern Kentucky and lies within the [Barren River Area Development District](#) (BRADD).

As illustrated in **Figure 1**, the study area encompasses around 50 square miles with the roadway network comprised of approximately 61 miles of state-maintained highways and 10 miles of high-volume local routes, as listed in **Table 1** with mile points (MP). The study area extends from the Warren County line to the Tennessee line along US 31W through the city and encompasses the urbanized area boundary. The study area extends eastward to include an area surrounding I-65 to allow for the evaluation of potential growth and connections east of the city. I-65 was not included in the study area as SUAs do not typically examine interstate improvements.

¹ <https://www.federalregister.gov/documents/2022/12/29/2022-28286/2020-census-qualifying-urban-areas-and-final-criteria-clarifications>

Figure 1: Study Area

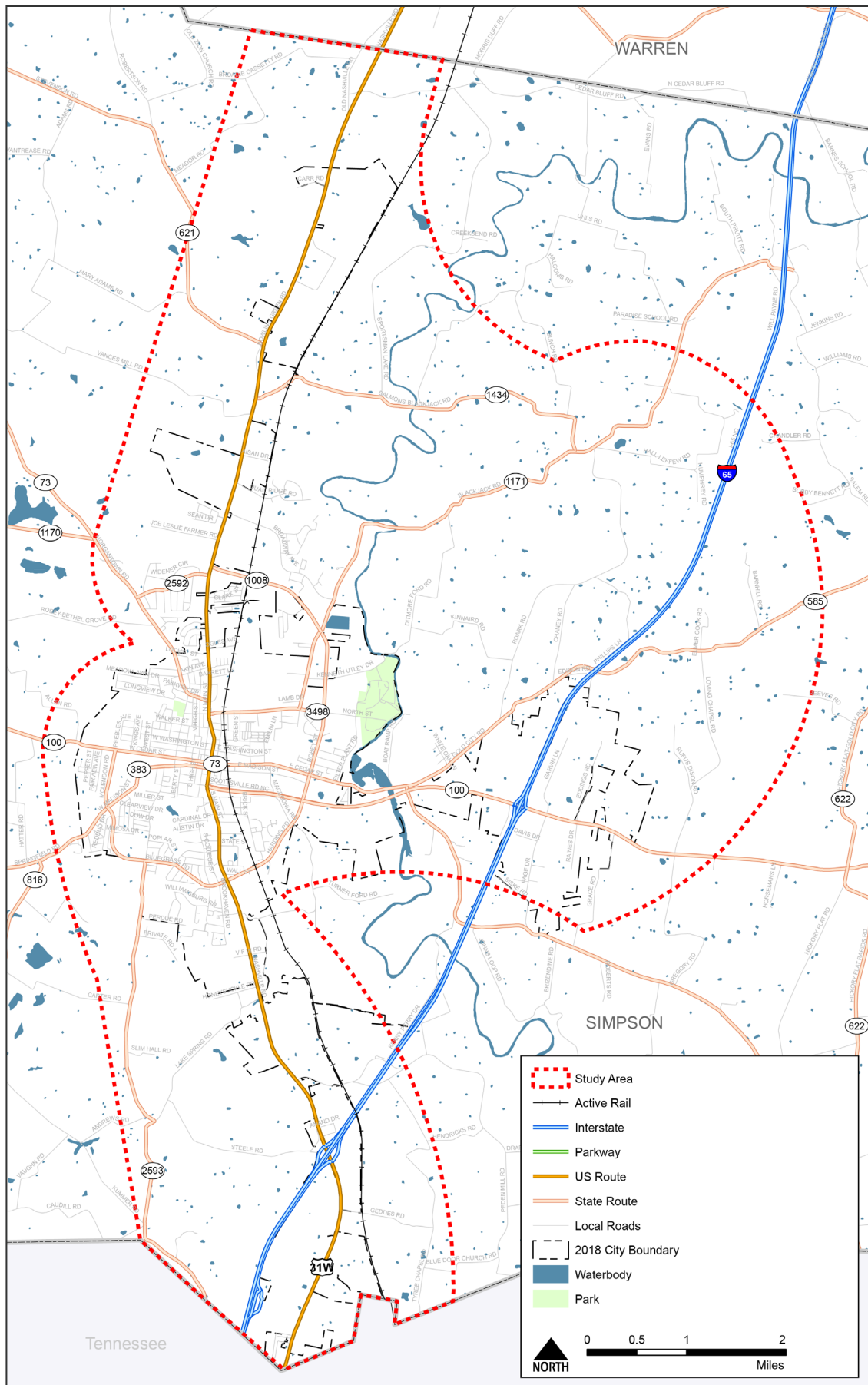


Table 1: Study Area Roads

Route Unique	Route Name	Begin MP	End MP
107-CR-1054-000	BROADWAY AVE	0.000	1.535
107-CR-1151-000	MACEDONIA RD	0.000	2.388
107-CS-1002-000	E WASHINGTON ST	0.000	0.530
107-CS-1010-000	N COLLEGE ST	0.000	0.415
107-CS-1010-020	N COLLEGE ST Y	0.000	0.046
107-CS-1012-000	W WASHINGTON ST	0.000	0.630
107-CS-1014-000	JOHN J JOHNSON AVE	0.000	0.743
107-CS-1023-000	E MADISON ST	0.000	1.001
107-CS-1048 -000	WITT RD	0.000	0.983
107-CS-1087 -000	S COLLEGE ST	0.000	1.322
107-CS-1105-000	CARDINAL DR	0.000	0.093
107-KY-0073-000	E CEDAR ST	7.221	9.234
107-KY-0073-000	MORGANTOWN RD	9.234	11.310
107-KY-0073-000	RAPIDS RD	5.481	7.221
107-KY-0100-000	KY-100	13.95	15.003
107-KY-0100-000	RUSSELLVILLE RD	7.924	8.571
107-KY-0100-000	SCOTTSVILLE RD	9.742	13.950
107-KY-0100-000	W CEDAR ST	8.571	9.742
107-KY-0100-010	SCOTTSVILLE RD NC	10.413	10.715
107-KY-0383-000	SPRINGFIELD RD	7.378	7.738
107-KY-0383-000	W MADISON ST	7.738	9.513
107-KY-0585-000	GOLD CITY RD	0.000	5.673
107-KY-0621-000	PILOT KNOB RD	8.448	8.468
107-KY-0621-000	STEVENSON RD	6.281	8.448
107-KY-1008-000	BLUEGRASS RD	0.586	2.276
107-KY-1008-000	HARDING RD	2.276	3.688
107-KY-1008-000	INDUSTRIAL BYPASS N	4.333	6.526
107-KY-1008-000	MCLENDON RD	0.000	0.586
107-KY-1008-000	ROBEY ST	3.688	4.333
107-KY-1171-000	BLACKJACK RD	0.907	7.289
107-KY-1171-000	NORTH ST	0.000	0.907
107-KY-1434-000	SALMONS-BLACKJACK RD	0.000	3.831
107-KY-2592-000	PATTON RD	0.000	0.774
107-KY-2593-000	WITT RD	0.000	4.874
107-KY-3498-000	NORTH ST	0.000	0.246
107-US-0031W -000	BOWLING GREEN RD	8.164	13.984
107-US-0031W -000	N MAIN ST	6.488	8.164
107-US-0031W -000	NASHVILLE RD	0.000	5.273
107-US-0031W -000	S MAIN ST	5.273	6.488
107-US-0031W -010	NASHVILLE RD NC	2.212	2.383

1.2 Proposed Projects

Kentucky's [FY 2024-2030 Enacted Highway Plan](#) and the Continuous Highway Analysis Framework (CHAF) database were reviewed to identify planned projects in the study area that should be considered throughout the study. The CHAF database enables users to collect, track and analyze identified project needs. CHAF also provides a means to sponsor, score, and rank projects as part of the Strategic Highway Investment Formula for Tomorrow (SHIFT).

Projects found in the FY 2022-2028 *Enacted Highway Plan (Highway Plan)* and the CHAF database are listed below. **Figure 2** shows the projects from the Highway Plan.

1.2.1 HIGHWAY PLAN PROJECTS

Four projects are included in the current Highway Plan:

- ▶ **3-8855.00** | Improve KY-1008 from KY-73 to North Franklin Street (14CCN) (2022CCR) | Utilities, Construction 2025, 2026.
- ▶ **3-8856.00** | Improve US-31W from KY-1008 to KY-621 (14CCN) (16CCR) (2020CCR) | Right-of-Way, Utilities, Construction 2025, 2027, 2029.
- ▶ **3-80106.00** | Add a turn lane at the intersection of KY 1008 and US 31W (2020CCN) | Construction 2025.
- ▶ **3-80202.00** | Supplemental MOA for industrial access roads for Stone-Givens Park (2022CCN) | Construction 2024.
- ▶ **3-80310.00** | Improve mobility along KY 1171 (North Street) from the intersection with US 31W to the intersection with KY 1008 in Franklin (2024CCN) | Design, Right-of-Way, Utilities, Construction 2025, 2027, 2028.
- ▶ **3-80316.00** | Improve mobility by completing the KY 1008 Bypass around Franklin (2024CCN) | Design, Right-of-Way, Utilities, Construction 2025, 2027, 2029.
- ▶ **3-80321.00** | Improve Safety on Ky 585 at Lick Creek from MP 3.45 to 3.75 (2024CCN) | Design, Right-of-Way, Utilities, Construction 2025, 2027, 2028.

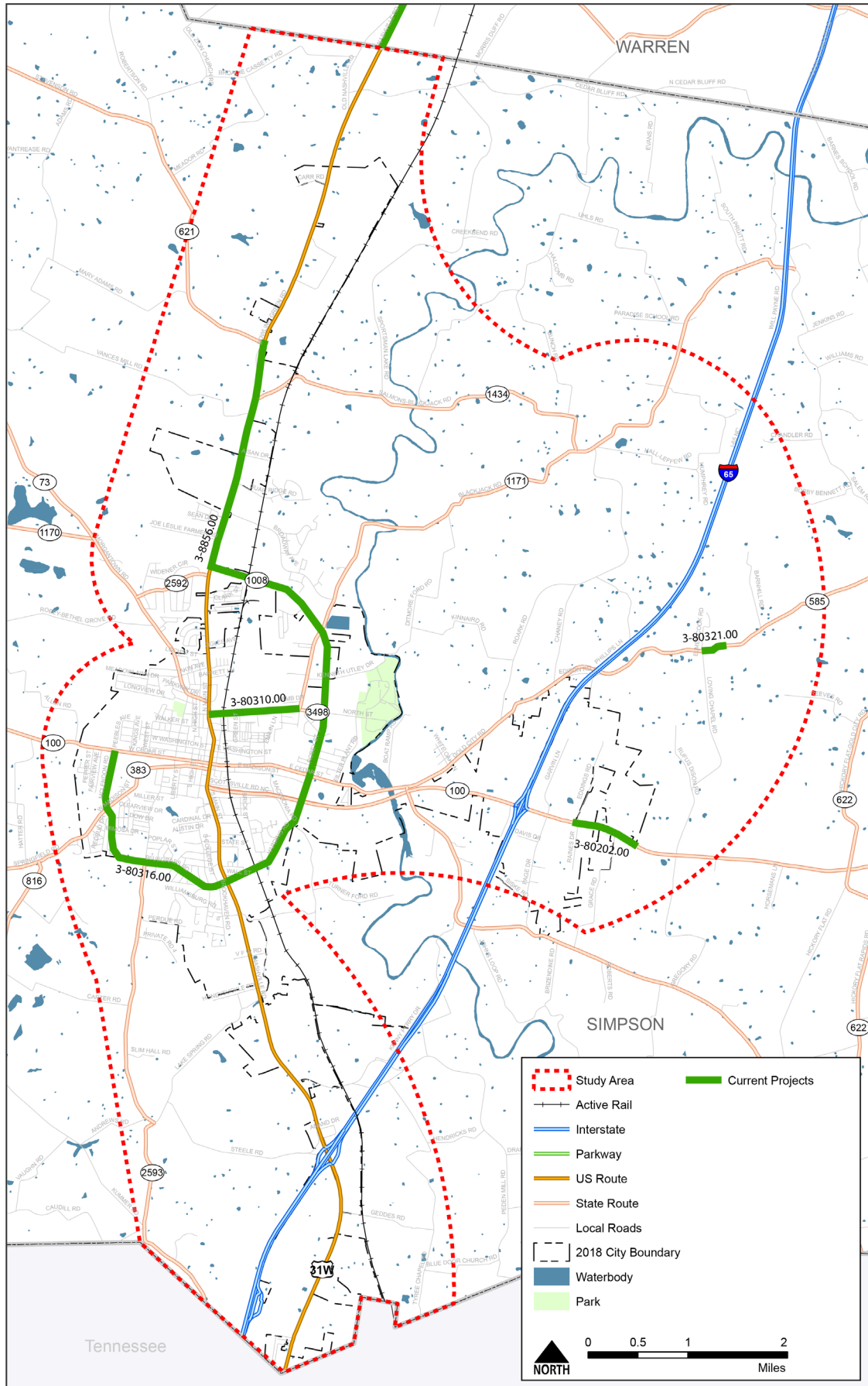


1.2.2 CHAFS

The CHAF database lists 20 projects in the study area:

- ▶ **IP20060191** - Improve access to I-65 via a new interchange at KY 585 for Eastern Simpson County and Northern Allen County.
- ▶ **IP20000008** - Improve safety and address the horizontal and vertical alignment deficiencies on KY 2593 from the Tennessee State Line (MP 0.000) to KY 1008 (MP 4.874) in Simpson County.
- ▶ **IP20060192** - Reduce congestion and improve safety on US 31W between KY 1171 and KY 1008 north of Franklin.
- ▶ **IP20060193** - Improve safety and mobility on US 31W between KY 1008 (south) and Industrial Drive.
- ▶ **IP20060197** - Improve safety by addressing vertical alignment deficiencies on KY-585 from the intersection with KY-73 to the intersection with Roark Road.
- ▶ **IP20060198** - Improve safety by addressing horizontal alignment deficiencies on KY 585 from Roark Road (MP 1.165) to I-65 overpass (MP 2.229).
- ▶ **IP20060199** - Reduce congestion and improve mobility along KY-1008 from US-31W south of Franklin to KY-100 west of Franklin.
- ▶ **IP20060300** - Improve access and mobility by providing a connection between US 31W south and the Portland Industrial Authority and the potential Southern Simpson County Industrial Park including the new interchange of TN 109 at I 65.
- ▶ **IP20070130** - Improve safety and mobility on US-31W between KY-621 and the Warren County line.
- ▶ **IP20070131** - Reduce congestion and increase mobility on KY-1008 from KY-73 to North Franklin Street. (14CCN)
- ▶ **IP20080141** - Improve safety and mobility along US 31W from KY 1008 to the north industrial park.
- ▶ **IP20140055** - Improve mobility for motor vehicles and pedestrians along KY-1171 (North Street) from the intersection with US-31W to the intersection with KY-3498 in Franklin.
- ▶ **IP20140056** - Improve mobility for motor vehicles and pedestrians on KY 3498 (North Street) from the intersection with KY 1171 to the intersection with KY 1008 in Franklin.
- ▶ **IP20140057** - Improve safety and mobility on KY-100 from Russellville to I-65 east of Franklin.
- ▶ **IP20160233** - Planning study for new route between KY 100 west of Franklin or US 31W south of Franklin and the Kentucky/Tenn line near Witt Road in Simpson Co. (16CCN)
- ▶ **IP20190037** - Improve safety and mobility at the intersection of KY 1008 and US 31W.
- ▶ **IP20190038** - Improve mobility by completing the KY 1008 Bypass around Franklin.
- ▶ **IP20190109** - Modernize KY 100 from KY 1008 to US 31W.
- ▶ **IP20200020** - Improve safety and mobility on KY-1008 at the intersection with KY-2593.
- ▶ **IP20210073** - Improve safety and mobility at the Exit 6 Interchange of I-65 on KY-100.

Figure 2: Current Projects in the Study Area



1.3 Study Objective

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.



1.4 Study Process and goals

The study process consists of four major elements:

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

The subsequent chapters of this report detail these steps, with additional information provided in the appendices as referenced.



2 Existing Conditions

To evaluate the existing conditions in the Franklin SUA, a detailed inventory of the existing physical and geometric road characteristics, traffic conditions, and safety characteristics was completed using the following sources:

- ▶ KYTC Highway Information System (HIS) data
- ▶ KYTC record plans and bridge inspection reports
- ▶ Google Earth aerial imagery and Street View
- ▶ KYTC Photolog Viewer
- ▶ Field Review
- ▶ Kentucky State Police (KSP) Crash Data and KYTC Crash Data Access Tool (CDAT)

This chapter summarizes the existing conditions analysis by roadway geometrics, intersections and access points, structures, pedestrian and bicyclist activity, traffic volumes and operations, and existing traffic safety.

