JULY 19, 2021

STUDY REPORT

I-65 NEW INTERCHANGE FEASIBILITY STUDY
WARREN COUNTY

ITEM NUMBER 3-402.00

KENTUCKY TRANSPORTATION CABINET

IN PARTNERSHIP WITH

Michael Baker INTERNATIONAL

EXECUTIVE SUMMARY i

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Appendix A: Meetings

- Appendix A-1: Project Team Kick Off Meeting #1 Minutes
- Appendix A-2: Current and Future Land Use Meeting Summary
- Appendix A-3: Meeting with Franklin-Simpson County Planning & Zoning
- Appendix A-4: Meeting with Simpson County Planning & Zoning and Simpson County Industrial Authority
- Appendix A-5: Local Officials/Stakeholders Meeting #1 Minutes
- Appendix A-6: Public Meeting #1 Summary
- Appendix A-7: Emergency Responders Meeting Minutes
- Appendix A-8: Local Officials/Stakeholders Meeting #2 Minutes
- Appendix A-9: Public Meeting #2 Summary

Appendix B: Roadway & Traffic Characteristics

- Appendix B-1: Existing Conditions Summary
- Appendix B-2: Crash Data
- Appendix B-3: Level of Service Data
- Appendix B-4: Traffic Model Validation Report

Appendix C: Environmental

- Appendix C-1: Environmental Overview Summary
- Appendix C-2: Environmental Overview
- Appendix C-3: Socioeconomic Study
- Appendix C-4: Archaeological Overview (confidential, provided by USB)
- Appendix C-5: Historic Architectural Overview

Appendix D: Geotechnical Overview

EXECUTIVE SUMMARY

The I-65 New Interchange Feasibility Study was initiated by the Kentucky Transportation Cabinet (KYTC) and the Bowling Green-Warren County Metropolitan Planning Organization (MPO) to explore the need for additional connectivity on I-65 in the southern portion of Warren County. This study evaluated three potential new interchange location options, including connection improvement scenarios. Additionally, two periods of public outreach were conducted. The three potential new interchange locations included the areas around the existing overpasses at Carter Sims Road, KY 242 (Richpond Road) and KY 240 (Woodburn – Allen Springs Road) and their potential connections that extended from US 31W (Nashville Road) to the west and KY 622 (Plano Road) to the east. The study resulted in a recommendation for a new interchange location and action items for moving forward with the recommendation.

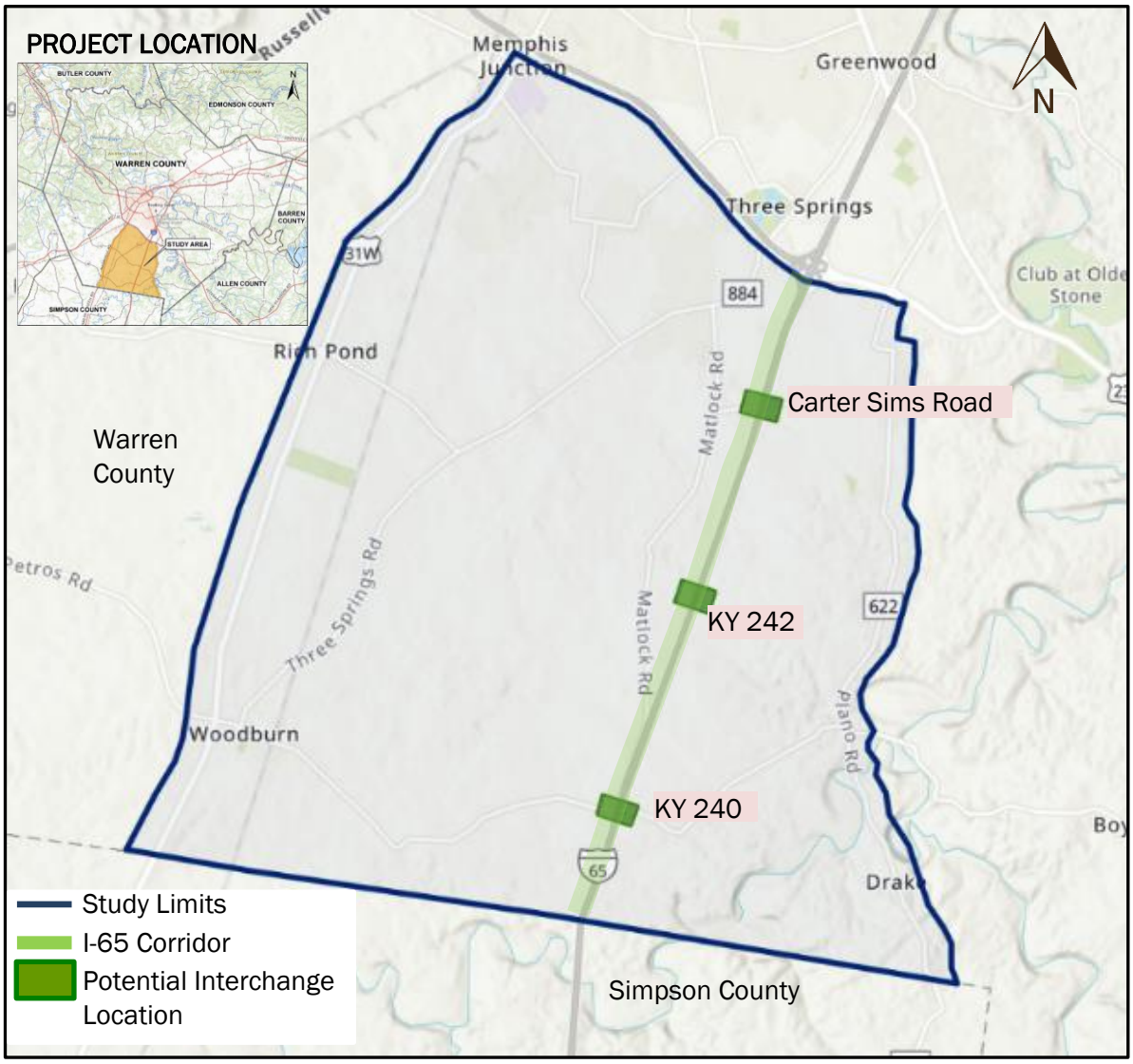


Figure ES - 1: Project Study Area

Introduction. Projects concerning a potential interchange located on I-65 at either KY 240, KY 242, or in the vicinity of Carter Sims Road as part of the possible Southwest Parkway concept have been included in the MPO's Metropolitan Transportation Plan since the MPO was created after the 2000 Census and have been on the Unscheduled Needs List for Warren County since the early 1990's. Several other projects in Southern Warren County during the last 12 years supported this study, with two studies (the Elrod Road Interchange Feasibility Study[1] and the KY 622 Plano Road Study[2]) recommending that an interchange along I-65 in this area be investigated. A more detailed background on this project is included in Section 1: Introduction.

Study Area Profile. The first step in the study was to develop a profile of the area characteristics in terms of traffic, safety, roadway conditions, environmental conditions, growth and land use patterns, and geotechnical conditions. Although the study showed only moderate traffic growth and safety concerns, the existing roadway characteristics include narrow lanes and shoulders. Environmental concerns were limited in the study area and included historical properties, wetlands and areas with potential for threatened and endangered species. No geotechnical concerns were found that would prohibit construction of an interchange at any of the proposed locations, but karst terrain is present around all three potential new interchange locations. A review of growth and land use patterns indicated that much of the area around the Carter Sims location was zoned residential. At the KY 242 location option, the area is residential and agricultural but significant agricultural properties are anticipated to become residential (subdivisions) or commercial properties. Around the southernmost location option at KY 240, the area is mostly agricultural and expected to remain so. Currently, a new interchange in the northern portion of the study area at I-165 and Elrod Road has been designed but no construction money has been obligated for the project. Its construction would mostly impact the Carter Sims Road area. The Southwest Parkway from US 68 to I-65 is a proposed corridor in the upper portion of the study area. No detailed studies have been completed on the portion of the corridor from US 31W to I-65, however, it is most likely to impact both the Carter Sims Road area and the KY 242 area. The final step in the Study Area Profile was the development of a draft purpose and need statement. Information about the study area characteristics is included in Section 2: Study Area Profile.