2.1 Functional Classification + Roadway Systems

Functional classification is the process of grouping streets and highways according to the character of travel service they provide. This classification system recognizes that travel involves movement through a hierarchical system of facilities that progress from lower classifications handling short, locally oriented trips to higher classifications that serve longer-distance travel at a higher level of mobility. Below are the functional classes and their descriptions as outlined by the Federal Highway Administration (FHWA):

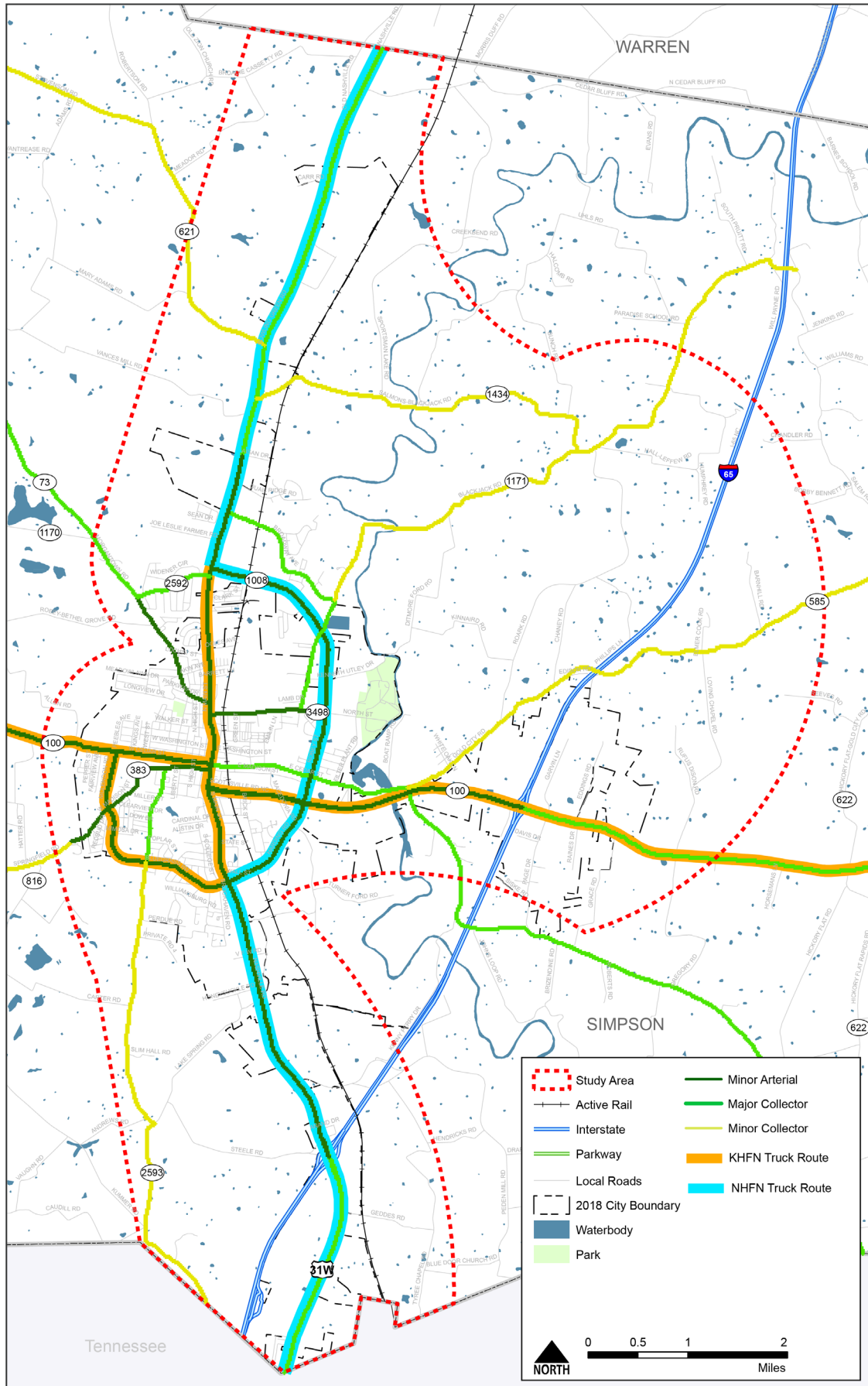
- ▶ Interstates: Roadways that comprise the Dwight D. Eisenhower National System of Interstate and Defense Highways and other Interstates as designated by the Secretary of Transportation
- ▶ Other Freeways & Expressways: Non-Interstate roadways with access points limited to on-ramp and off-ramp locations and directional travel lanes usually separated by a physical barrier

- ▶ Other Principal Arterials: Roadways that provide a high level of traffic mobility for substantial statewide travel and/or serve major activity centers and the longest trip demands within urban areas
- ▶ Minor Arterials: Roadways that serve trips of moderate length to smaller geographic areas and at a slightly lower level of traffic mobility than Principal Arterials
- ▶ Major Collectors: Roadways that distribute and channel trips between the lower classifications and the arterial system
- ▶ Minor Collectors: Roadways that distribute and channel trips between Local Roads and the higher classifications at a lower level of traffic mobility than Major Collectors
- ▶ Local Roads: Roadways that primarily provide direct access to adjacent land and are not intended for use in long distance travel

The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. I-65 is the only NHS route in the study area.

Within the study area, the Kentucky Highway Freight Network (KHFN) includes KY 100, US 31W, and KY 1008 west of US 31W through residential and commercial zones within the city limits. The National Highway Freight Network (NHFN) travels along US 31W south of Franklin, KY 1008 bypass, and US 31W north of Franklin, avoiding the downtown area. Most trucks appear to utilize the KHFN over the NHFN to save time and for ease of access. **Figure 3** shows the KHFN and NHFN routes, along with functional classification of study area roadways.

Figure 3: Functional Classification and Freight Networks



2.2 Roadway Geometrics

An inventory of roadway characteristics was completed to identify factors contributing to safety issues in the Franklin SUA study area.

2.2.1 SPEED LIMIT

Figure 4 shows the posted speed limits in the study area. Speed limits in the study area range between 25 miles per hour (mph) and 55 mph within the urbanized area and 45 mph and 55 mph as the study area becomes more rural. A school zone variable speed limit is active during school hours along US 31W near Franklin Simpson High School, Franklin Simpson Middle School, and Franklin Elementary School, and also along Witt Road near Simpson Elementary School.

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

- ▶ KY 100 is 55 mph in the FHWA 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.



Figure 4: Speed Limits

This map displays the speed limit zones for the Memphis area. The zones are defined by colored lines: 25 mph (green), 35 mph (light green), 45 mph (yellow), and 55 mph (red). The map includes major highways, local roads, and the city boundary. A legend in the bottom right corner provides a key for the symbols used.

Legend:

- Study Area (Red dashed line)
- Active Rail (Black line with cross-ticks)
- Interstate (Blue line)
- Parkway (Green line)
- US Route (Orange line)
- State Route (Light orange line)
- Local Roads (Grey line)
- 2018 City Boundary (Black dashed line)
- Waterbody (Blue area)
- Park (Green area)
- 25 mph (Green line)
- 35 mph (Light green line)
- 45 mph (Yellow line)
- 55 mph (Red line)

Scale: 0 to 2 Miles

North Arrow: NORTH

2.2.2 LANE AND SHOULDER WIDTH

The lane widths and shoulders vary throughout the study area. **Figure 5** identifies areas with lane widths less than 10 feet and greater than 12 feet, as well as road segments with shoulder widths less than two feet, which are identified as potential issues. The criteria used for potential lane and shoulder design concerns was developed based on (American Association of State Highway and Transportation Officials) AASHTO Green Book design standards but should not indicate that there is an actual design issue. These locations could be examined in more detail in a future study or project if safety or mobility concerns arise in the future.

2.2.3 HORIZONTAL AND VERTICAL CURVES

The horizontal and vertical curves map in **Figure 6** uses KYTC's Highway Information System (HIS) data and highlights horizontal curves that are greater than 8.5 degrees, or where the radius is 675 feet or smaller, and vertical curves with a crest or sag that is between 4.5 and 6.4% (purple), 6.5-8.4% (red), and greater than 8.5% (dark red) to show potential issues with sight distance or loss of control. The criteria used for potential horizontal or vertical roadway design concerns was developed based on the HIS data categories and should not indicate that there is an actual design issue. These locations could be examined in more detail in a future study or project if safety or mobility concerns arise in the future.



Figure 5: Lane and Shoulder Widths

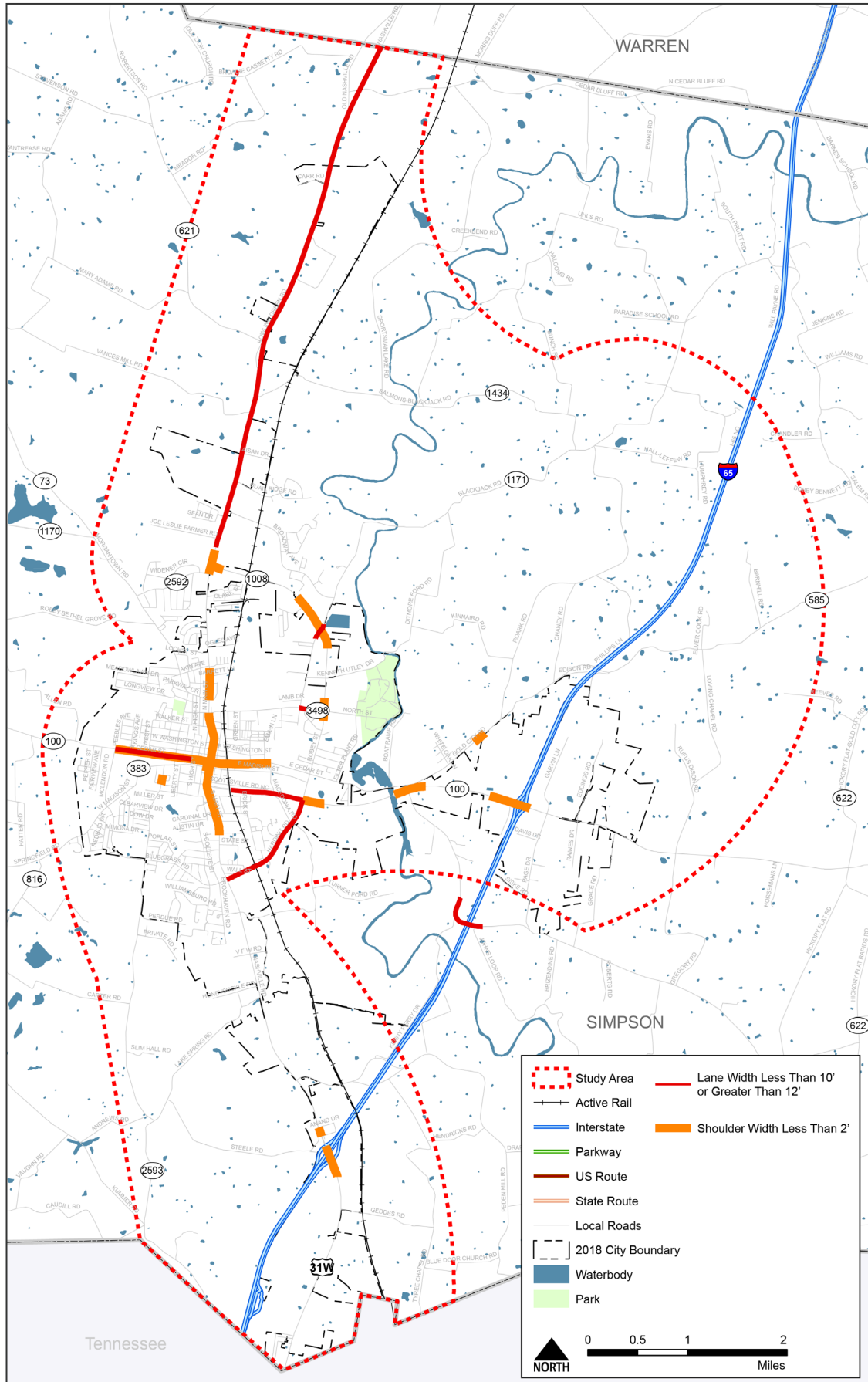
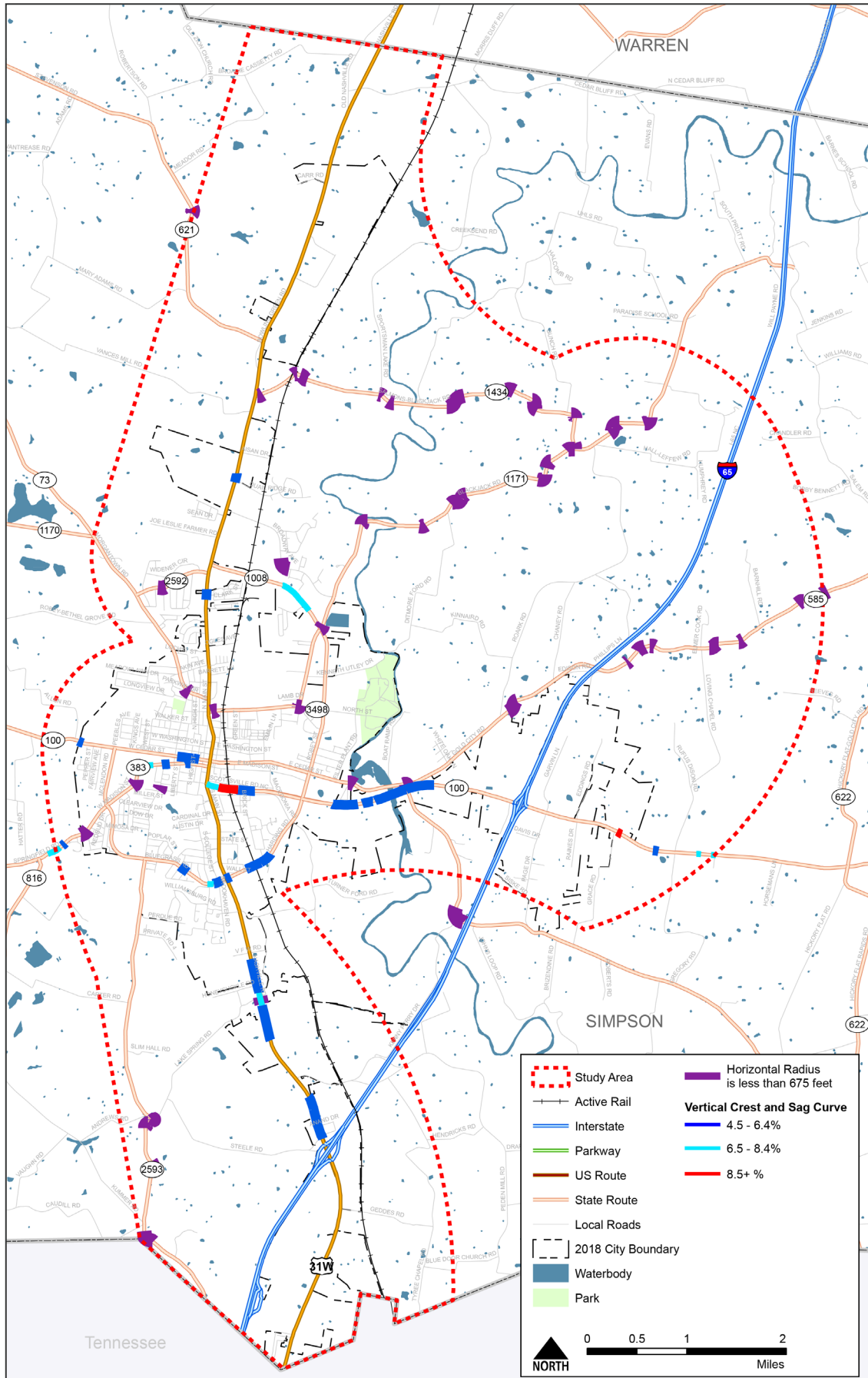


Figure 6: Horizontal and Vertical Alignments



2.3 Bridges

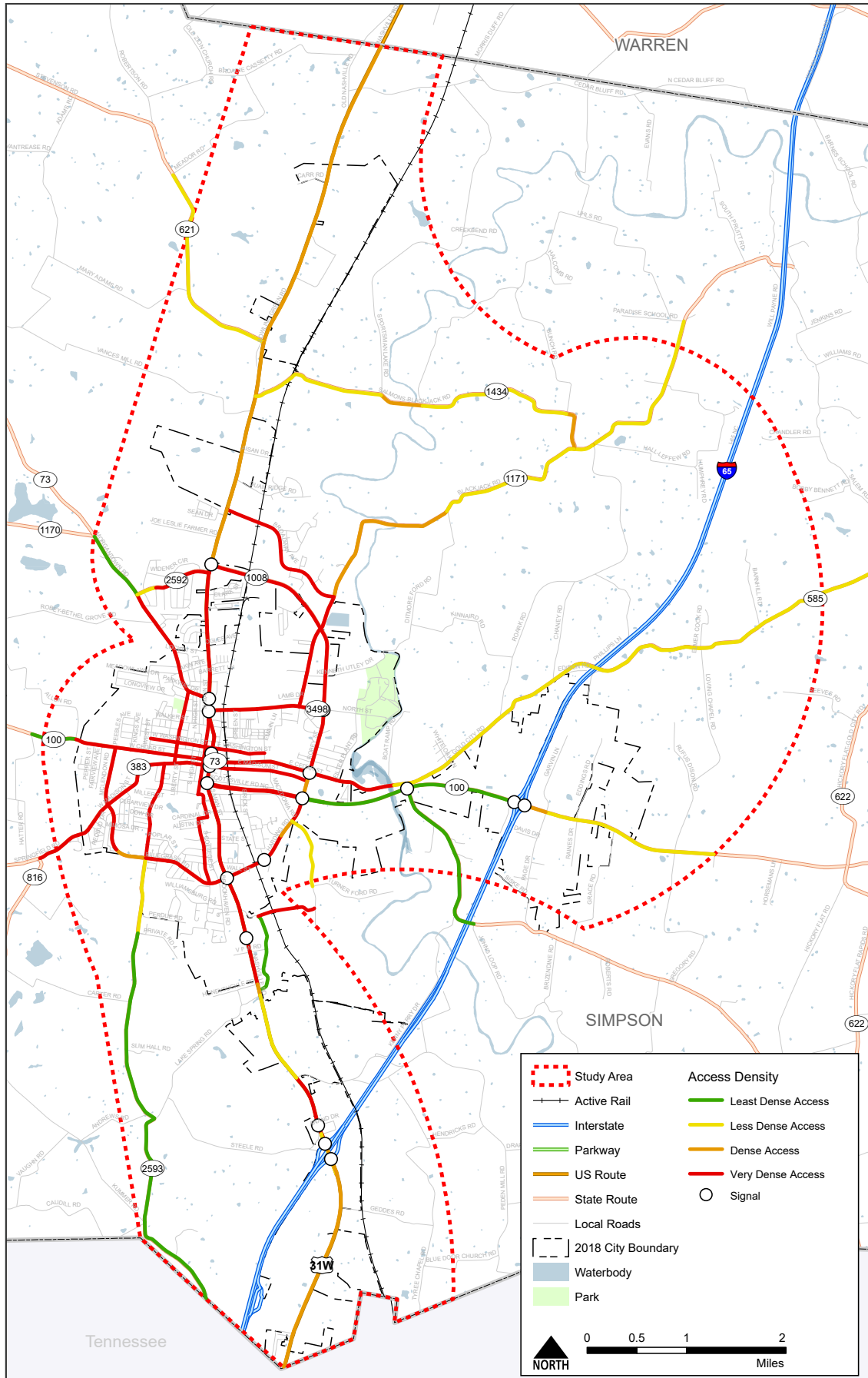
Bridge inspection reports were consulted to for the 27 bridges within the study area. The substructure, superstructure, and deck are given a rating of 1 to 10. Bridges with ratings of 7 or higher are considered in good condition, bridges with a rating of 5 or 6 are considered in fair condition, and bridges with a rating of 4 or less are considered in poor condition. 17 of the study area bridges are in fair condition, 10 bridges are in good condition, and there are no bridges in poor condition. As a result, no upgrades were considered in this study.