Community Engagement - Phase 1. Local officials, stakeholders, and the public were given an opportunity in early September 2020 to attend an online public meeting to discuss the study area's existing conditions and allowed an opportunity for attendees to ask questions and provide comments. Following the meeting, the public was offered the opportunity to complete an online survey. Over 100 people attended the meeting and 283 surveys were completed. A website was also created using ESRI's Story Map to provide an opportunity for the public to learn more about the project. A more in-depth discussion of these outreach tools and responses are included in Section 3: Community Engagement - Phase 1.

[1] https://transportation.ky.gov/Planning/Planning%20Studies%20and%20Reports/Elrod%20-%20Planning%20Study%20Report.pdf

[2] https://www.warrenpc.org/wp-content/uploads/2018/07/Plano-Road-Corridor-Study_FINAL.pdf

Development of Interchange Options. Once the study team was aware of any potential concerns or issues in the study area, the next steps involved the development of potential connection points from I-65 at or near the proposed overpasses to US 31W and KY 622. This included any necessary improvements or connections that may be needed on adjacent roadways for the interchange connection.

At the Carter Sims Road location, it was determined that existing infrastructure required that the location of the proposed new interchange be considered south of the existing overpass. This led to the development of two potential scenarios for this option. At KY 242, interchange options were considered at the existing overpass, as well as locations either north or south of the overpass. Four scenarios were developed for this option. At the KY 240 location, it was determined that the existing overpass location would be preferable for a new interchange location and two scenarios were developed for this option. The interchange location options are included in Figure ES - 2. Furthermore, the study addressed mobility for all users to include accommodations for bicycle traffic such as a wide shoulder. Ultimately, the study determined the costs and benefits of each scenario for the three interchange location options. Each of the options also included a scenario of a connector roadway with a new crossing for the CSX railroad. The connector scenarios are shown in blue in Figure ES - 2.

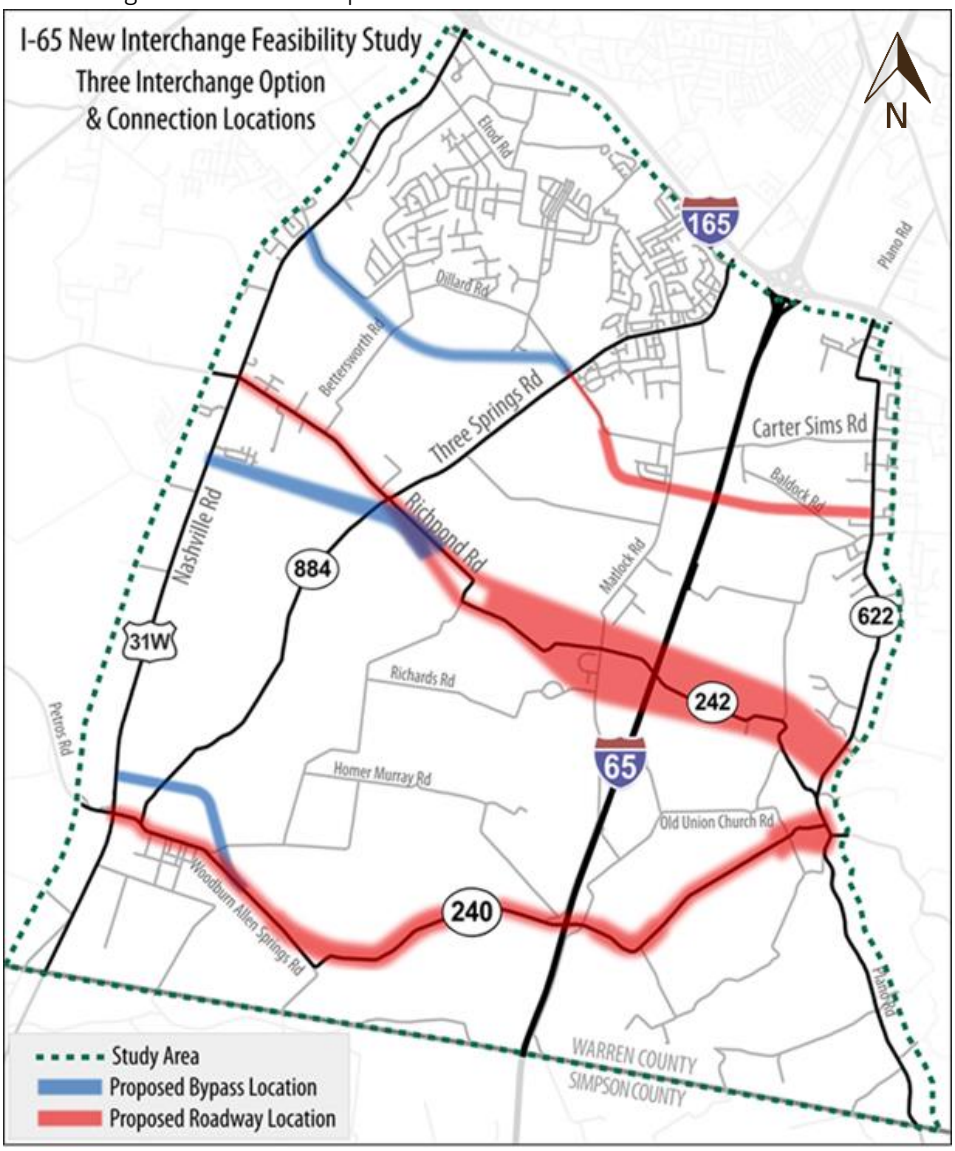


Figure ES - 2: Interchange Options

A matrix was prepared which compared each of the scenarios against the purpose and need of the project and presented the estimated costs of each scenario. A detailed description of each of the options and scenarios are included in Section 4: Development of Interchange Options.

Figure ES - 3: Recommendation

Community Engagement - Phase 2. In March of 2021, the Stakeholders and Public were again engaged to provide comments and feedback on the scenarios. Similar to Phase 1, online meetings were held in which a presentation was given followed by an opportunity for participants to submit questions and provide comments. During the second public engagement phase the community was also given an opportunity to attend a Virtual Town Hall (VTH). Opened just prior to the public meeting date through early April, the VTH gave attendees a chance to watch a presentation, review detailed exhibits, and take the online survey. Over 700 people attended the VTH over a two-week period. Section 5: Community Engagement - Phase 2 provides more details on the VTH, survey, and other engagement tools used in this phase of the project.

Recommendation: At the conclusion of Community Engagement Phase 2 survey responses, emails from the public, and comments from the online stakeholders and public meetings were reviewed in detail. The general consensus was that the public substantially supported an interchange at KY 242 and KY 240 over an interchange near Carter Sims Road. The comments were also used to update the evaluation matrix. As illustrated in Figure ES - 3, the KY 242 interchange location option and its connection improvements were recommended to move forward into project development and delivery in order to provide greater and more immediate relief to Southern Warren County. However, the KY 240 interchange location option and its connection improvements were also feasible. This location might be considered a project of regional importance in the future and be considered for project development and delivery when development and growth warrant. The costs associated with the recommendations are shown in Table ES - 1. A full discussion of this decision is in Section 6: Recommendation.

Table ES - 1 – Costs of Recommendations

PHASE	Alternate Scenarios*					
	KY 242 Richpond Road Widen Existing Overpass	KY 242 Richpond Road Widen Existing Overpass w/ Connector	KY 242 Richpond Road New Overpass	KY 242 Richpond Road New Overpass w/ Connector	KY 240 Woodburn Allen Springs Road	KY 240 Woodburn Allen Springs Road w/ Connector
Engineering and Design	$7,600,000	$8,400,000	$9,000,000	$10,000,000	$7,600,000	$9,000,000
Right of Way (ROW)	$5,400,000	$5,800,000	$8,000,000	$8,300,000	$4,600,000	$5,600,000
Utilities Relocation	$2,600,000	$1,300,000	$1,600,000	$800,000	$3,300,000	$2,100,000
Construction	$22,100,000	$26,400,000	$26,300,000	$30,700,000	$22,400,000	$28,000,000
Total Costs	$37,700,000	$41,900,000	$44,900,000	$49,800,000	$37,900,000	$44,700,000

* The termini for all scenarios include improvements to the existing roadways from US 31W (Nashville Road) to KY 622 (Plano Road) unless otherwise noted.

Next Steps: After the conclusion of this feasibility study, the next step in the process will be to secure funding for the preliminary design and further environmental studies for the recommended interchange location option. Although the Recommendation section provides details on the preferred location option for a new interchange, the final portion of this report, Section 7: Next Steps, addresses steps that KYTC and the MPO may take to increase the feasibility and cost-effectiveness of the recommended interchange option. See Table ES – 2 below for further steps that are needed to move the recommended interchange location into the project development and delivery phases.

Table ES - 2 - Next Steps

Agency	Project #	Action Item
MPO & KYTC	MTP ID: 60 CHAF ID: IP20150074 (MTP)	Within the MTP (Metropolitan Transportation Plan) and CHAF*, update description/costs of project: "NEW Improve access with a new interchange on I-65 at KY-242." Support this project's consideration within SHIFT* and eventual inclusion into KYTC's Highway Plan and the MPO's Transportation Improvement Program (TIP). Reference to the Southwest Parkway should be added to this project description.
MPO & KYTC	MTP ID: 67 CHAF ID: IP20070133 (MTP)	Within the MTP and CHAF, update description/costs of project: "Improve access with a new interchange on I-65 at KY 240."
MPO & KYTC	MTP ID: 67 CHAF ID: IP20070133 (MTP)	Within the MTP and CHAF retain, update description/costs and combine the following project with MTP item 03 114 A0065 42.00: "Improve access with a new interchange on I-65 at KY 240".
MPO	N/A	Develop a corridor preservation plan to support an interchange at KY 242 and its associated connection improvements.
MPO	N/A	Update land use plan to support an interchange at KY 242.
MPO & KYTC	N/A	Update elected officials on study recommendation.

** Continuous Highways Analysis Framework (CHAF), is an application used by KYTC and other transportation agencies including the MPO, to collect, track and analyze identified transportation needs. CHAF also provides a means to sponsor, score and rank projects as part of the Strategic Highway Investment Formula for Tomorrow (SHIFT).*

SECTION 1: INTRODUCTION

The *I-65 New Interchange Feasibility Study* was a comprehensive evaluation of the need for an additional interchange on I-65 in the southern portion of Warren County. This study examined potential locations along the interstate and necessary improvements or connections that may be needed on adjacent roadways for an interchange connection. The study addressed mobility for all users and quantified the costs and benefits of improved interstate connectivity in southern Warren County, which is experiencing much of the county's residential growth.

In May of 2020, the Kentucky Transportation Cabinet (KYTC), the Bowling Green-Warren County Metropolitan Planning Organization (MPO), and the consultant team of Michael Baker International began the work for the I-65 Interchange Feasibility Study for Southern Warren County. The following sections explain the history of the project, study goals and schedule, study location, and the draft purpose and need.

Figure 1: Existing Carter Sims Road, KY 242, and KY 240 Overpasses

History

The timeline below shows the history of the development of the transportation network in southern Warren County, including the initial construction and later improvements of Interstate 65.

1960s	I-65 was constructed through southern Warren County, but no interchange was built along the 14-miles from Exit 6 (KY 100 in Simpson County) to Exit 20 (I-165/Natcher Parkway). At that time, the need for such an interchange was never really anticipated for what was a predominantly sparsely populated area of large farms and quaint villages centered on a local school and a small business district.
1970s	Much like the Barren River and later the L&N Railroad in the 19th and early 20th Centuries, the access to the Interstate Highway System provided the connectivity to sustain growth in Bowling Green and Warren County. The Green River Parkway was opened as a fully controlled access toll highway connecting I-65 at Bowling Green to the city of Owensboro which increased the community's access. Growth in the city began to stretch out US 31W (Nashville Road) toward the Green River Parkway and then later along US 231 (Scottsville Road) toward the interchange with I-65 (Exit 22).
1980s	The patterns of growth for Bowling Green shifted toward the south, specifically along US 231 (Scottsville Road) toward I-65. The opening of the regional shopping hub, the Greenwood Mall, spurred rapid commercial development along Scottsville Road and residential development along the feeder routes of KY 2158, KY 880 (Lovers Lane), and especially along KY 884 (Three Springs Road). Improvements to US 31W and US 231 in the area were developed and delivered to address the increasing traffic congestion.
1990s	The community continued to grow through the economic boom of the 1990's. In response to this rapid growth, planning efforts emerged to address the issues and concerns with increasing traffic congestion and for coordinated land use development. The Bowling Green Major Thoroughfare Plan (1999) and Walnut Valley Focal Point Plan identified several possible improvements such as the widening of US 31W and KY 884, and construction of a new minor arterial roadway named the "Southwest Parkway" to connect US 68, US 31W, and I-65. During this same time, the study of the I-65 corridor, which would lead to its eventual widening to 6 lanes, examined at a high level the possibility of interchanges to be built for KY 242 or KY 240. By the end of the decade, the ground was broken on the widening of I-65 to 6 lanes from the Tennessee State Line to Elizabethtown. Also, in 1994, the Green River Parkway was renamed the William H. Natcher Parkway in honor of the long-serving US Congressman native to Bowling Green.
2000s	Support increased in the 2000's among the community and its leaders for a possible alternative connection to I-65 and the rest of the roadway network in southern Warren County to relieve the congestion and improve the safety along the increasingly congested two-lane farm-to-market roads that feed into Bowling Green, especially Three Springs Road (KY 884). An interchange at KY 884 and the Natcher Parkway was not feasible because of its proximity to the massive interchange of I-65 and the Natcher Parkway less than two miles away. By the middle of the decade, the tolls were removed from the Natcher Parkway which made the highway even more attractive for travel. In 2009, the Elrod Road/Natcher Parkway Interchange Study investigated a possible interchange at that location which would provide the adequate distance from the interchange with I-65 at Exit 20, which was under construction. The major concern of just constructing an interchange with the narrow and curving Elrod Road led to the realization that any interchange would demand the realignment and widening of Elrod Road along with reconstruction of feeder routes. The Elrod Road Interchange Study recommended that a possible interchange on I-65 in the area south of Exit 20 (Natcher Parkway) should be further investigated as a more viable solution. In the meantime, the development of a project to construct an interchange at Elrod Road and Natcher Parkway moved forward, but with the incorporation of improvements to the connecting roadways such as Smallhouse and Elrod Roads.
2010s	Additional needs and issues came to light through the widening of I-65, school growth, and local studies. The concrete median barrier in the center of the widened I-65 provides limited access for emergency vehicles between Exit 20 (Natcher Parkway) and Exit 6 (KY 100) in Simpson County. During the decade of the 2010's, the opening of two new elementary schools and the South Warren High and Middle School campus significantly affected the travel patterns and spurred residential development in the area as southern Warren County became the preferred location to live for existing and new residents. US 31W was widened to five lanes from the Natcher Parkway to Dillard Road and plans were made to extend that improvement southward toward the Simpson County Line. On the eastern side of I-65, the Natcher Parkway extension and its interchange with KY 622 (Plano Road) provided improved access to the Plano area of southern Warren County and its continued growth. In response to pressure of residential and potential mixed use development within the Plano community, the BG/WC MPO conducted the 2018 Plano Road (KY 622) Corridor Plan and Policy Development Study to determine a coordinated plan of transportation improvements and land use policies that will address the impacts of residential and commercial growth in the Plano community. The study recommendations included improvements to support possible interchanges with I-65 at either KY 240 or KY 242 that could connect the community of Plano. By the end of the decade, the Natcher Parkway was studied and recommended as a potential interstate highway spur from I-65 to Owensboro. With improvements underway to bring the parkway to meet interstate highway standards, the Natcher Parkway was designated as I-165 in 2019.
2020s	In 2020, the MPO and KYTC initiated this study to investigate the feasibility of an interchange on I-65 in southern Warren County.