2.4 Intersections + Access Points

As **Figure 7** illustrates, access point density is generally higher in the urbanized area and lower in the rural portions of the study area. Access control is “By Permit” for most of the study area routes and “Partially Controlled” for KY 100 between KY 1008 and I-65. There are 19 traffic signals within the study area, primarily concentrated in the urban area, along US 31W, and along KY 100.



Figure 7: Traffic Signals and Access Point Density



2.5 Multimodal Activity

2.5.1 PEDESTRIANS AND BICYCLISTS

Sidewalks are present in the urban core of the city, although there are some gaps in the sidewalk network. Outside of this area, sidewalks are limited to residential streets. Other pedestrian issues noted in the study area include crosswalk and parking space overlap, Americans with Disabilities Act (ADA) curb ramps without crosswalk markings and stop bar/crosswalk misplacement. These issues are highlighted below and correspond with **Figure 8**.

- A. Sidewalks without crosswalk markings
- B. Non-ADA compliant crosswalks with overlapping parking spaces
- C. Stop bar and crosswalk in reverse order
- D. Amish/Mennonite communities to consider along roadways
- E. Curb ramp without a marked crosswalk
- F. Dead-end and deteriorating sidewalk
- G. Low speed streets without bicyclist/pedestrian infrastructure

Figure 8: Study Area Multimodal Issues + Accommodations



[US Bike Route 23 – Cave Country Bike Tour](#) (US BR 23) runs from the Tennessee line on Witt Road to E Cedar Street through downtown Franklin and northeast of the city along Gold City Road. There are no dedicated bicycle facilities in the study area.

Strava Metro data were used to show areas with higher bicyclist and pedestrian activity.² High pedestrian activity was noted around schools, in the downtown area, and within the Jim Roberts Community Park east of the city. Major gaps of pedestrian data were apparent along the bypass, between the main pedestrian activity areas, and between the residential areas to the commercial zones, requiring more auto-centric activity due to a lack of pedestrian connectivity.

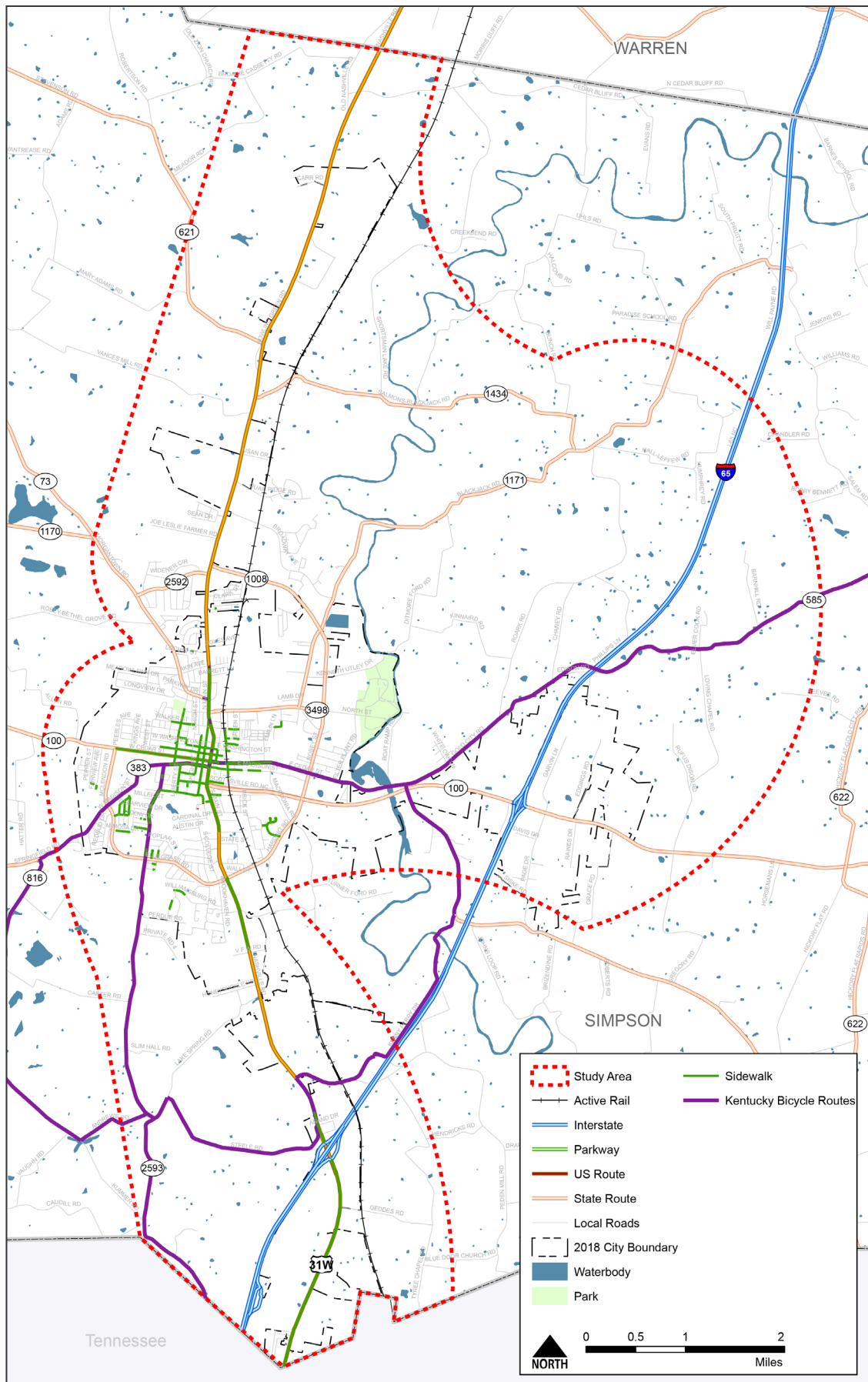
High bicyclist activity was noted along US BR 23 and along the rural portions of Witt Road, Scottsville Road, Blackjack Road, and Morgantown Road with connections in the downtown.

A CSX Transportation rail line runs through the study area, roughly parallel to US 31W. There are 13 at-grade crossings. The Amish/Mennonite community is active within the Franklin SUA study area and should be considered as part of future potential improvement concepts. [Figure 9](#) shows the multimodal facilities in the study area.



² [Strava Metro](#) provides aggregated location-based data on patterns of people moving in a region.

Figure 9: Multimodal Facilities



2.6 ITS/Wayfinding Signs

No existing intelligent transportation systems (ITS) message signs exist within the study area, but one dynamic message sign (DMS) and one traffic camera exist along I-65 near the Kentucky-Tennessee border rest area. One advanced warning sign for a signalized intersection exists along KY 100 at the intersection of KY 100 (Scottsville Road) and KY 73 (Cedar Street). Wayfinding signage, such as interstate identification and state route identification exists throughout the study area.

2.7 Traffic Volumes + Operations

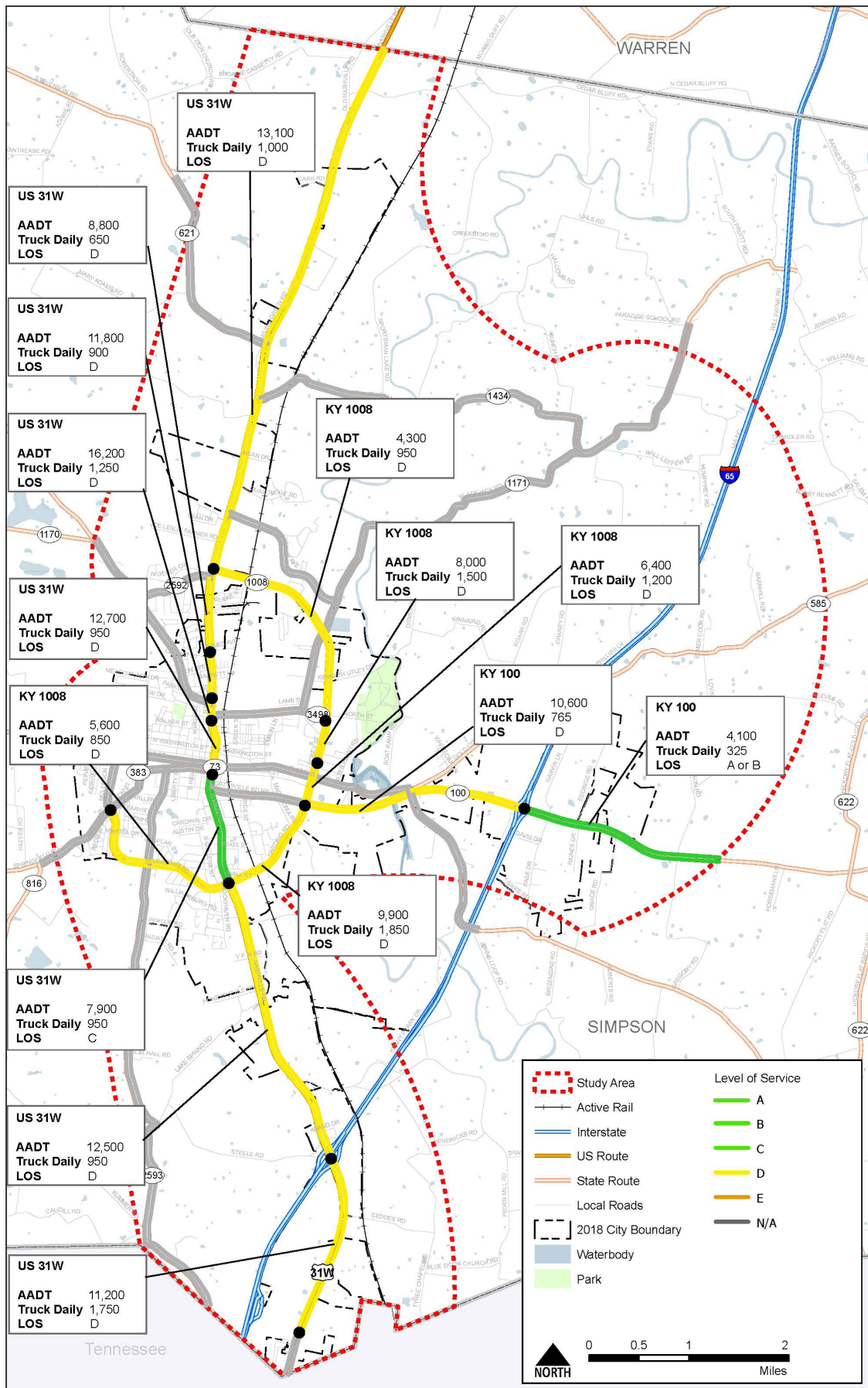
2.7.1 2023 TRAFFIC VOLUMES AND OPERATIONS

Existing traffic volumes and operations were evaluated for state-maintained routes and several major city streets in the study area. Average annual daily traffic (AADT) was collected using the most recent year of counts from KYTC's Automated Traffic Recorders (ATRs). Additionally, turning movement counts were collected for four intersections that the Project Team thought may need to be analyzed as part of this study:

- ▶ US 31W and KY 1008 Bypass
- ▶ US 31W and KY 73 (Cedar Street)
- ▶ US 31W and KY 100 (Scottsville Road)
- ▶ KY 100 (Scottsville Road) and KY 1008 Bypass
- ▶ KYTC provided turning movement counts for the US 31W and KY 1008 Bypass intersection from a recent traffic forecast. The other three locations were collected using MioVision counters.

A traffic operations analysis was performed to establish the level of service (LOS) for the study area roadway segments. Segments with existing 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 along with AADTs and daily truck volumes are shown in **Figure 10**. 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.

Figure 10: 2023 Traffic Volumes and LOS



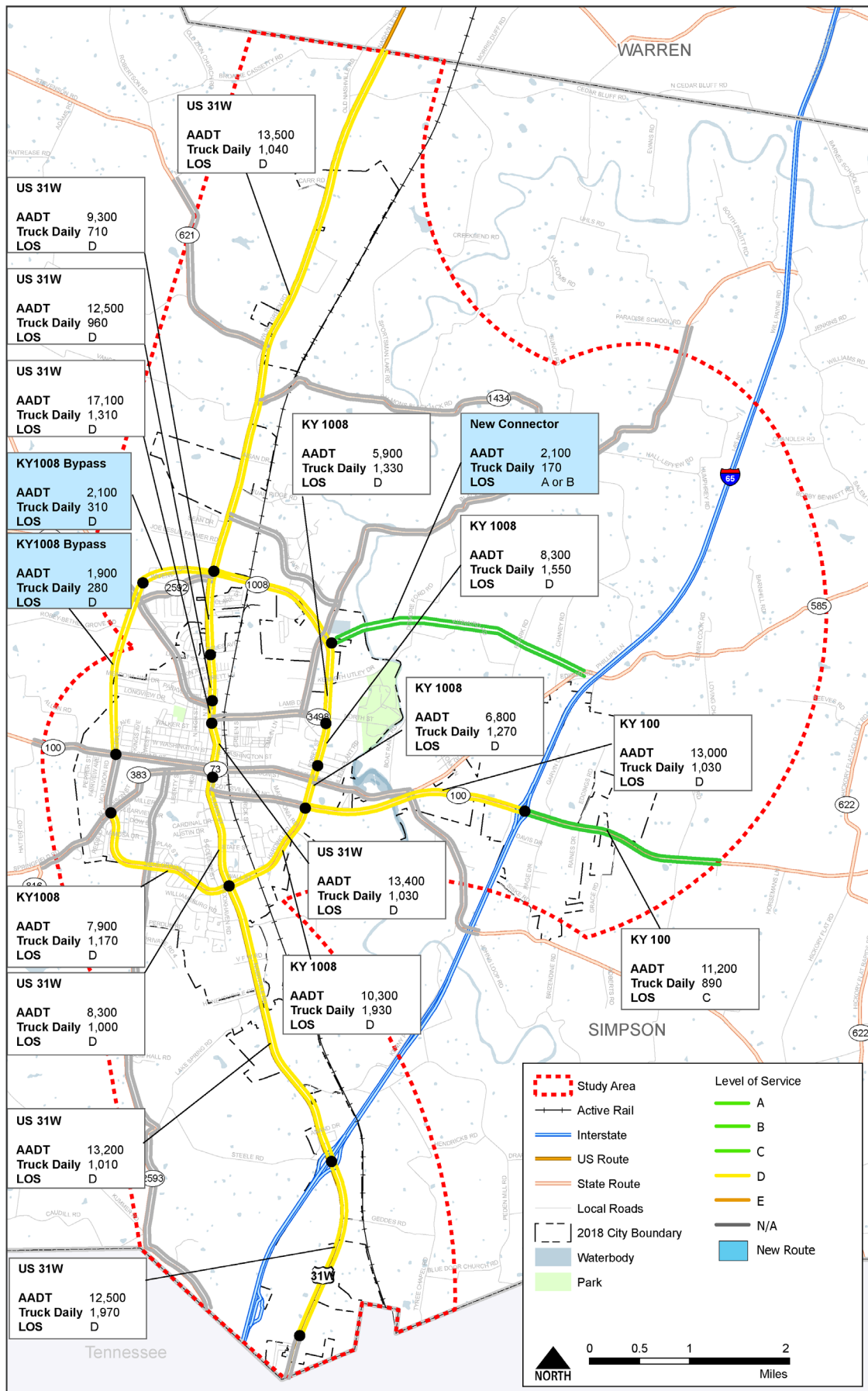
2.7.2 2045 TRAFFIC VOLUMES AND OPERATIONS

A traffic forecast was prepared for the study area segments and intersections. Three future scenarios were forecasted:

- ▶ 2045 No Build
- ▶ 2045 Build Scenario 1:
 - Completion of KY 1008 (northwest portion of the bypass)
 - Widening of KY 100 from KY 1008 to I-65
- ▶ 2045 Build Scenario 2:
 - Completion of KY 1008 (northwest portion of the bypass)
 - Widening of KY 100 from KY 1008 to I-65
 - New connection from I-65 at KY 565 to Franklin

The traffic forecast is included in **Appendix A**. A map showing future traffic volumes and LOS from 2045 Build Scenario 2, which includes potential new routes and widenings, is shown in **Figure 11**.

Figure 11: 2045 Build Scenario 2 Traffic Volumes and LOS



2.7.3 CORRIDOR SPEEDS

KYTC provided HERE Speed Data was analyzed to compare speeds along study area roadways with posted speed limits to determine if there are issues with excess speeding (85th percentile), or where congestion slows travel speeds (20th percentile). HERE Technologies traffic analytics provides daily historical traffic speed observations using the GPS probe data. It delivers historical traffic speeds for analytical applications and enables road network performance analysis by providing a reference “free flow” speed of uncongested traffic, which can show when speed falls significantly below uncongested speed.

Average 85th percentile speeds at 4:00PM for the study area are shown in **Figure 12**. Many arterial and collector routes have speeds up to 50 mph, with rural areas exceeding 60 mph. Downtown links exhibit speeds in the 20 mph to 30 mph range.

Average 85th percentile travel speeds were compared to posted speed limits (**Figure 13**). A few road segments, including KY 2592, KY 73, and Peden Mill Rd, experience travel speeds 10-15 mph over the posted speed. Several road segments, including KY 383, KY 100, KY 3498/North St and KY 1008, exhibit travel speeds 5-10 mph over the posted speed. These road segments could be candidates for speed management strategies.