Study Goal and Schedule

The goal of this planning study was to identify the most feasible improvements to the transportation network and enhance access to I-65 in southern Warren County. To achieve this goal, the project team worked collaboratively with the public, stakeholders, and community leaders to accomplish the objectives laid out below:

- Identify improvements to facilitate connectivity of southern Warren County with I-65.
- Identify improvements to increase the safety and mobility for all users.
- Quantify the benefits and costs of a new connection to I-65.
- Prioritize the possible improvements and provide recommendations.

The study followed a schedule of approximately 12 months as shown below.

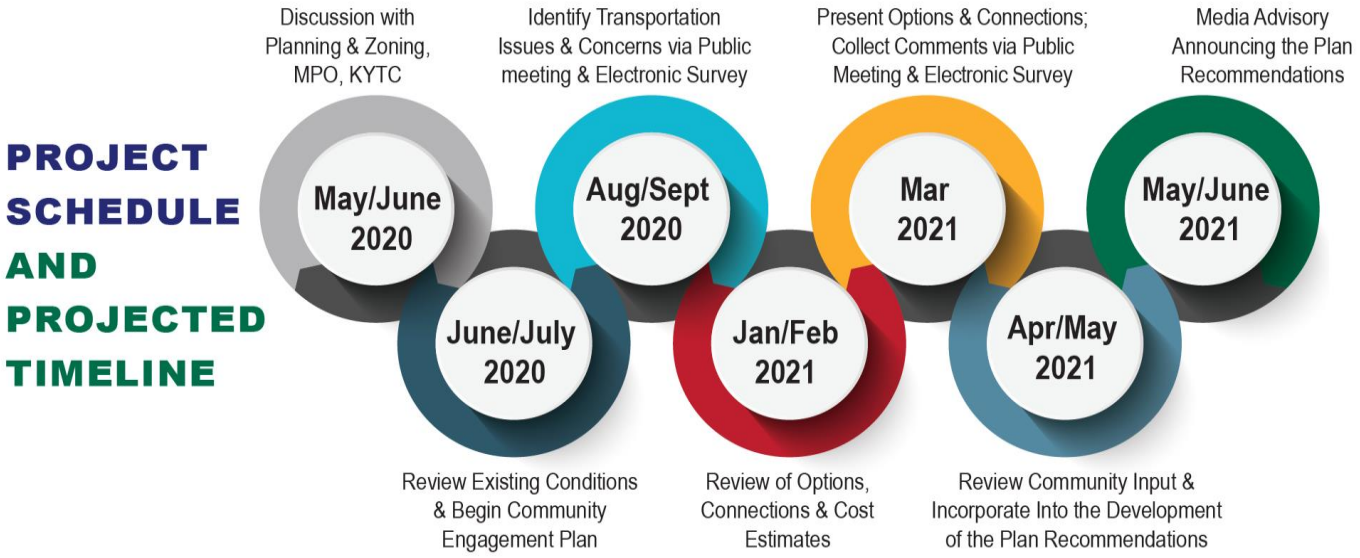


Figure 2: Project Schedule

Study Location

The area of influence for this study was in the southern portion of Kentucky in Warren County. Over the years, three existing crossings of I-65 have been considered as locations for an interchange as shown in the map as green rectangles:

- Carter-Sims Road, to the north
- KY 242 (Richpond Road), in the middle
- KY 240 (Woodburn Allen Springs Road), to the south

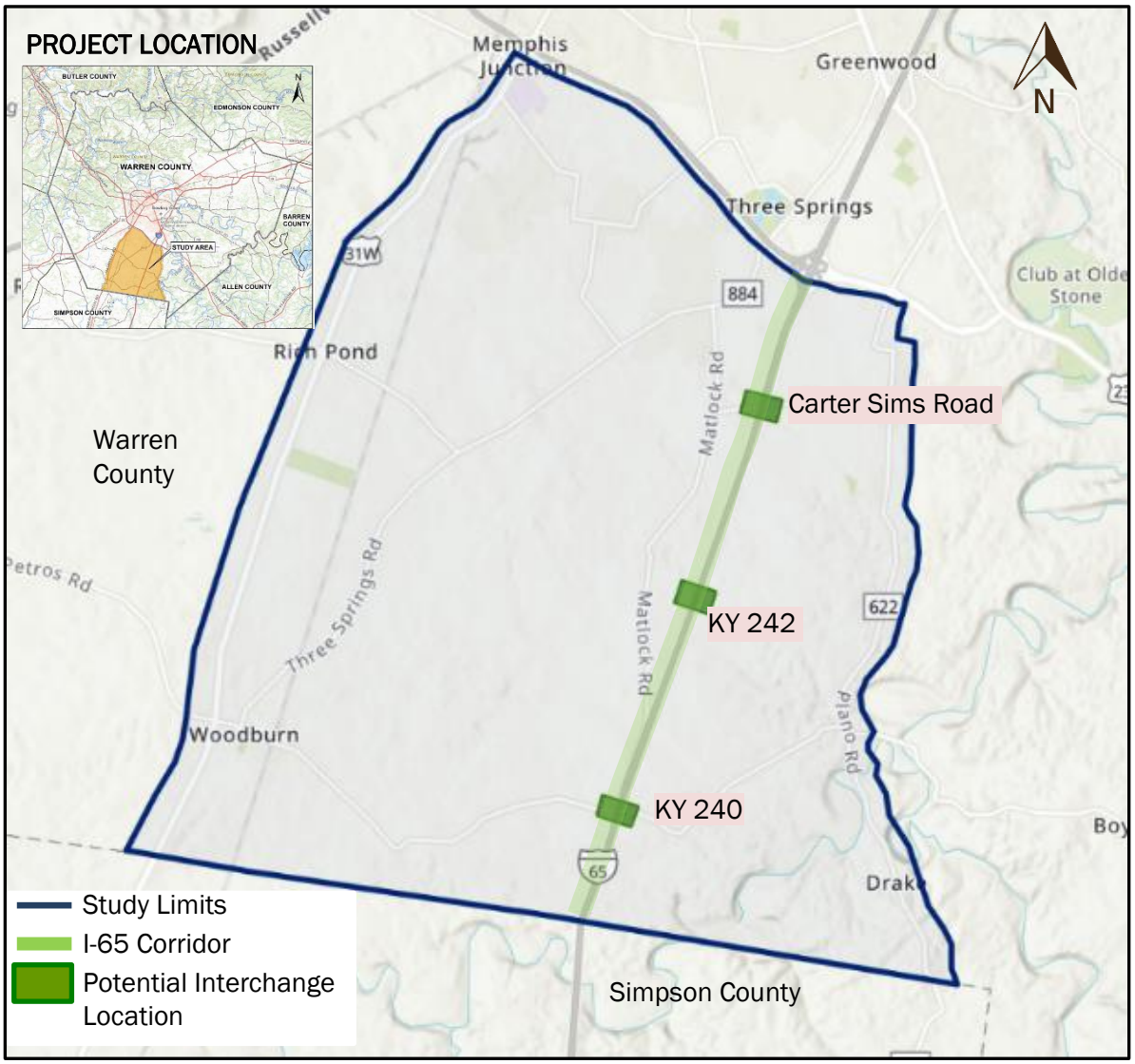


Figure 3: Project Study Area

For this feasibility study, these three possible interchange locations and the surrounding roadways were included in the study area which is bordered on the north by I-165 and to the south by the Simpson County Line; then to the east by KY 622 and to the west by US 31W. A study area has been defined and is shown in Figure 3. A no-build alternative was also considered in the feasibility study

Draft Purpose and Need

The concept of a possible interchange on this fourteen-mile section of I-65 has been identified in past planning studies dating back to the original Bowling Green Thoroughfare Plan in 1999. The objective of this study was to address the mobility and connectivity issues of the existing road network for access to I-65 due to the ongoing and planned growth, as well as freight movement in southern Warren County. The study was initiated to determine the need and optimal location of a new interchange on I-65 in southern Warren County and to provide safe and reliable connectivity to the main arterial routes, including US 31W (Nashville Road), KY 884 (Three Springs Road), and KY 622 (Plano Road). The project goals include:

- Improve connections for all users among and between the local roadway network and the access to I-65.
- Enhance public safety through improved emergency response times.
- Accommodate the ongoing and future planned land use within southern Warren County.
- Support freight movements within southern Warren County.

SECTION 2: STUDY AREA PROFILE

For over a half century since the construction of I-65, Bowling Green and Warren County has continued to prosper and grow. The increasing traffic resulting from the expanding Bowling Green urban area set the stage for discussions on how to improve the existing network of very rural, narrow two-lane roadways throughout southern Warren County to accommodate the emerging demand for this attractive area in which to live and work. Industrial park development along US 31W in northern Simpson County and the South Industrial Park located near I-165 also added to the demand by industry employees and trucks carrying materials and products.

The following sections discuss the study area in terms of socio-economic traits, land use and development patterns, natural resources and environment, and roadway conditions. Each of these items provide the groundwork for determination of the suitability of a potential interchange and its connection within the study area.

Socio-Economic Study

A socio-economic study of the study area was completed with the intention to highlight areas of concern that will require additional analysis should any project be advanced to future phases. This information will be used to aid the KYTC in making informed and prudent transportation decisions in the project area. The data collected was based on information provided in the 2014 - 2018 US Census Bureau American Community Survey. A full copy of the report is included in Appendix C.

Per Executive Order 12898 regarding Environmental Justice:
"...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its policies, and activities on minority populations and poverty status, populations..."

The Socio-Economic Analysis showed only one population group, Age (Over 65), had a higher than average representation in the study area. The study did not identify any locations within the study area that would impact the development of interchange locations. However, during future phases of project development, a more detailed and robust analysis would be required for the NEPA documentation to assess the potential for adverse and disproportionate impacts to low-income and minority populations.

Land Use and Development

This portion of the study aimed to determine the existing and future land use characteristics of the study area. The process involved reviewing existing zoning, utility infrastructure, future land use, farmland, and development of regional impact. As shown in the following pages, most of the area is zoned as agriculture with some prime farmland. Future land use maps project more residential and commercial land use in the northern portion of the study area where existing utilities are present. The study identified four potential future projects of regional significance. These are the Southwest Parkway, the Elrod Road/I-165 Interchange, the new elementary school near Dillard Road, and the expansion of the Industrial Park in Simpson County. Further details on how land use and development guided the development of interchange options and recommendations are included in Sections 4 and 6 of this report.

Zoning

The study area is primarily agricultural with small zones of mostly single-family residential areas, but some multi-family residential uses as well, in the northern sections and along US 31W. This portion of the county is characterized by patches of small farms and farmland, primarily cropland or pastureland. See Figure 4 for current land uses in the study area.

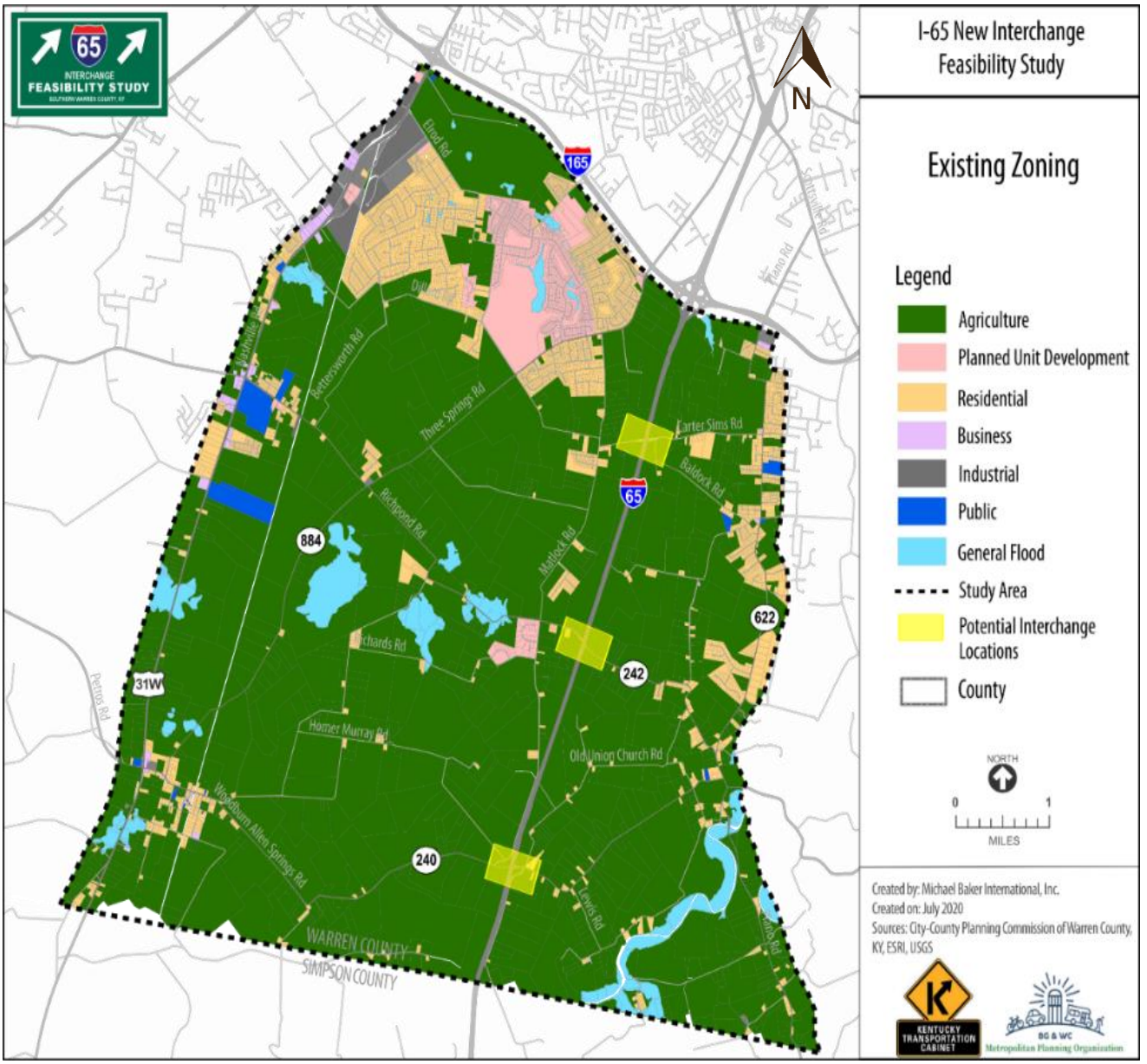


Figure 4: Current Land Use Map

Utilities

Water mains exist throughout most of the study area, mostly following main roads and are more readily available to the region than sewer. These water lines do not follow I-65 through most of the study area, however. Water main lines do run parallel and around I-65 at the KY 240 (Woodburn Allen Springs Road) overpass, and south along the corridor to the southern border of Warren County. The study area has a lack of sewer utilities, primarily south of Richpond Road. Pressurized and gravity sewer mains exist mostly north of Dillard, Neal Howell, and Long Roads. There is a sewer main that extends to Richpond Road, and south about one mile, following US 31W (Nashville Road). Sewer utilities are mostly located within the urban and suburban sprawl of Bowling Green, which crosses into the norther portion of the study area. Lack of sewage utilities in the study area and especially along I-65, will limit the amount of commercial growth around a new interchange.