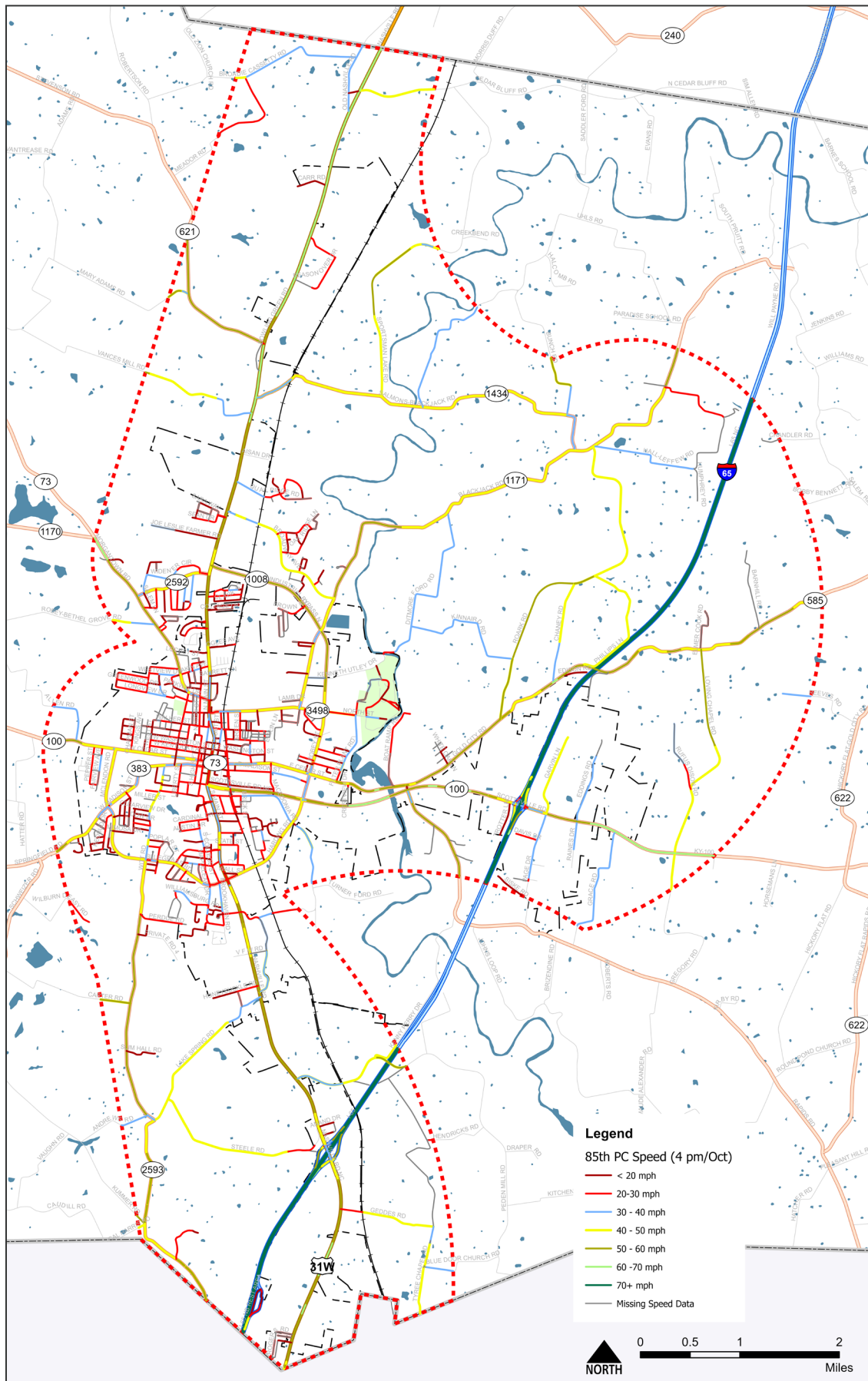
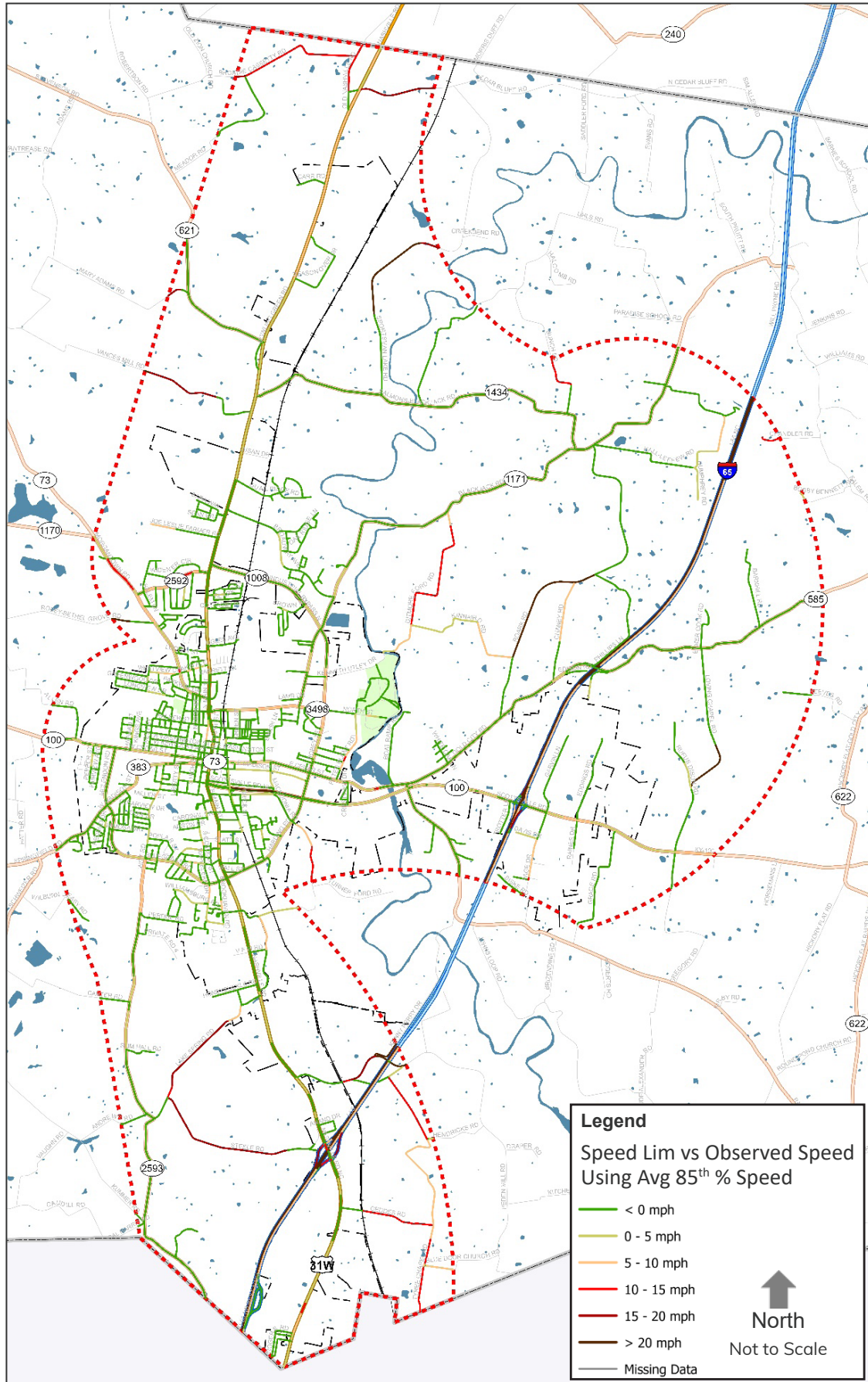
Figure 12: Study Area 85th Percentile Speeds

Figure 13: 85th Percentile Speeds Compared to Speed Limits



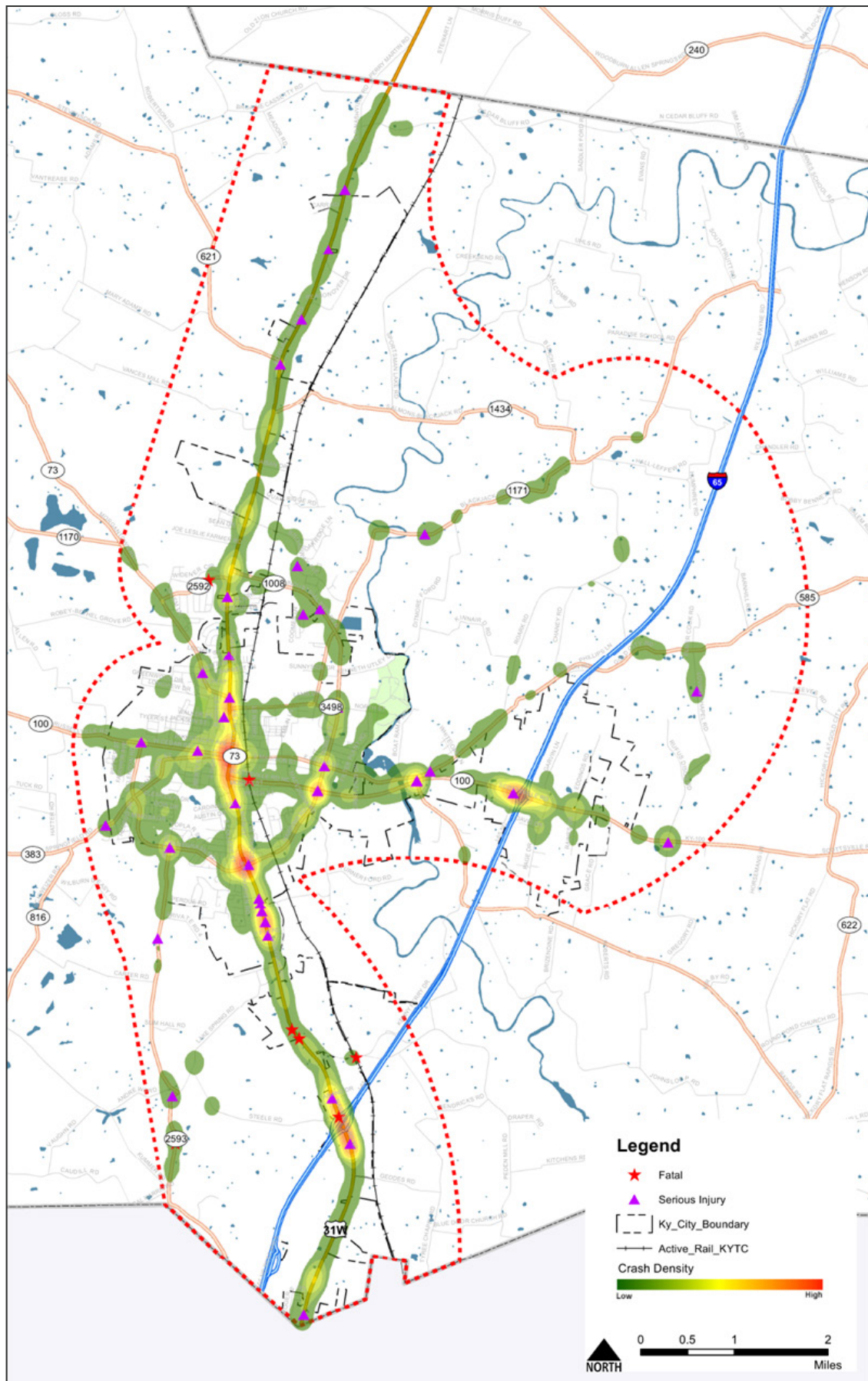
2.8 Safety

The comprehensive analysis of crash data from 2018 to 2022, sourced from the Kentucky State Police database, offers insight into the traffic safety within the study area. A detailed safety analysis is included in **Appendix B**.

A total of 1,843 crashes were reported between 2018 and 2022. 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 reveals 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.

The spatial distribution of these incidents is depicted in **Figure 14** as a heat map which provides a visual representation of crash hotspots and areas of concern. This map is instrumental in identifying patterns and trends, aiding in the targeted allocation of resources and safety interventions. The five-year crash data paints a complex picture of traffic safety in the study area. While most crashes result in property damage, the occurrence of serious injuries and fatalities cannot be overlooked. This analysis serves as a foundation for developing more effective traffic management strategies, prioritizing safety interventions, and fostering a safer road environment for users.

Figure 14: Crash Density, 2018-2022



KYTC and the Kentucky Transportation Center (KTC) have developed a more refined statistical methodology based on the Highway Safety Manual (HSM) to evaluate highway safety needs. Excess Expected Crashes (EEC) is 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.

Intersection and segment EEC values for routes in the study area were obtained from KYTC and were analyzed and summarized in [Table 2](#). Segments were separated into six types based on their typical section and median type, with these being urban and rural two-lane highway, multi-lane undivided highway, and multi-lane divided highway.

Table 2: 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

The segment types with an overall negative EEC value, indicating that they are experiencing fewer crashes than similar facilities elsewhere in the state, are the urban two-lane and urban multilane divided highways. Intersections also had a negative EEC value, indicating that, in general, there are fewer crashes than expected at intersections in the study area. The other segment types have positive EEC values indicating that more crashes are occurring than expected. The rural multilane divided highway segments show an exceptionally high EEC. The only segments of this type in the study area are near I-65 interchanges (US 31 W south of town at I-65 and KY 100 east of town at I-65).

Figure 15 shows ranges for total EEC (including fatal, injury, and property damage only) for segments and **Figure 16** shows ranges for total EEC (including fatal, injury, and property damage only) for intersections. The area experiences a mixture of positive and negative EEC values. Positive EEC values (higher than expected crashes) are in areas of geometric deficiencies and

at intersections. Overall, intersections in the study area experience a cumulative negative EEC value of -262.95, indicating they experience fewer than the expected number of intersection crashes. However, many individual intersections in the study area have a positive EEC and warrant further investigation. An overall positive EEC value of 25.02 for segments indicates they experience more than the expected number of crashes.

Figure 15: Excess Expected Crashes (EEC) for Study Area Segments

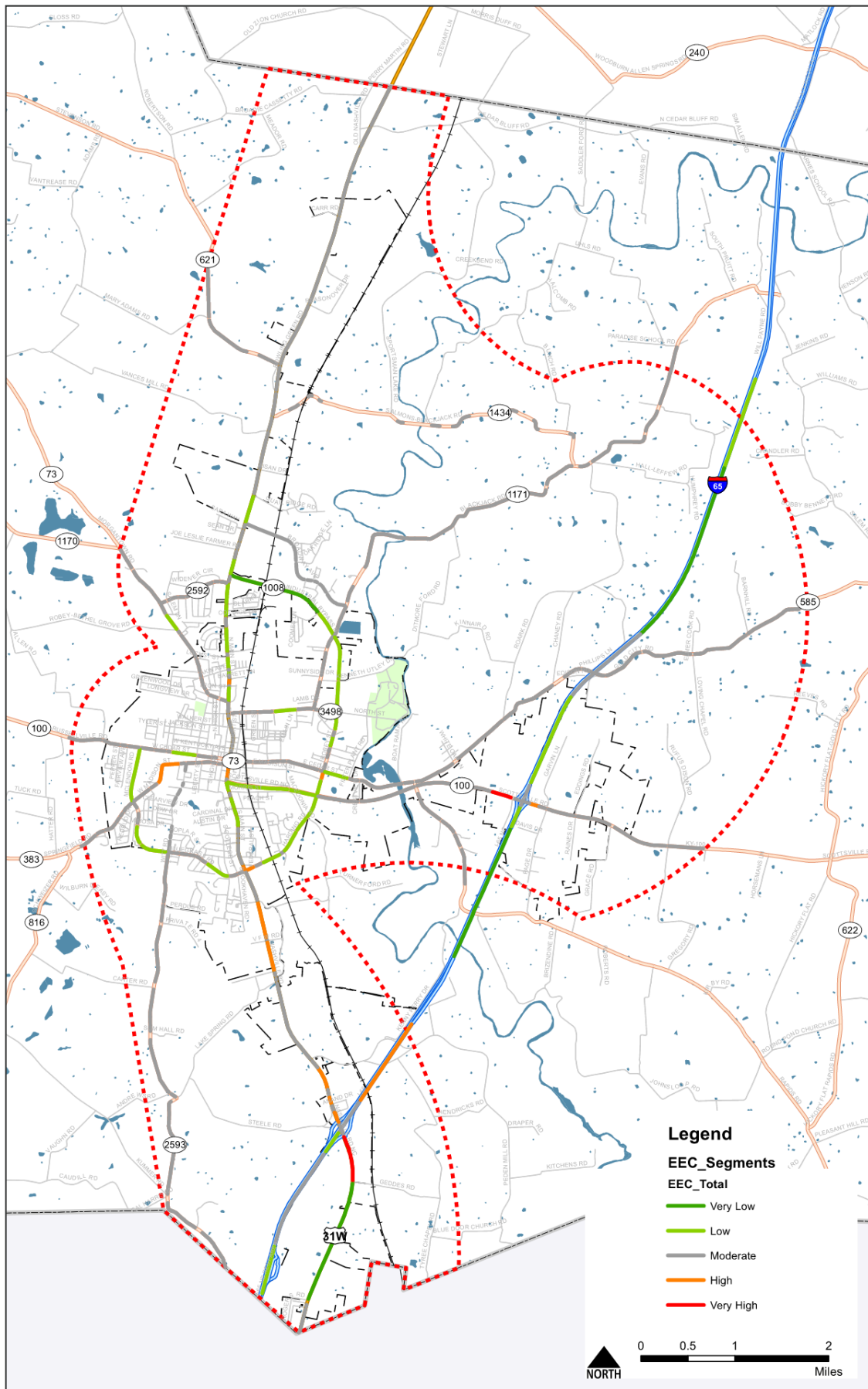
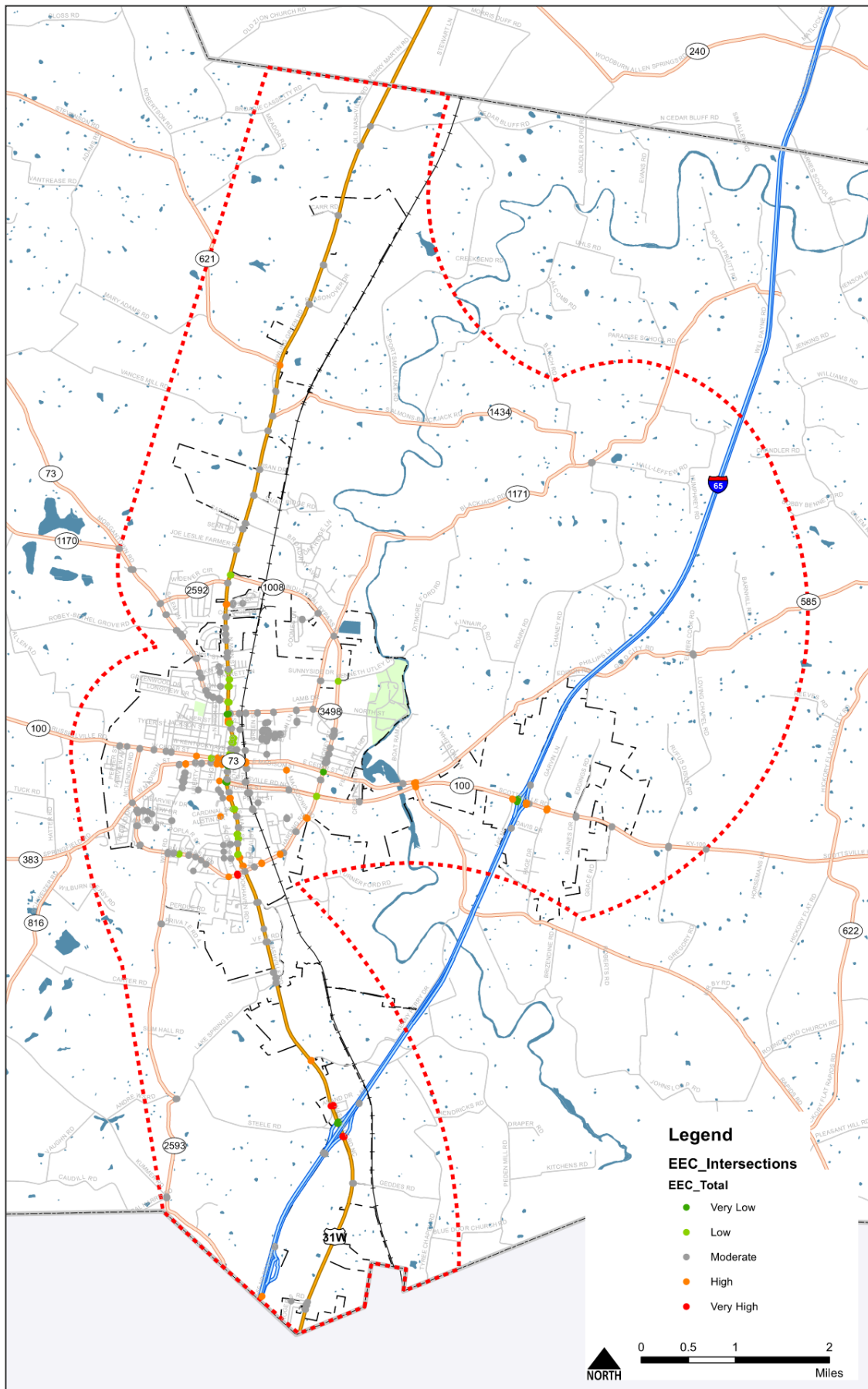


Figure 16: Excess Expected Crashes (EEC) for Study Area Intersections



3 Environmental Overview

Data was collected for an Environmental Overview (EO) based on existing geographic information system (GIS) datasets, state and federal agency databases, literature research, and archival data. Desktop research was performed to identify and locate areas of importance or concern that lie within the study area designated for the Franklin SUA study.

The study area for all environmental resources studied, except cultural resources, is the designated SUA study area. This study area extends from the Warren County line in the north to the Tennessee line along US 31W through Franklin and encompasses the census urbanized area boundary. The study area extends eastward to include a larger area surrounding I-65 (Exit 6) to allow for the evaluation of potential growth and connections east of the city at I-65. The detailed EO is attached as [Appendix C](#).

The EO considers resources in the following two categories: Natural Environment (ecological resources [i.e., streams, wetlands, and floodplains and important habitats] and threatened and endangered species) and Human Environment (air quality, traffic noise; Environmental Justice; farmland; land use and zoning; Section 4(f) and Section 6(f) resources, underground storage tanks [USTs] and hazardous materials; and historic and archaeological resources).

A key consideration for all improvement concepts was whether they occur outside of existing right-of-way. Those occurring outside of existing right-of-way or creating ground disturbance have greater potential to impact natural and socioeconomic resources. If any recommended project is to move to the design phase, the identified resources will require in-depth analysis and review to provide location approval (National Environmental Policy Act [NEPA] documentation) before transitioning to future phases of project development.



3.1 Natural Environment

3.1.1 STREAMS, WETLANDS, AND FLOODPLAINS

Geologically, the study area is underlain by limestone except for areas along West Fork Drakes Creek and thus ecological resources are influenced by the karst nature and correlated underground network of drainage systems. Surface streams include West Fork Drakes Creek, Lick Creek, Sinking Creek, and Sharps Branch, and these streams have associated floodplains. In terms of water quality, West Fork Drakes Creek is listed as impaired, but Lick Creek is a designated Outstanding State Resource Water. National Wetlands Inventory mapping shows wetlands are numerous and located throughout the study area. Wetlands are predominantly farm ponds with more limited numbers of freshwater forested wetlands.

3.1.2 THREATENED AND ENDANGERED SPECIES AND IMPORTANT HABITATS

Seven federally listed species have potential to occur in the study area. Species include Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), tri-colored bat (*Perimyotis subflavus*), Kentucky cave shrimp (*Palaemonias ganteri*), rabbitsfoot mussel (*Quadrula cylindrica cylindrica*), and Price's potato bean plant (*Apios priceana*). The US Fish and Wildlife Service information indicated that designated critical habitat of the Indiana bat is "wholly or partially within" the study area. This statement is likely due to the study area boundary overlapping the Simpson County/ Warren County line. While Warren County to the north is critical habitat for the species, Simpson County is not. Forested areas in the study area are potential habitat for all four bat species, although such areas are primarily limited to fencerows and riparian corridors adjacent to the larger streams. Stream corridors serve as flyways for the bat species. Gray bat mainly uses stream corridors to commute and feed but roosts in caves or cave-like locations year-round. Indiana bat, northern long-eared bat, and tricolored bat winter in caves with forested habitat providing summer roosting. The karst nature of the study area provides opportunities for such winter habitat.

Kentucky cave shrimp is known to occur in groundwater basins in Warren County to the north of Simpson County. So, while the species is not known from the county encompassing the study area, the study area does ultimately drain into the basin containing the species and thus, projects in the study area have potential to impact the Kentucky cave shrimp.

Streams and areas adjacent to streams in the study area would need to be assessed further during any NEPA documentation phase for their potential to be habitat for the listed mussel and plant species. Any future projects would also need to be assessed for their potential to impact groundwater that could migrate to locations of the Kentucky cave shrimp.

3.2 Human Environment

3.2.1 AIR QUALITY

The study area is in attainment for all criteria pollutants and as such, a transportation project would not require any comprehensive air quality review. A project in the study area would also be considered "Lower Potential for Meaningful MSAT (Mobile Source Air Toxics) Effects" since the design year traffic would be less than 140,000 to 150,000 AADT. As such, a qualitative assessment of the emissions projections should be included in any future NEPA document.

3.2.2 TRAFFIC NOISE

Alignment changes which move the roadway off existing alignment and on new location meet Type I criteria per the KYTC's 2020 Noise Analysis and Abatement Policy (2022 Update) Similarly, alterations to the existing alignment could also meet Type I criteria. Such alterations could include the addition of turn lanes with which the distance between a noise receptor and the traffic noise source is halved or the shielding between a receptor and the traffic noise source is removed exposing the line of sight between the two. In such cases, an entire project corridor would be considered a Type I project and a noise analysis, which at minimum may require utilization of the *Traffic Noise Impact Screening Tool*, would be required for the entire project per KYTC policy.

3.2.3 ENVIRONMENTAL JUSTICE

The Barren River Area Development District (BRADD) prepared the *Franklin SUA Planning Study, Simpson County, Socioeconomic Report* (Final October 2023) to assess a project's potential to encounter Environmental Justice (EJ) populations within the study area. BRADD reported data for the United States, Kentucky, BRADD Region, Simpson County, Franklin, the five census tracts (CTs) that include the study area, and the 14 census block groups (BGs) that include the study area. Specifically, the CT BGs included in the analysis were CT 9701 BGs 1 and 2, CT 9702 BGs 1-3, CT 9703 BGs 1-4, CT 9704.01 BGs 1-2, and CT9704.02 BGs 1-3. The BRADD study does not include data on the previously noted Mennonite/Amish population that is in the study area.

BRADD's analysis used the county as the threshold for EJ criteria. Based on the data obtained from the U.S. Census Bureau American Community Survey (ACS) estimates for race, poverty, age, disability, and English proficiency, the BRADD report noted where various CT and/or BGs differed from surrounding populations. BRADD's analysis indicated that of the 14 census BGs encompassing the study area, only one, CT 9701 BG 1, had no identified EJ populations for criteria for race, poverty, age, disability, or English proficiency. Any future NEPA document would need to consider a project's potential to disproportionately impact identified EJ populations.

3.2.4 FARMLAND

Prime farmland soils exist throughout the study area, although a large portion of the study area, particularly where these farmland soils occur along US 31W or within the city boundary of Franklin, has been previously developed as right of way or is in an urban area and no longer qualifies as farmland. Similarly, the interstate corridor is also no longer farmland, although the farmland soils by soil classification occurring along the interstate are somewhat less as compared to the US 31W corridor. In terms of soil classifications, 82.8 percent of the study area is prime farmland or farmland of statewide importance. An additional 7.2 percent is prime farmland if drained and/or protected from flooding or not frequently flooded during the growing season. Although impacts to farmland would be expected to be minor for most concepts being considered in the SUA study, any future NEPA

document will need to consider potential impacts to farmland, and particularly so if improvements are proposed outside of existing right of way or propose new cross-country connections.

3.2.5 LAND USE AND ZONING

The city limits include the downtown but extends along a more linear area adjacent to US 31W both north and south and eastward toward I-65 (Exit 6) to include a larger area surrounding the KY 100 (Scottsville Road)/I-65 interchange. The most developed areas are within the city limits with the majority centered around the city core. Areas within the city limits are predominantly residential and include supporting services typical to urban areas such as schools, government facilities, police, fire department, healthcare facilities, and places of worship. Outside the city limits, remaining portions of the study area include rural residences primarily located adjacent to roadways and agricultural activity. The City of Franklin and Simpson County have planning and zoning entities, but only the city boundary appears to contain specific zoning designations. Zoning within the city center area is consistent with the land use of primarily residential. Areas immediately adjacent to US 31W north of the downtown area and areas east of I-65 (Exit 6) are zoned Heavy Industry.

3.2.6 CULTURAL RESOURCES

Historic and archaeological resources may occur throughout the study area (i.e., within one-quarter mile either side of the existing roadway). Specifically, in terms of cultural historic resources (structures), the Kentucky Heritage Council identified the following cultural historic resources (structures):

- ▶ Nine National Register of Historic Places (NRHP) sites (of which six are in the central portion of the city and the remaining three are near the northern end of the study area, along US 31W)
- ▶ Three NRHP resources (which contain some of the nine NRHP sites)
- ▶ Three NRHP Districts located near central portions of the city (two of which are expanded on and connected locally by the City of Franklin's Historic Preservation Committee as an "Expanded Historic District")

- ▶ 215 NRHP contributing resources
- ▶ Seven NRHP non-contributing resources
- ▶ Six sites previously determined to be eligible for the NRHP
- ▶ 82 previously surveyed sites whose NRHP eligibility is undetermined

The Office of State Archaeology (OSA) provided information which indicated that locations throughout the study area have previously been surveyed for archaeological resources. These surveys, most of which occurred along waterways and existing roadways, resulted in the identification of no archaeological sites. Any future transportation alternative identified during a design phase of project development will likely require a phase I archaeology survey, particularly if the improvement exists outside of existing right of way.

The city provided GIS data for the locations of cemeteries within Simpson County. The GIS data indicate that 25 cemeteries are located within or immediately adjacent to the study area.

3.2.7 SECTION 4(F) AND SECTION 6(F) RESOURCES

Section 4(f) properties are publicly owned parks, wildlife management areas (WMAs), historic resources that are listed on or eligible for listing on the NRHP and archaeological sites that are listed on or eligible for listing on the NRHP and warrant preservation in place. Those sites discussed in the *Cultural Resources* section above that are listed on or eligible for listing on the NRHP are Section 4(f) resources. Additional Section 4(f) resources could be identified during future cultural resources surveys as well. No WMAs were identified in the study area. Based on online data sources, four city-county parks are located within the study area and are Section 4(f) resources due to their public ownership. They include Jim Roberts Community Park, Franklin Community Park, Jess and Mabel Bradley Park, and LZ Freedom Shelter.

Section 6(f) of the Land and Water Conservation Fund Act (LWCF) prohibits the conversion of property acquired or developed with Section 6(f) grants to a nonrecreational purpose without the approval of the National Park Service. Jim Roberts Community Park has received LWCF funds and is a Section 6(f) resource. Furthermore, detail within database information does not preclude the use of LWCF monies

in the development of the other three city-county parks. If impacts due to improvement concepts will occur to any of the publicly owned parks, additional investigation should occur to determine if any monies used in their development were from the LWCF. The Kentucky Department for Local Government should be contacted to determine specific locations where funds were used.

3.2.8 UNDERGROUND STORAGE TANKS (USTS) AND HAZARDOUS MATERIALS

Based on the data review, numerous sites were identified in the study area. The Environmental Protection Agency's (EPA's) Envirofacts Multisystem Search database, which provides information from a variety of databases for facilities required to report activities to state or federal programs, identified 187 locations within the study area. Locations are concentrated along roadways and primarily areas west of West Fork Drakes Creek. EPA's UST Finder database identified 90 potential UST locations within the study area. These locations are throughout the study area but with concentrations in the central portions of Franklin and near the two I-65 interchanges (Exit 2 and Exit 6). Of the 90 locations, 19 are denoted with a facility status of Open UST(s). The remaining 71 locations indicate a facility status of Closed UST(s). The identified sites, if encroached upon or impacted directly, may require additional assessment during any future design phase to determine their potential to encounter hazardous materials and/or USTs. No landfills were identified for Simpson County because of the data review.

4 Initial Project Team Coordination & Stakeholder Outreach

4.1 Project Team Meeting #1

The development of the Franklin SUA Study was coordinated by the Project Team, which included representatives from KYTC District 3 and Central Office, the BRADD, and the consultant team.

The first Project Team meeting was held on May 20, 2023, at 9:30AM at the KYTC District 3 office in Bowling Green, KY, and virtually via Microsoft Teams. At this meeting, the study's objective and goals were decided and a summary of the study area's existing conditions was reviewed. The study area was adjusted to include the area where a new bypass road is proposed west of Franklin. The review of existing conditions noted the following issues:

- ▶ Truck routes in the city limits
- ▶ Congested traffic on KY 100 and US 31 W
- ▶ Sidewalk gaps and other multimodal issues
- ▶ Transition zones from rural to more urbanized sections with travel speeds more than 10 to 15 mph above the posted speed limit.

Urban two-lane roads, urban multilane divided, and intersections were operating better than expected, but all other facilities were experiencing more crashes than expected.

In addition, two major new connection projects were reviewed for access to I-65.

The full meeting minutes are in [Appendix D](#).

4.2 Local Elected Officials & Stakeholders Meeting #1

The Project Team contacted local elected officials and other relevant stakeholders (LO/S) to obtain feedback about known issues along the corridor. A LO/S meeting was held at the Historic Simpson County Courthouse, with a virtual option via Microsoft Teams, on July 17, 2023, at 8:30 AM. Attendees included the Judge Executive, representatives of the Simpson County School Board, City of Franklin officials, Simpson County Tourism, Simpson County Emergency Management, and the Kentucky State Representative Shawn McPherson. The Project Team shared an overview of existing conditions in the study area and received valuable feedback from the attendees about areas of concern and high priority for improvements. The full meeting minutes are in [Appendix D](#).

4.3 Public Survey

A public survey and ESRI Story Map were created to gather feedback from the public regarding priorities and concerns within the study area, as well as opportunities for improvement. The survey was open between August 1, 2023, and September 15, 2023. A link to the survey was posted on the District 3 website and distributed via social media platforms. There were 73 responses to the survey. The top concerns within the study area included safety, congestion, and truck traffic. Another set of questions was raised for new connections in and around Franklin, including support for a new connection for the northwest bypass and a new connection to I-65 north of Franklin. Most respondents were in favor of both new connections. More detailed results from the survey can be found in [Appendix D](#). The Project Team used information gathered from the survey to develop potential improvement concepts.



5 Concept Development

Initial concepts were developed to align with the study goals and an area-wide improvement lens. Using the existing conditions, traffic, and safety analysis, along with input from LO/S and the public survey, an initial list of potential improvement concepts was developed and presented to the Project Team. A high-level analysis of each concept was performed, determining the following:

- ▶ Time Frame: Short-term or long-term
- ▶ Cost: Low, medium, or high
- ▶ Safety: Existing safety concerns
- ▶ Right-of-Way: Potential need for right-of-way
- ▶ Stakeholder Input: Location of concern identified by stakeholders
- ▶ Environment: Potential environmental issues (if any)

During the second Project Team meeting it was decided not to move forward with certain options based on the information presented and discussed (meeting minutes are included in [Appendix D](#)). Following the initial screening by the Project Team, the concept designations / nomenclature were revised for further evaluation.

5.1 Project Team Meeting #2

A second Project Team meeting was held on August 22, 2023, at 1:00 PM. This was a virtual meeting held via Microsoft Teams. The purpose of this meeting was to present the initial potential improvement concepts (PIC) and identify which concepts to move forward with to evaluate the safety and operations, cost estimation, and further conceptual design. 37 PICs were presented and discussed. The Project Team narrowed down the list to 25 to present to the LO/S to provide feedback on prioritization.

5.2 LO/S Meeting #2

A second LO/S meeting was hosted on October 31, 2023, at the Historic Simpson County Courthouse. The Project Team presented 25 PICs and asked attendees to indicate preference and priority via a “dot activity,” in which attendees placed colored dots on images of preferred short-, medium-, and long-term concepts. Green dots indicated top priority projects, blue dots indicated second priority projects, yellow dots indicated third priority projects, and red dots indicated projects that should be removed from consideration. The outcome of the dot activity is provided in [Appendix D](#). This voting process provided clear insights into the preferences of stakeholders, enabling the Project Team to effectively prioritize the list of potential improvement concepts for further analysis and development.