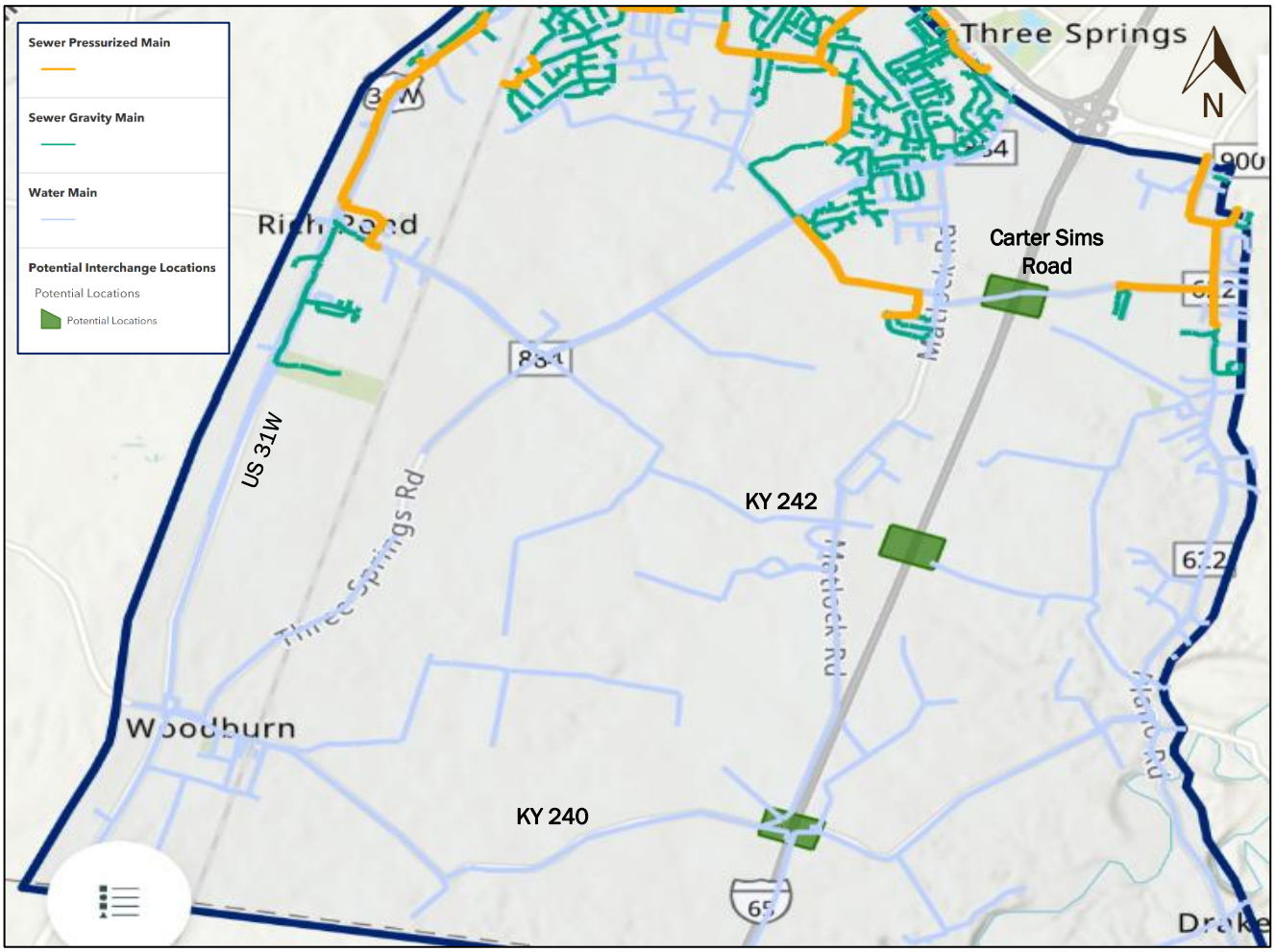


Figure 5 Existing Utilities

Farmland Suitability

Within the study area, approximately sixty percent (59.91%) of the total area is comprised of prime farmland. Nearly nine percent (8.72%) is comprised of farmland of statewide importance, and the remaining is either not prime farmland or urban area. Soil type designated as prime farmland within 5 miles of the potential interchanges is approximately sixty-one percent (61%). Of this sixty-one percent (61%), forty-eight percent (48%) is already designated as non-agricultural use on the Future Land Use Map (FLUM). There is no anticipation of any additional impacts to these areas with the installation of a new interchange since these areas are already designated for non-agricultural use. Fifty-two percent (52%) of the sixty-one percent (61%) of prime farmland-designated property is designated as Agriculture on the FLUM.

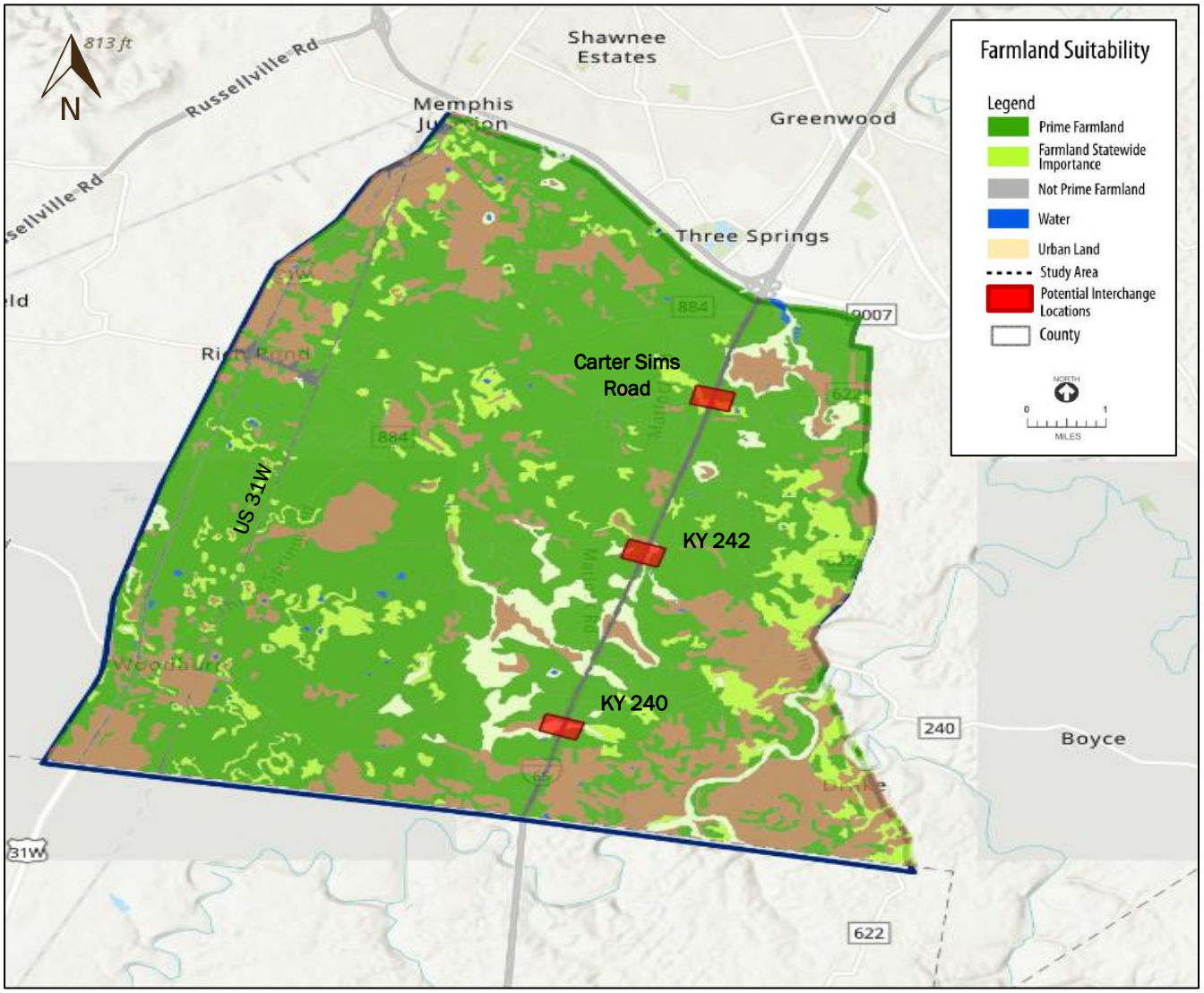


Figure 6: Farmland Designation

Future Land Use

The future land use within the study area strongly reflects the southward urban growth of Bowling Green, as well as regional developments such as schools and industrial growth. Closer to the city limits of Bowling Green, there is a wider range of future land use. Much of the southern portion of the study area towards Simpson County remains designated for agriculture. Twenty-eight percent (28%) of the future land use within the study area will be low density, and fifty-seven percent (57%) of the future land use will be agricultural. This is a large change from the current zoning or existing zoned properties, which has eighty-one percent (81%) of the study area zoned for agriculture.