6 Concept Evaluation

The list of PICs was shortened from 25 to 12 based on the feedback the Project Team received during Project Team Meeting #2 and the second LO/S meeting to a more refined list for a detailed evaluation.

The 12 projects that were considered the highest priority based on the goals of the study, existing conditions evaluation, and LO/S feedback were given a detailed evaluation, described in this chapter. The bicyclist and pedestrian projects that the Project Team recommended are described, along with cost estimates, in [Section 7.2](#). The remaining projects that are considered a lower priority but can be entered into the CHAF database by KYTC are listed in [Section 7.3](#).

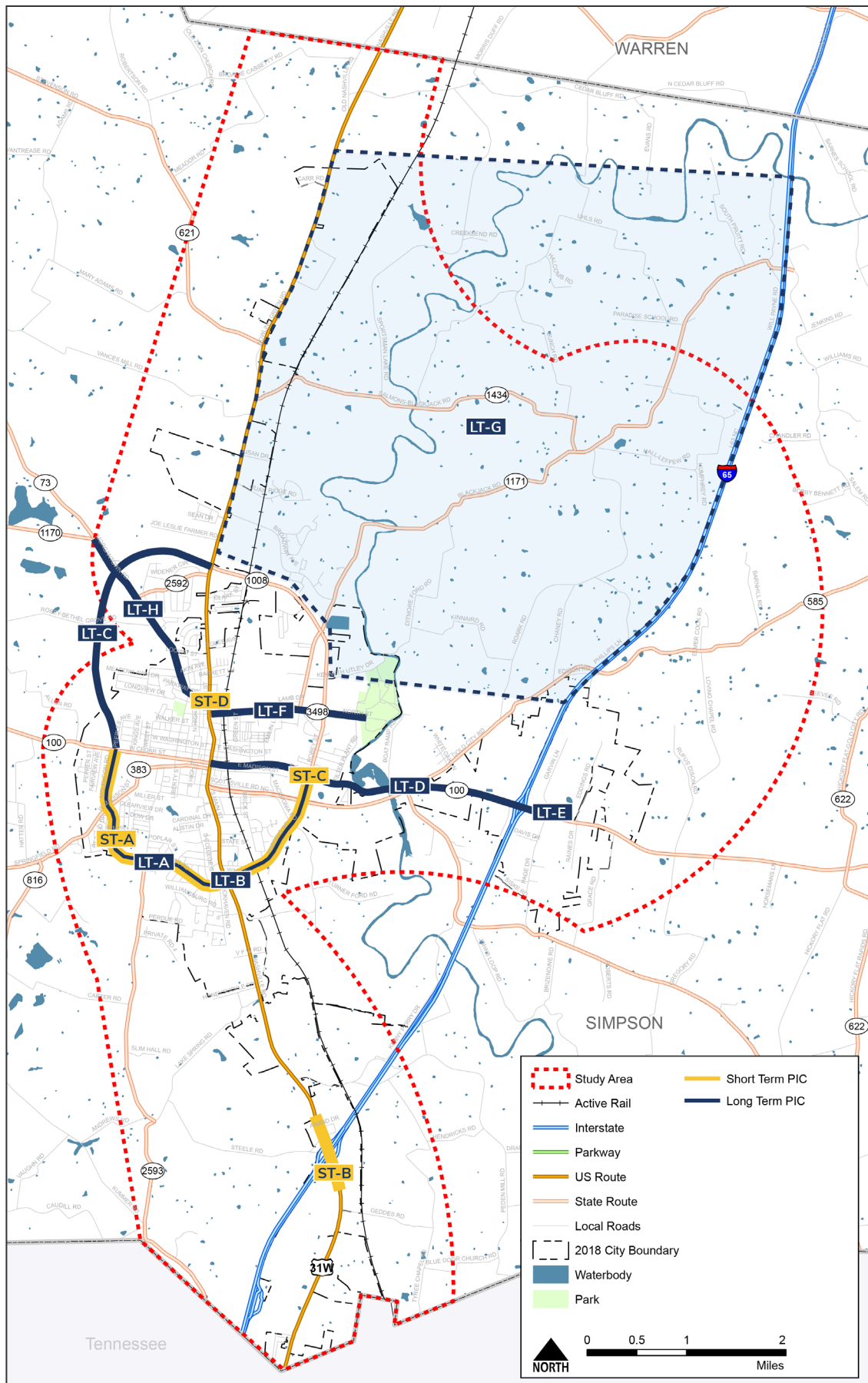
6.1 High Priority Improvement Concepts for Detailed Evaluation

Each potential improvement concept was evaluated with respect to the 2045 build traffic scenario, predictive safety analysis, environmental and right of way impacts, cost estimation, benefit-cost analysis, and IIJA grant program emphasis analysis. [Table 3](#) shows the list of potential improvement concepts that were evaluated, and [Figure 17](#) shows the location of each. Final potential improvement concepts results and details are shown in the project sheets in [Chapter 7](#).

Table 3: Refined List of Potential Improvement Concepts for Detailed Evaluation

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.

Figure 17: Short- and Long-Term Potential Improvement Concepts by Location



6.2 Traffic Analysis

Project LT-B was the only potential improvement concept with a traffic operational component. Four potential improvement concepts were developed for the US 31W and KY 1008 intersection:

- Optimize the signal timing and widen the southbound approach and add a southbound shared – through / right turn lane.
- In addition to the above, widen the northbound departure to change the northbound right turn only lane to a shared through / right turn lane.
- Remove the southbound left turn lane and re-route southbound left turning traffic to use Wall Street, eliminating the need for a southbound left turn phase.
- Convert the intersection to a dual lane roundabout.

The roundabout option was analyzed using Sidra, the others were analyzed using Synchro. KYTC is currently adding an eastbound left turn lane to this intersection, and it was assumed that improvement would be included in all the concepts. **Table 4** shows LOS thresholds for signalized intersections and roundabouts. **Table 5** shows the results of the traffic analysis for each of these options.

Table 4: LOS Thresholds for Signalized and Roundabout Intersections

LOS	Average Control Delay Roundabout (sec/veh)	Average Control Delay Signalized (sec/veh)	LOS Description
A	≤ 10	≤ 10	Little or no delay
B	> 10 and < 15	> 10 and < 20	Short traffic delays
C	> 15 and < 25	> 20 and < 35	Average traffic delays
D	> 25 and < 35	> 35 and < 55	Long traffic delays
E	> 35 and < 50	> 55 and < 80	Very long traffic delays
F	> 50	> 80	Severe congestion

Table 5: Traffic Analysis Results for US 31W and KY 1008

	Add SB Shared Thru/RT				Add SB Shared Thru/RT + NB Shared Thru/RT				Eliminate SB LT Phase & Use Wall Street				Roundabout			
	AM		PM		AM		PM		AM		PM		AM		PM	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
KY 1008 EB	C	31.9	C	37	C	31.9	D	42.7	C	28.5	D	45.7	D	25.9	B	14.3
KY 1008 WB	D	37.7	D	46.7	D	37.7	D	48.6	D	45.5	D	47.4	C	17.3	C	22.8
US 31W NB	B	11	B	18.2	B	10.7	B	16.1	A	9.8	B	13.3	A	9.2	C	23.3
US 31W SB	C	22.8	C	28.8	C	22.8	C	25.5	C	25.2	C	30.5	A	7.7	A	8.5
Total	C	24.7	C	29.3	C	24.7	C	29.3	C	25.4	C	29.8	B	14.4	C	18.1

6.3 Predictive Safety Analysis

A predictive safety analysis was performed to estimate the potential reduction in crashes over a 20-year period that each improvement concept could provide. This analysis was performed with the use of Crash Modification Factors (CMFs). For each improvement, appropriate CMFs were identified from the Highway Safety Manual or the CMF Clearinghouse. These CMFs were then applied to the applicable historic crashes to estimate the number of crashes prevented over a 20-year period.

6.4 Environmental + Right of Way Impacts

Environmental impacts were evaluated for each of the improvement concepts, using the EO prepared for this study as previously discussed.

Right of way impacts were also assessed using a high-level scale of low, medium, or high, based on the size of the project and if any relocations would need to occur.

6.5 Cost Estimates

Cost estimates were calculated in 2024 dollars using standard unit-bid prices where available, along with some parametric costs (including structures, mobilization/demobilization, and maintenance of traffic) and including contingencies for drainage, traffic control, environmental permitting, etc. This forms the base construction cost estimate and was utilized for the benefit-cost calculation in [Section 6.6](#). Finally, a programming contingency to account for the time-risk associated with the potential complexity of the project was included to form the final construction cost estimate.

6.6 Benefit-Cost Analysis

To assist in prioritizing improvement concepts, the Project Team conducted a benefit-cost analysis (BCA). This analysis provided a means for determining which improvements have the greatest benefit and are the most economical. The BCA was conducted based on crash reduction savings.

Crash modification factors were used to quantify crash reduction savings by estimating the number of crashes that would be reduced by implementing the improvement. The total benefit was then divided by the total cost to produce a benefit-to-cost ratio (BCR). To ensure costs were consistently comparable, the base 2024 construction cost estimate (without any additional programming contingency for time risk) was used.

6.7 IIJA Grant Program Emphasis Analysis

The projects evaluated as part of this study include a wide range of project types and scales. Some are small intersection projects, while others are larger highway improvement projects and new routes. They also address the safety and mobility needs for all modes including pedestrians, bicyclists, auto drivers (and passengers), and commercial vehicle drivers. The breadth of projects means that there are alternative funding possibilities. Some of these opportunities come from the 2021 Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL). Two relevant opportunities include:

- **Safe Street and Roads for All (SS4A)** – This program is a local and regional agency driven program. KYTC is not eligible. The Barren River ADD secured \$283,867 to develop a federal approved Safety Action Plan (SAP) for the region. Safety improvements examined as part of this small urban area study could be examined and included in that larger SAP. If they rate well, they could be pursued by the City or County for Federal SS4A implementation funding. This has been done with good success in the Lexington and Louisville areas so far.

- ▶ Local and Regional Project Assistance Grants (RAISE) – This grant program is open to both state and local agencies. It can be used to pursue funding for a wide range of project types. It has been used successfully throughout the state to secure funding for high priority local and regional projects. This program could be good for pursuing pedestrian and bicyclist mobility and safety projects. It could also be used for more general safety or freight-related topics. For example, a project that would implement roundabouts and a speed management program in the area could potentially be competitive. The program as currently being implemented is less likely to fund a stand-alone two-lane to four-lane highway widening project.

There are many other IIJA/BIL funding opportunities including those listed below. Some of these could be applicable for specific projects:

- ▶ Railroad Crossing Elimination
- ▶ Neighborhood Access and Equity Grants
- ▶ Strengthening Mobility & Revolutionizing Transportation (SMART) Grants
- ▶ Rural Surface Transportation Grant Program (Rural)
- ▶ Nationally Significant Freight & Highway Projects (INFRA)
- ▶ Active Transportation Infrastructure Investment Program

More information about these programs can be found here:

<https://www.transportation.gov/bipartisan-infrastructure-law/key-notices-funding-opportunity>.

6.8 Project Team Meeting #3

A third and final Project Team meeting was held on February 5, 2024, at 12:30 PM. This was a virtual meeting held via Microsoft Teams. At this meeting, the consultant team presented the detailed evaluation of the refined list of potential improvement concepts. The Project Team provided feedback on, as well as further refinements to, some of the improvement concepts. The Project Team also discussed what information to include on project sheets and how best to move forward with the bicyclist and pedestrian projects and lower priority projects that were not part of the detailed evaluation.



7 Recommendations

7.1 Project Sheets

Project sheets were created for each of the 12 high priority PICs 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 in 2024 dollars.

Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT ST-A

KY 1008 Southern Bypass

Short-Term intersection improvements for high-crash areas along KY 1008 between KY 100 in the west to KY 100 in the east. This includes:

KY 100 W, US 31W, and KY 100 E Intersections:

Add lighting and improve signage

KY 383, KY 2593, and College Street Intersections:

Add lighting, add left turn lanes on KY 1008, and improve signage and striping

Rolling Road Drive Intersection: Add lighting and improve signage and striping

PURPOSE

Provide short-term, low-cost measures to improve safety along KY 1008.

NEED

In the past five years there have been 104 total crashes along this section of KY 1008, with many occurring at the intersections.

LIGHTING SAFETY BENEFITS

38% of crashes occur at night in this study area.

Lighting can reduce crashes up to:

42% for nighttime injury pedestrian crashes at intersections

33-38% for nighttime crashes at intersections

OTHER INFORMATION

Benefit/Cost Ratio: 1.15

Total 20-Year Reduction: 52.64 Crashes

Environmental Concerns: UST/HAZ Cultural Historic District, Section 4(f) (Historic), Tree Removal (Bats), Bicycle Route, UST/HAZ

COST \$1,060,000

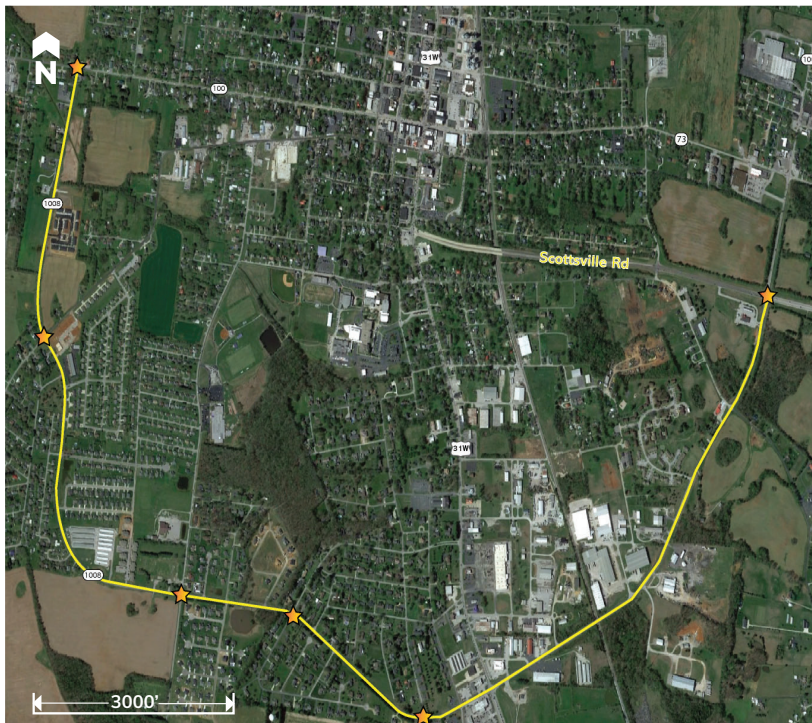


D \$150,000

R \$80,000

U \$100,000

C \$730,000



Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT **ST-B**

US 31W at I-65 Interchange

Provide access management along US 31W near I-65 Exit 2. This includes closing the BP entrance near Steele Road, converting the northern BP entrance to right-in, right-out, and consolidating access points at the truck stop south of the interchange.



PURPOSE

Improve safety along US 31W near the I-65 interchange (Exit 2).

NEED

In the past five years, there have been 58 total crashes along this section of US 31W, two of which were severe injury crashes.

WHAT IS ACCESS MANAGEMENT?

Access management is the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. It provides safe and efficient use of the transportation network. Examples include: Access Spacing, Driveway Spacing, and Safe Turning Lanes.

OTHER INFORMATION

Benefit/Cost Ratio: 10.11

Total 20-Year Reduction: 14.27 Crashes

Environmental Concerns: UST/HAZ

COST \$170,000



D \$10,000

R \$80,000

U \$50,000

C \$30,000

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Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT ST-C

KY 1008 at KY 73

Add lighting, improve striping, and construct left turn lanes on KY 1008.

PURPOSE

Improve safety at the KY 1008 and KY 73 intersection.

NEED

In the past five years, there have been 12 crashes at this intersection, two of which were severe injury crashes.

INTERSECTION LIGHTING

40% of crashes are at night at this intersection. Intersection lighting can reduce crashes at intersections by 33-38%, based on information by the Federal Highway Administration (FHWA).

OTHER INFORMATION

Benefit/Cost Ratio: 0.81

Total 20-Year Reduction: 7.81 Crashes

Environmental Concerns: Cultural Historic Resource, Section 4(f) (Historic), Archaeology (ROW), UST/HAZ, Bike Route

COST \$560,000



D \$160,000

R \$80,000

U \$50,000

C \$270,000

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Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT ST-D

KY 73 at US 31W (North)

Provide access management (closing and consolidating access points) adjacent to the intersection.



PURPOSE

Improve safety at the northern US 31W and KY 73 intersection.

NEED

In the past five years, there have been 14 crashes at this intersection, one of which was a severe injury crash.

WHAT IS ACCESS MANAGEMENT?

Access management is the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. It provides safe and efficient use of the transportation network. Examples include: Access Spacing, Driveway Spacing, and Safe Turning Lanes

OTHER INFORMATION

Benefit/Cost Ratio: 2.64

Total 20-Year Reduction: 16.28 Crashes

Environmental Concerns: UST/HAZ

COST \$180,000



D \$30,000

R \$80,000

U \$0

C \$70,000

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Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT **LT-A**

KY 1008 Southern Bypass

Reduce congestion and improve mobility along KY 1008 from KY 100 west of Franklin to KY 100 east of Franklin.

- Convert all four-way stop intersections to roundabouts.
- Add turn lanes and edge lines along the southern side of the bypass.
- Widen shoulders and add sidewalks from US 31W to KY 100 in the east.

PURPOSE

Improve safety from KY 100 W to KY 100 E along KY 1008.

NEED

In the past five years there have been 104 total crashes along this section of KY 1008, with many occurring at the intersections.

ROUNDABOUTS

Roundabouts are a proven countermeasure for intersections that help prevent fatal and serious injury crashes. For more information about roundabouts, please visit KYTC's innovative intersection website here at: <https://transportation.ky.gov/saferoadsolutions/Pages/default.aspx>

OTHER INFORMATION

Benefit/Cost Ratio: 0.14

Total 20-Year Reduction: 64.2 Crashes

Environmental Concerns: Cultural Historic Sites and District (Section 4(f), Archaeology (ROW), Tree Removal (bats), UST/HAZ, Bicycle Path

COST \$27,600,000

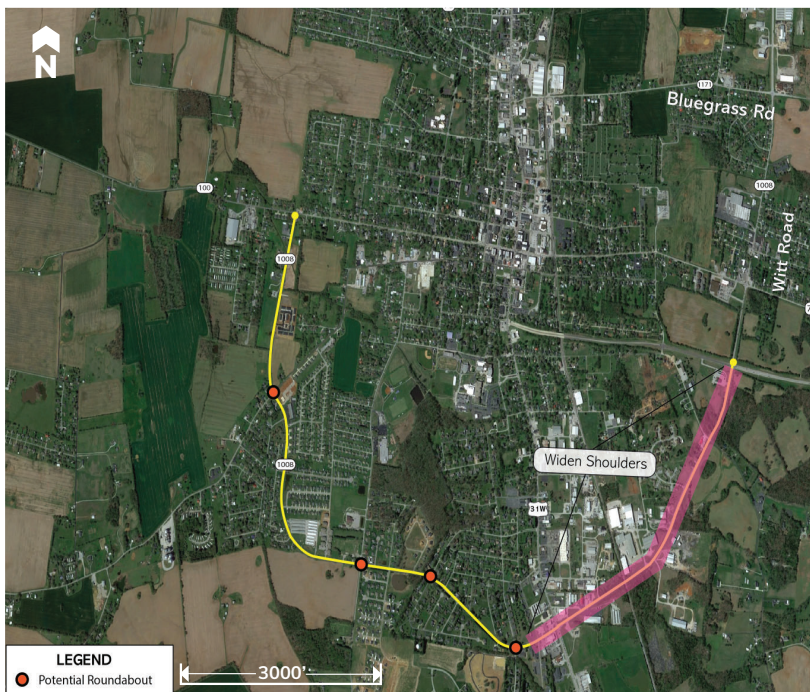


D \$3,300,000

R \$800,000

U \$1,500,000

C \$22,000,000



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Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT LT-B

KY 1008 at US 31W

Convert the intersection of KY 1008 and US 31W to a roundabout.



PURPOSE

Improve safety and reduce congestion at the KY 1008 and US 31W intersection.

NEED

There have been 51 crashes, including 1 severe injury crash, at this intersection in the past five years. It currently operates at LOS E in the AM Peak and LOS F in the PM Peak..

TRAFFIC ANALYSIS

Approach Leg	Roundabout		Existing	
	AM LOS	PM LOS	AM LOS	PM LOS
KY 1008 EB	D	B	F	F
KY 1008 WB	C	C	E	E
US 31W NB	A	C	C	C
US 31W SB	A	A	D	D
Total	B	C	E	F

OTHER INFORMATION

Benefit/Cost Ratio: 0.11

Total 20-Year Reduction: 65.31 Crashes

Environmental Concerns: Archaeology (ROW), UST/HAZ

COST \$5,540,000



D \$990,000

R \$320,000

U \$300,000

C \$3,930,000

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Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT **LT-C**

KY 1008 Northwest Bypass

Complete the KY 1008 Bypass around Franklin.

PURPOSE

Improve mobility around Franklin and reduce truck traffic through downtown.

NEED

The existing Franklin bypass does not create a complete bypass around Franklin. Truck traffic would utilize the bypass rather than traveling through downtown Franklin.

AREA IMPACTS

Finishing the bypass can reroute truck traffic and through traffic from downtown Franklin, and reduce traffic volumes from the residential street of Patton Road.

OTHER INFORMATION

Benefit/Cost Ratio: N/A

Total 20-Year Reduction: N/A

Environmental Concerns: Cultural Historic Sites and District (Section 4(f), Archaeology (ROW), Tree Removal (bats), Stream Crossings, Wetlands, Floodplains, Noise Analysis, UST/HAZ, Bicycle Path

COST \$27,200,000

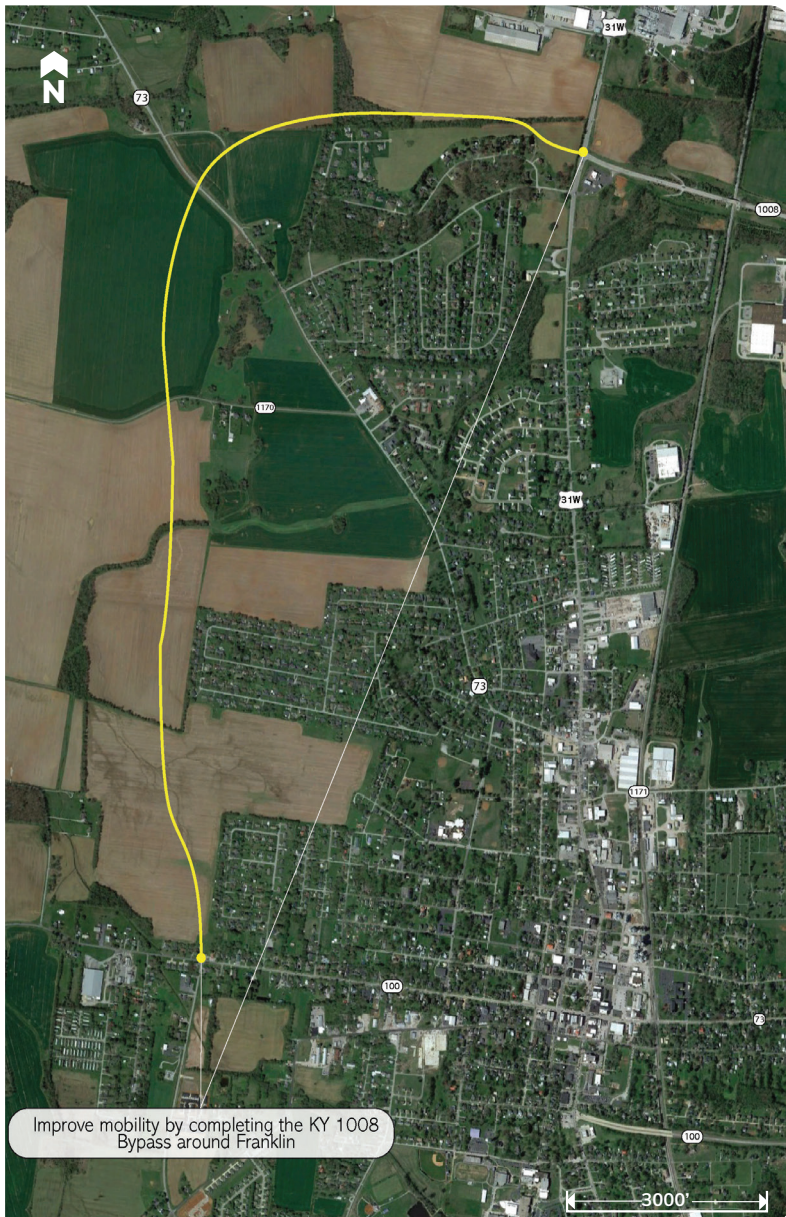


D \$2,200,000

R \$1,700,000

U \$1,000,000

C \$22,300,000



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Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT LT-D

KY 100 from I-65 to US 31W

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.

COST \$37,400,000



D \$3,200,000
R \$1,200,000
U \$1,000,000
C \$32,000,000

RCUT COST \$1,720,000



D \$370,000
R \$80,000
U \$50,000
C \$1,220,000

PURPOSE

Improve safety and reduce congestion along KY 100 from I-65 to US 31W.

NEED

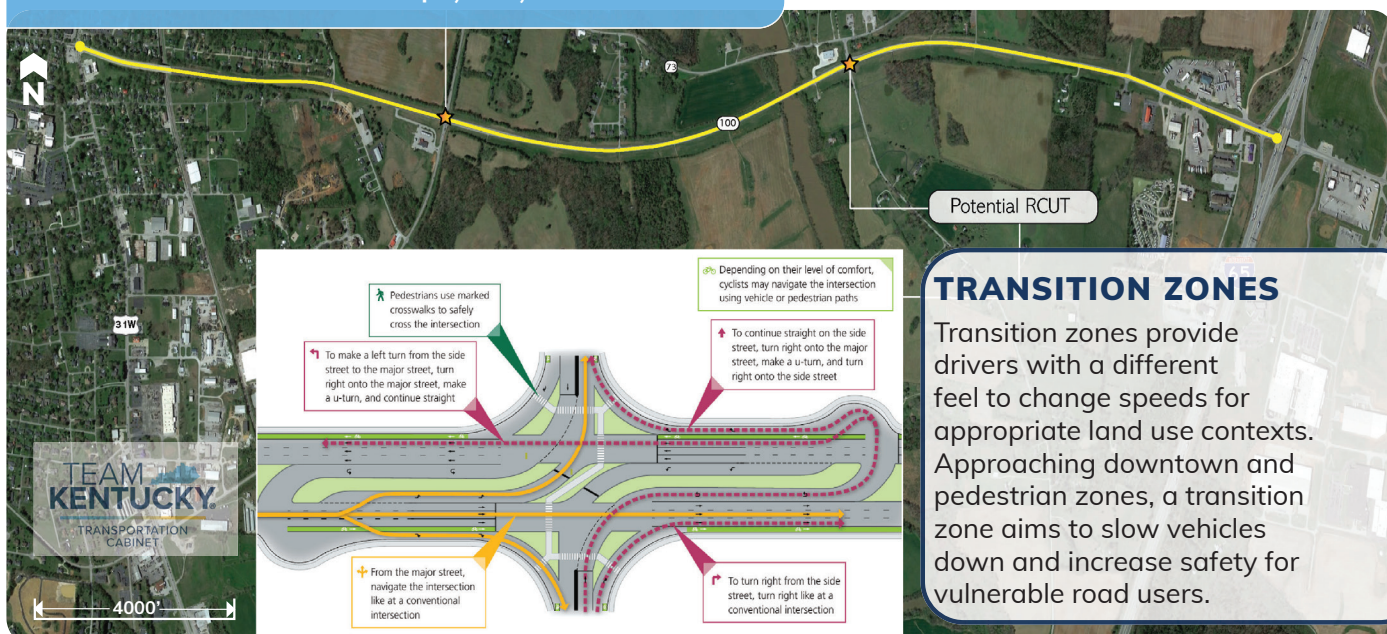
There have been 101 total crashes along this section of KY 100 in the past five years, six of which were serious injury. There have been 12 crashes at the intersection with KY 73 in the past five years, three of which were serious injury.

OTHER INFORMATION

Benefit/Cost Ratio: 0.50

Total 20-Year Reduction: 53.4 Crashes

Environmental Concerns: Archaeology (ROW), UST/HAZ



TRANSITION ZONES

Transition zones provide drivers with a different feel to change speeds for appropriate land use contexts. Approaching downtown and pedestrian zones, a transition zone aims to slow vehicles down and increase safety for vulnerable road users.

Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT **LT-E**

KY 100 at I-65 Interchange

PURPOSE

Improve safety and mobility at the Exit 6 Interchange of I-65 on KY-100.

NEED

There have been 62 total crashes along this section of KY 100 in the past five years, one of which was serious injury.

Concept Overview: Roundabout

Provide access management and roundabout corridor for Exit 6 ramps and nearby intersections.

Concept Overview: Signals

Provide access management and signalized corridor for Exit 6 ramps and nearby intersections.

OTHER INFORMATION

Benefit/Cost Ratio: 0.14

Total 20-Year Reduction: 44.36 Crashes

Environmental Concerns: Archaeology (ROW), UST/HAZ

OTHER INFORMATION

Benefit/Cost Ratio: 0.71

Total 20-Year Reduction: 0.62 Crashes

Environmental Concerns: Archaeology (ROW), UST/HAZ

COST \$17,100,000



D \$2,600,000

R \$800,000

U \$1,000,000

C \$12,700,000

COST \$1,050,000



D \$270,000

R \$0

U \$100,000

C \$680,000

ROUNDABOUTS

Roundabouts are a proven countermeasure for intersections that help prevent fatal and serious injury crashes. For more information about roundabouts, please visit KYTC's innovative intersection website here at: <https://transportation.ky.gov/saferoadsolutions/Pages/default.aspx>



Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT **LT-F**

North Street to Roberts Park

Provide a curb and gutter typical section, sidewalk, and a shared use path to connect downtown to Roberts Park and influence traffic calming.

COST \$15,200,000



D \$2,000,000

R \$1,600,000

U \$1,500,000

C \$10,100,000

PURPOSE

Improve multimodal mobility and safety along KY 1171 (North Street) from US 31W to Roberts Community Park.

NEED

There have been 10 total crashes along these routes over the past five years, one of which was serious injury.

OTHER INFORMATION

Benefit/Cost Ratio: 0.11

Total 20-Year Reduction: 6.77 Crashes

Environmental Concerns: Cultural Historic District (Section 4(f)), Archaeology (ROW), Tree Removal (bats), UST/HAZ, Section 4 (f) & 6 (f) (Park).

MULTIMODAL FACILITIES

Multimodal facilities provide all users with a safer transportation option to connect to jobs, schools, parks, and amenities.



Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT **LT-G**

New Route from I-65 to North of Franklin

Perform a planning study to evaluate a new connection from I-65 to Franklin, north of Exit 6.

COST \$60,400,000



D \$5,100,000

R \$3,300,000

U \$1,300,000

C \$50,700,000

PURPOSE

Evaluate the need and most useful alignment for a new connection from I-65 to northern Franklin and/or northern Simpson County.

NEED

Alleviate truck traffic through Franklin and improve accessibility in northern Franklin/northern Simpson County.

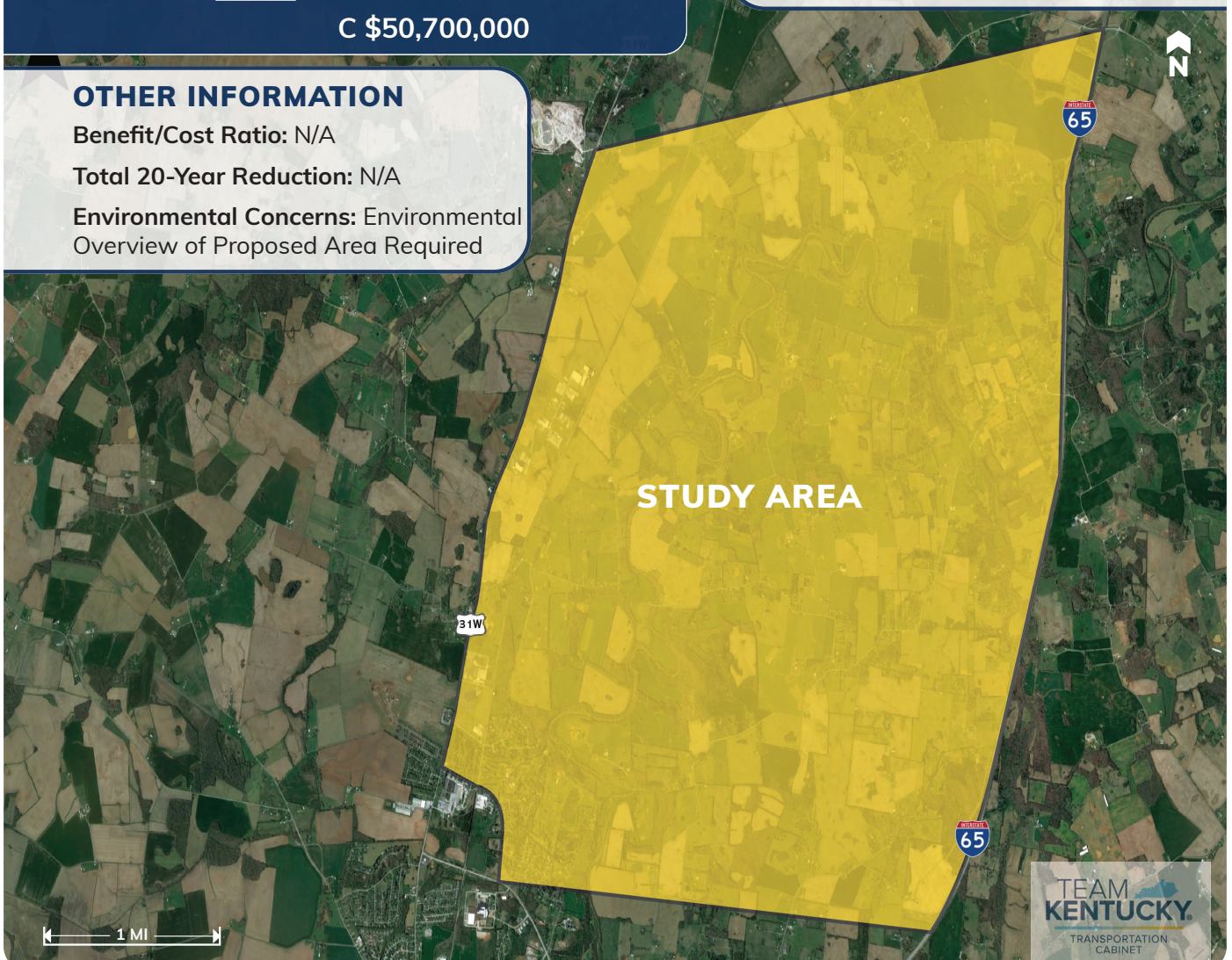
OTHER INFORMATION

Benefit/Cost Ratio: N/A

Total 20-Year Reduction: N/A

Environmental Concerns: Environmental Overview of Proposed Area Required

STUDY AREA



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Franklin Small Urban Area Study

Simpson County, Kentucky

PROJECT LT-H

KY 73 West of Franklin

Fill in sidewalk gaps, add a curb and gutter typical section to create traffic calming and accommodate multimodal users along KY 73.

COST \$3,560,000



D \$480,000

R \$160,000

U \$500,000

C \$2,420,000

PURPOSE

Improve multimodal mobility and safety along KY 73.

NEED

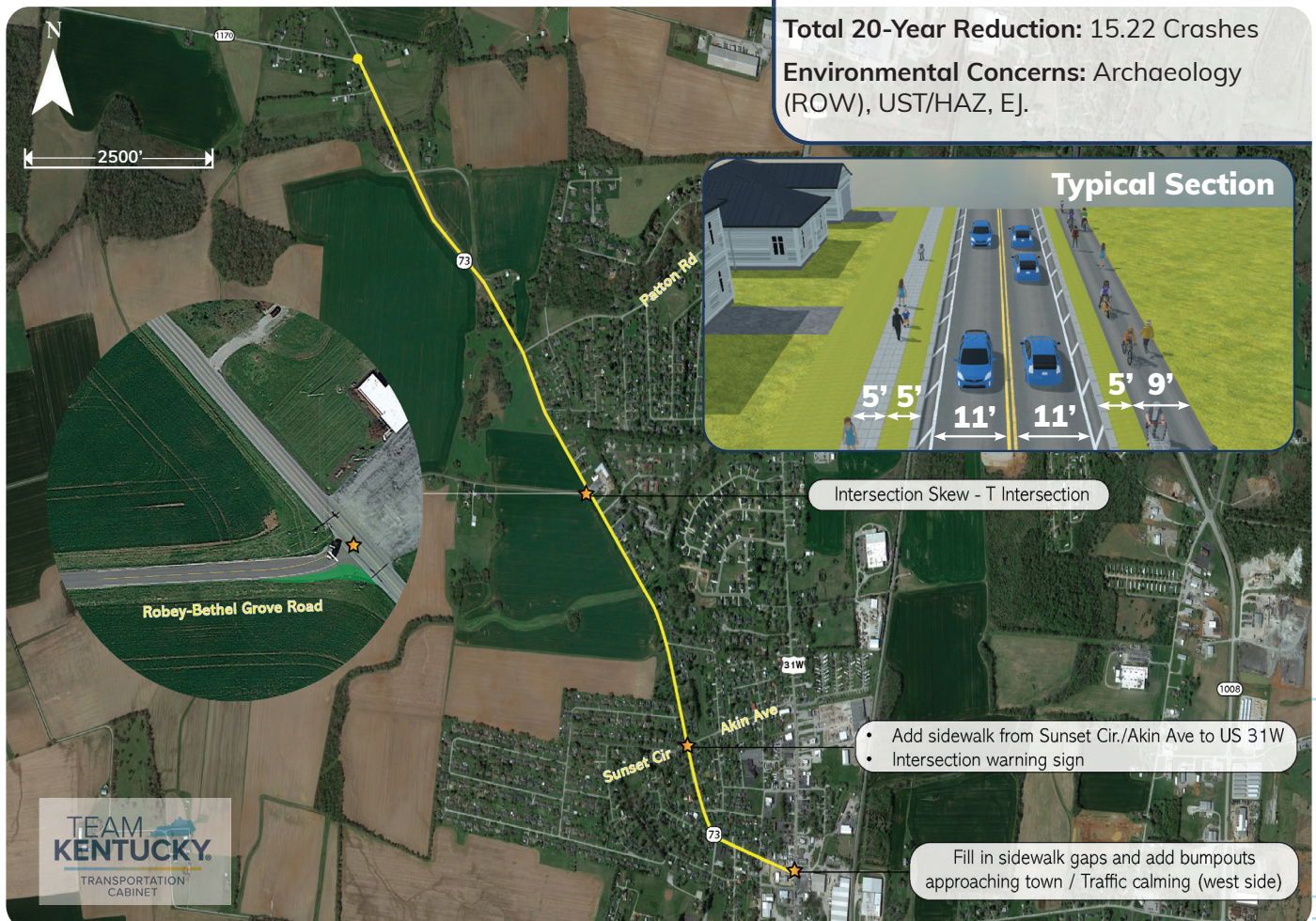
There have been 21 total crashes along this section of KY 73 over the past five years, one of which was serious injury.

OTHER INFORMATION

Benefit/Cost Ratio: 0.27

Total 20-Year Reduction: 15.22 Crashes

Environmental Concerns: Archaeology (ROW), UST/HAZ, EJ.



7.2 Bicycle and Pedestrian Improvement Concepts

An area-wide bicycle and pedestrian master plan is recommended for the city and Simpson County to identify multimodal goals, policies, and projects. There are four specific bicycle and pedestrian improvements that were identified as part of this study which are listed in **Table 6** and shown in **Figures 18** through **22**.

Table 6: Bicycle and Pedestrian Improvement Concepts

Description	Cost (2024 \$)	Figure
Add sidewalks to Witt Road and John Johnson Avenue	\$134,000	19
Fill in sidewalk gaps along US 31W within the bypass	\$300,000	20
Add mid-block pedestrian signals to the downtown square	\$57,000	21
Improving bicycle and pedestrian mobility and safety along US 31W from Cherry Street to KY 100	\$1,628,000	22

Figure 18: Location of Bicycle and Pedestrian Improvement Concepts

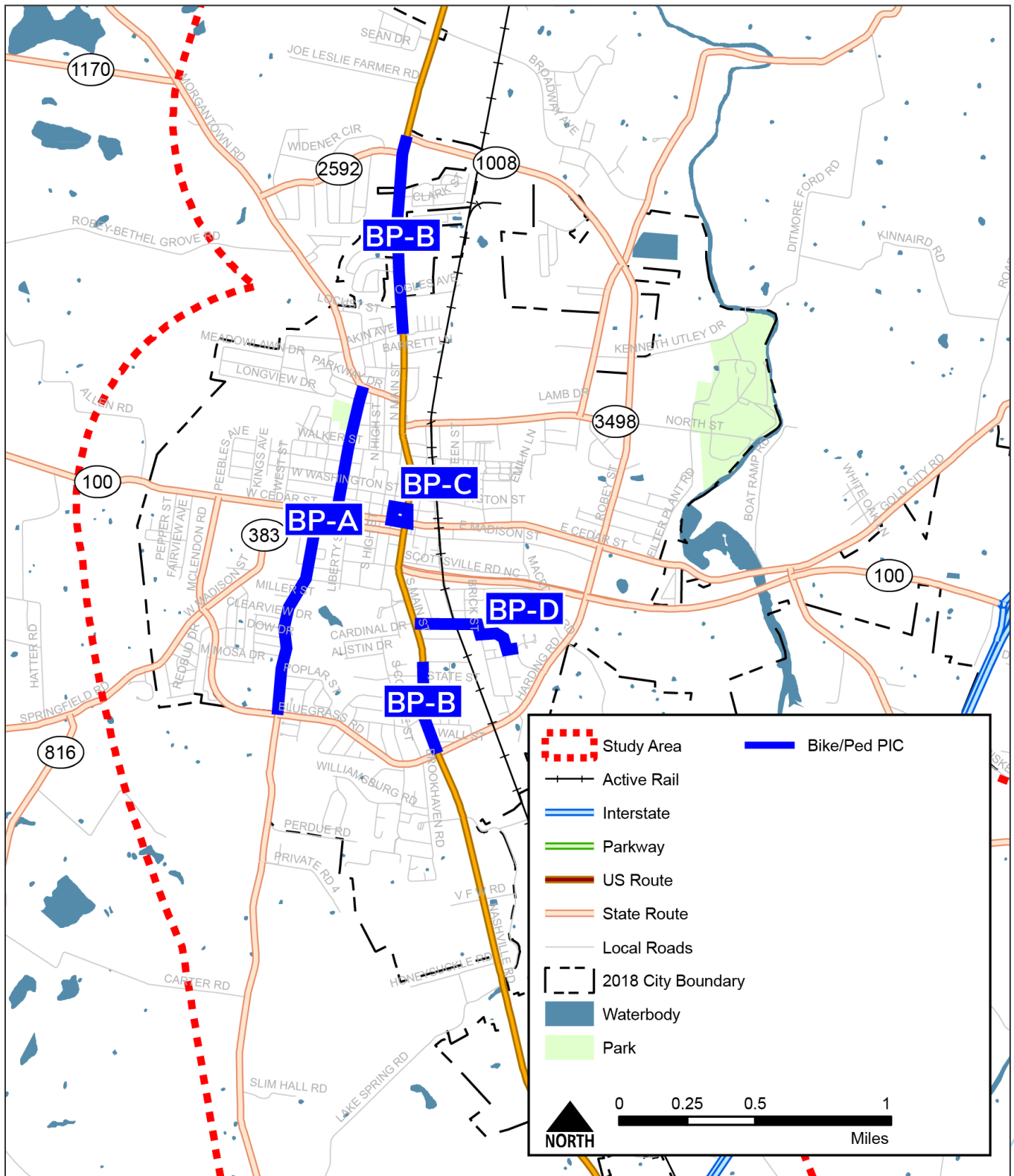


Figure 19: Sidewalk Locations for Witt Road and John Johnson Avenue

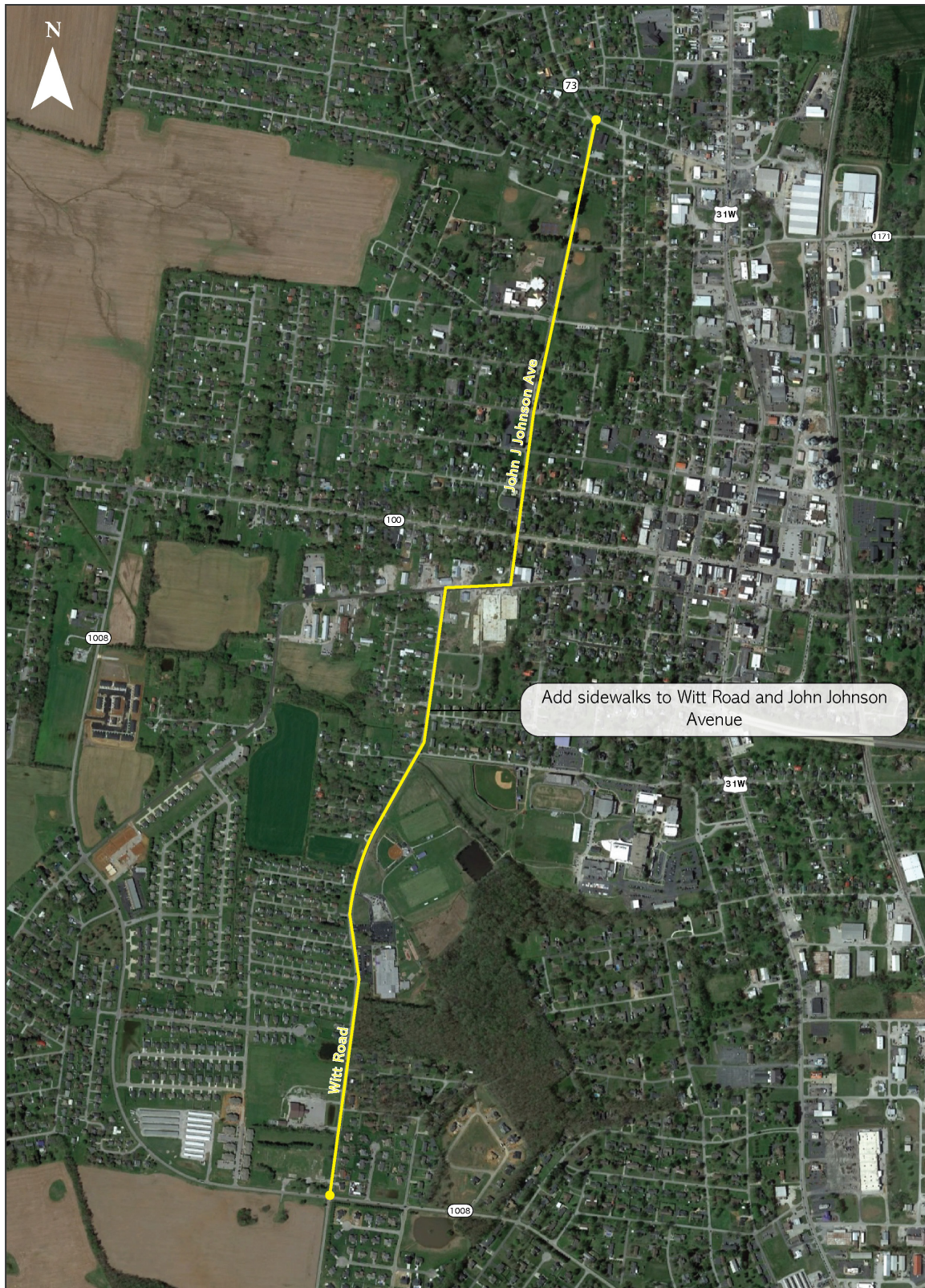


Figure 20: Location of Sidewalk Gaps Along US 31W

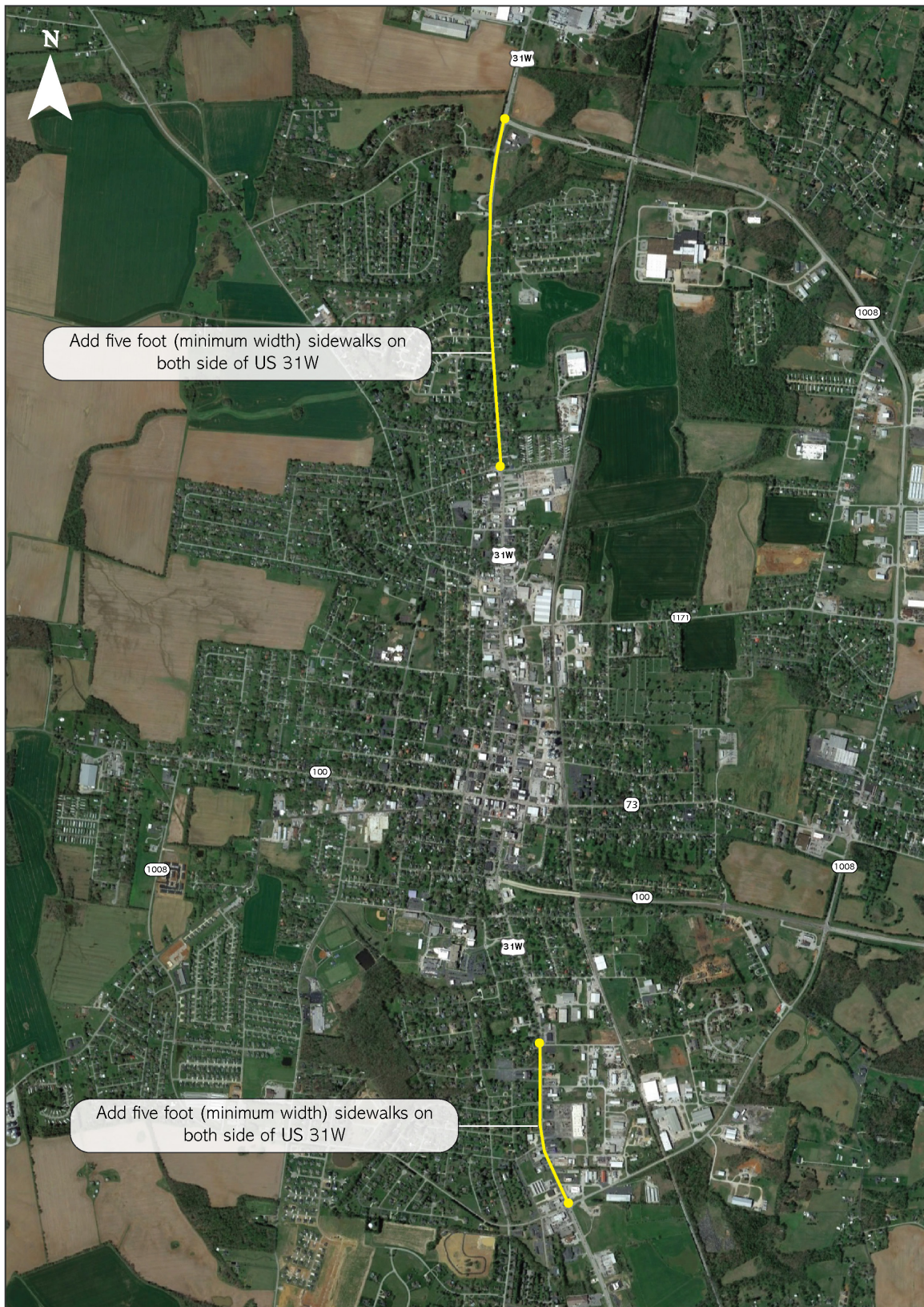


Figure 21: Locations for Mid-block Pedestrian Signals in Downtown Franklin Square



Figure 22: Bicycle and Pedestrian Improvements Along Lemon, Orange and Cherry Streets and KY 100

7.3 Other Potential Future Projects

Projects that the Project Team would like to continue for consideration in the future can be entered into

KYTC's CHAF database for future study and/or programming. **Table 7** lists the project descriptions and construction cost estimates for these projects.

Table 7: Projects to be Entered into the KYTC CHAF Database for Future Consideration

Route	Potential Improvement Concept	Cost
KY 100 W	Traffic calming along KY 100W from KY 1008 to US 31W.	\$150,000
KY 383	Traffic calming along KY 383 from bypass into town and transition approaching bypass from KY 816 to slow traffic.	\$5,100,000
KY 100 E	Access management plan for KY 100 from Page Drive to Gregory Road.	\$2,000,000
KY 585	Improve safety by addressing vertical alignment deficiencies on KY-585 from the intersection with KY 73 to the I-65 overpass.	\$4,600,000
KY 1008	Access management around the entire east side of bypass from KY 100 E to US 31W.	\$8,000,000
US 31W	Improve safety and mobility on US-31W between KY 621 and the Warren County line.	\$16,000,000
US 31W	Reduce congestion and improve safety on US 31W between KY 1171 and KY 1008 north of Franklin.	\$10,000,000
New Route	Improve access and mobility by providing a connection between US 31W south and the Portland Industrial Authority and the potential Southern Simpson County Industrial Park including the new interchange of TN 109 at I 65, and a new route between KY 100 west of Franklin and the Kentucky/Tennessee Line near Witt Road.	\$47,000,000



8 Next Steps

The next step for all projects recommended from this study would be incorporation into the KYTC CHAF database. For projects already in the CHAF database, study recommendations can be used to update the CHAF entry for that potential improvement. Short-term improvement concepts may be implemented by KYTC or a local government agency through selected funding, such as maintenance funds for example. Long-term improvement concepts will need to be prioritized through the Strategic Highway Investment Formula for Tomorrow (SHIFT) program during

the development of the next KYTC Highway Plan. Projects receiving funding will then begin Phase I Design (Preliminary Engineering and Environmental Analysis). For recommendations associated with federal funding or permitting, NEPA documentation would be completed. As projects and studies progress, appropriate public involvement will need to be included throughout implementation.





9 Additional Information

Written requests for additional information should be sent to:

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