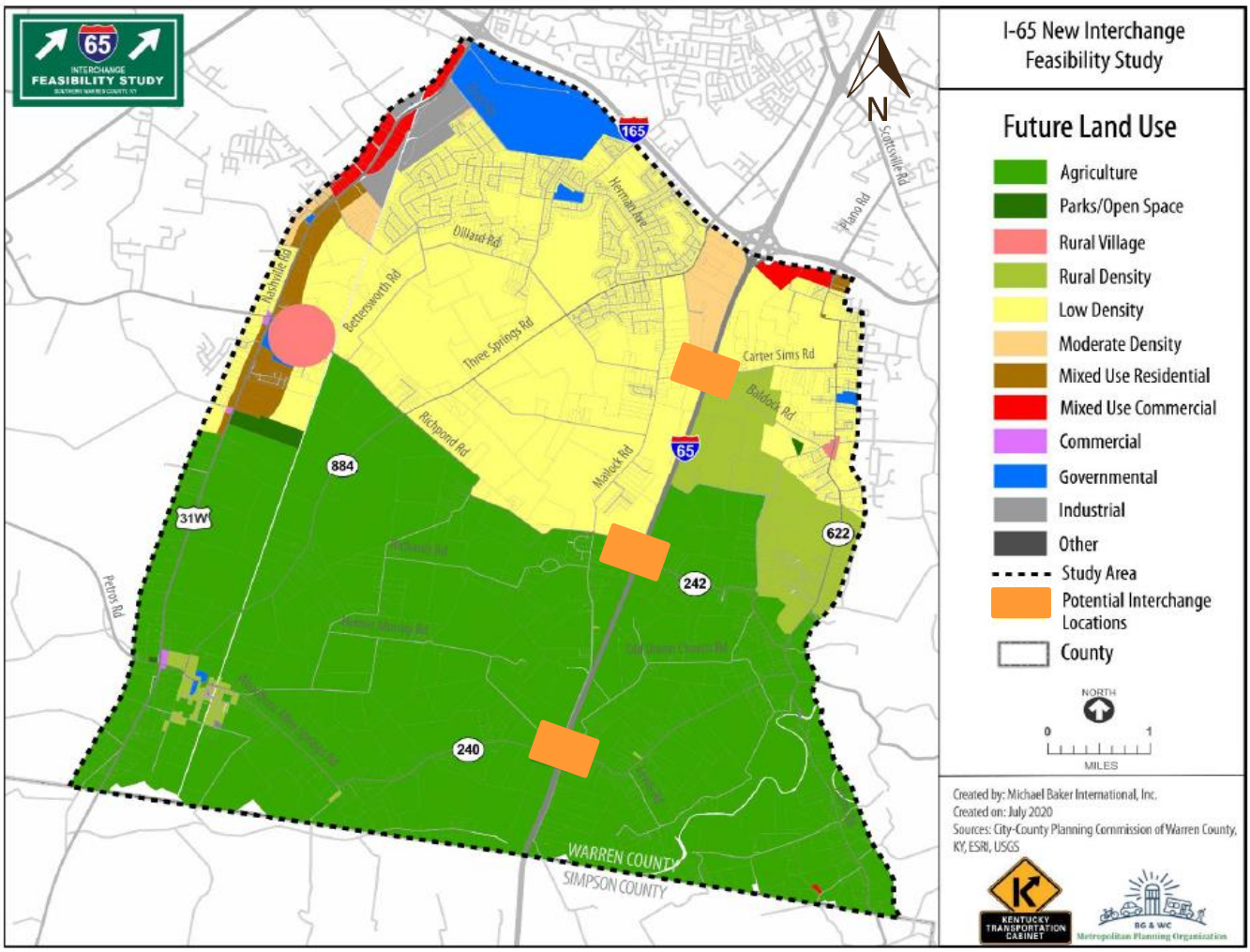


Figure 7: Future Land Use Map

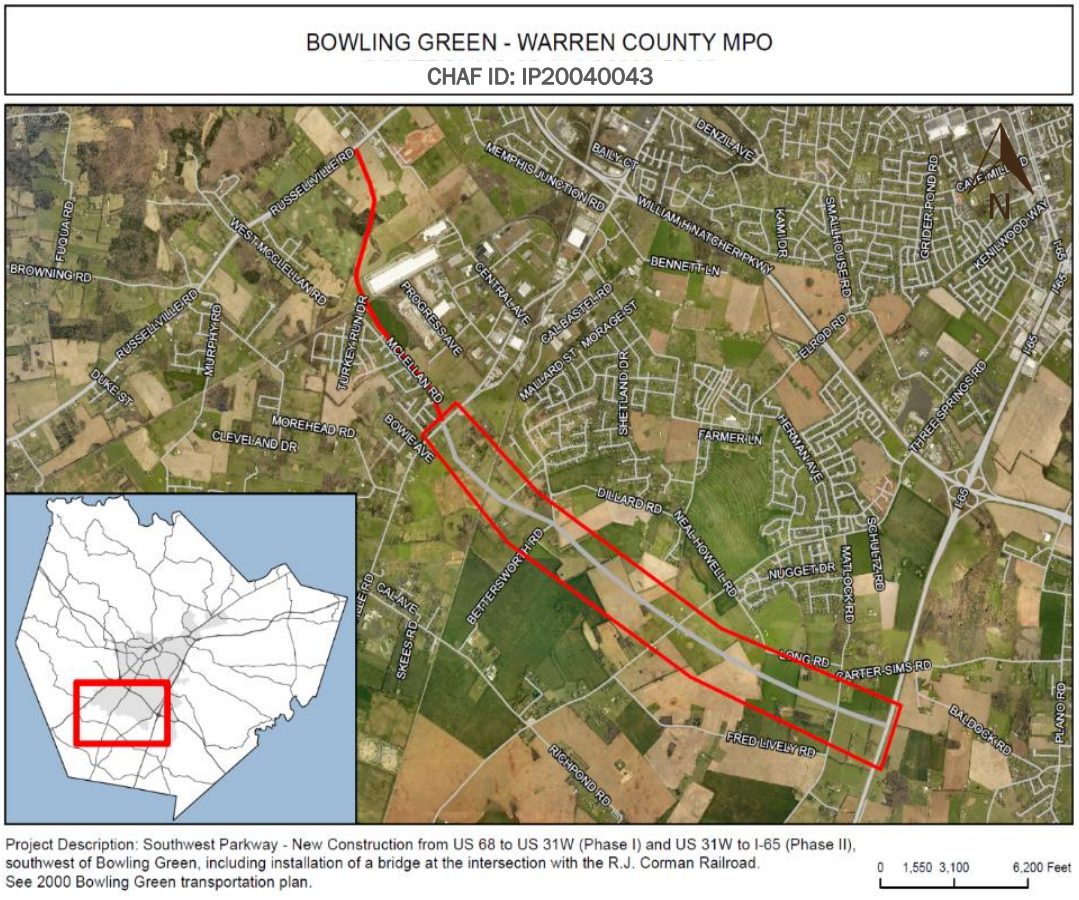
Developments of Regional Impacts

The following projects have been identified as having the potential to have regional impacts that would alter traffic conditions and growth patterns within the study area. Both could result in new traffic patterns, an increase in traffic volumes and changes in land use.

Southwest Parkway

A long-standing project in the region has been the development of the Southwest Parkway, a proposed roadway from US 68 (Russellville Road) to I-65. Segments of the parkway have been constructed; however, the section from US 31W to I-65 is neither designed nor built. The future parkway is shown in Figure 8. It is proposed to start at or near the intersection of US 31W and Dillard Road and follow Dillard Road briefly before a new road south of Dillard Road and Neel Howell Road connects to KY 884 and eventually I-65. The Southwest Parkway has a purpose and need similar to that of this project in that it is being considered to improve mobility and connectivity in the study area. The proposed connection with I-65 is depicted as being between the Carter Sims Road overpass and the KY 242 overpass.

The Southwest Parkway is included in the MPO long range 2045 Metropolitan Transportation Improvement Plan however, no funds have been obligated for the planning, design, or construction of this project in the study area and it is not included in Kentucky's FY 2020 – FY 2026 Highway Plan.



Project Description: Southwest Parkway - New Construction from US 68 to US 31W (Phase I) and US 31W to I-65 (Phase II), southwest of Bowling Green, including installation of a bridge at the intersection with the R.J. Corman Railroad. See 2000 Bowling Green transportation plan.

Figure 8: Proposed Southwest Parkway

Elrod Road Interchange

Historically a major project in the area is the Elrod Road Interchange. This project would connect Elrod Road with I-165 (formerly the Natcher Parkway) and includes roadway improvements in the area. The proposed interchange is shown in Figure 9. The interchange was proposed to provide improved mobility for motorists in the southern portion of the county between US 31W and I-65. A study in 2009 recommended a No Build option at this location and that a new interchange be considered on I-65 south of I-165 in Warren County. However, the Elrod Road Interchange is included in the MPO 2019-2024 Transportation Improvement Program (TIP) which means that it is a priority project for the region. No funds have been obligated for the construction of this project in Kentucky's FY 2020 – FY 2026 Highway Plan.

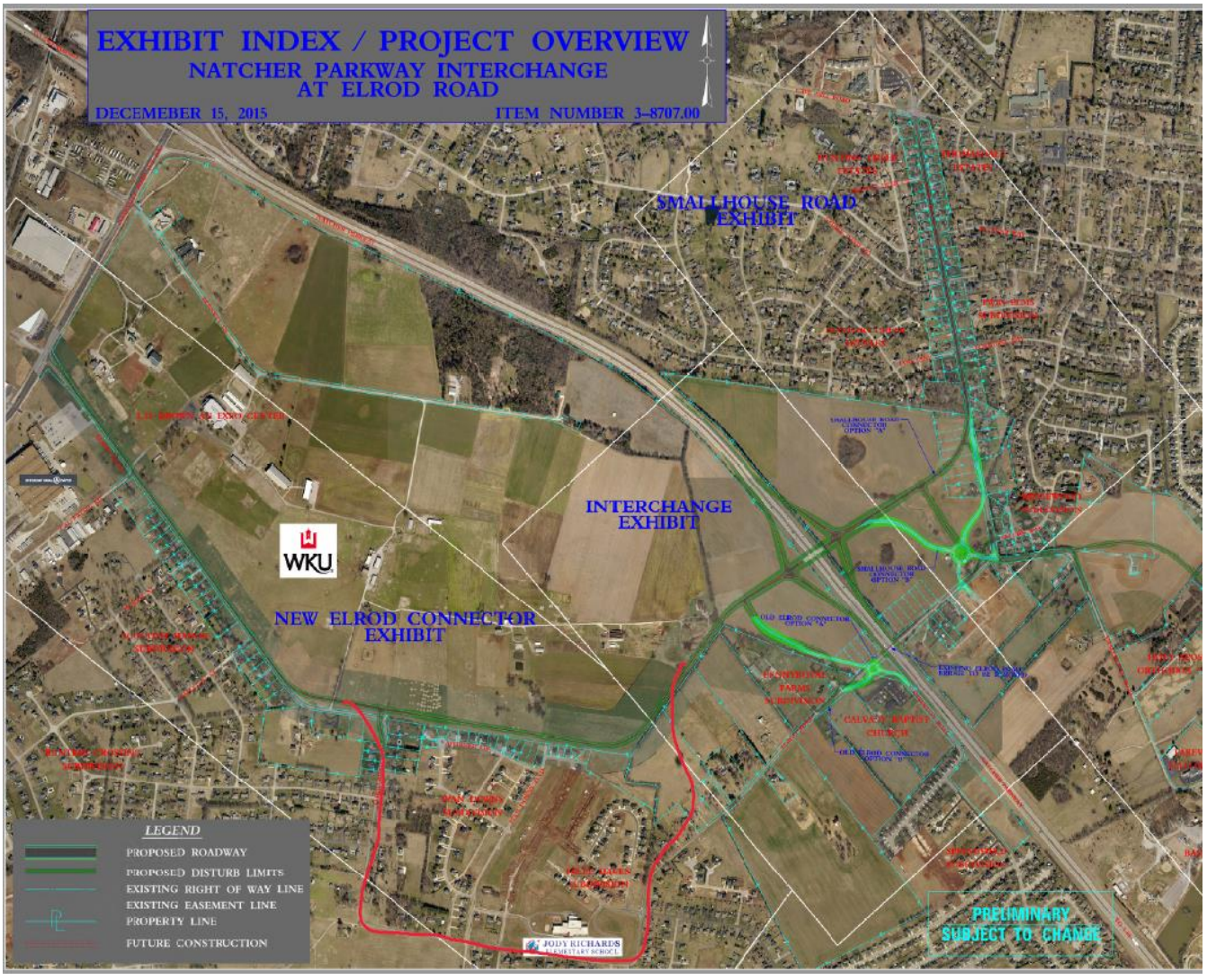


Figure 9: Proposed Elrod Road Interchange by KYTC

Study Area Schools

The construction and renovation of several schools within the study area shown in Figure 10 is indicative of the recent and future growth. This includes the construction of South Warren High School and Middle School campus (2010), Plano Elementary School (2011), Jody Richards Elementary School (2012), the expansion of Richpond Elementary School, and a proposed new elementary school on Dillard Road, to serve the study area.

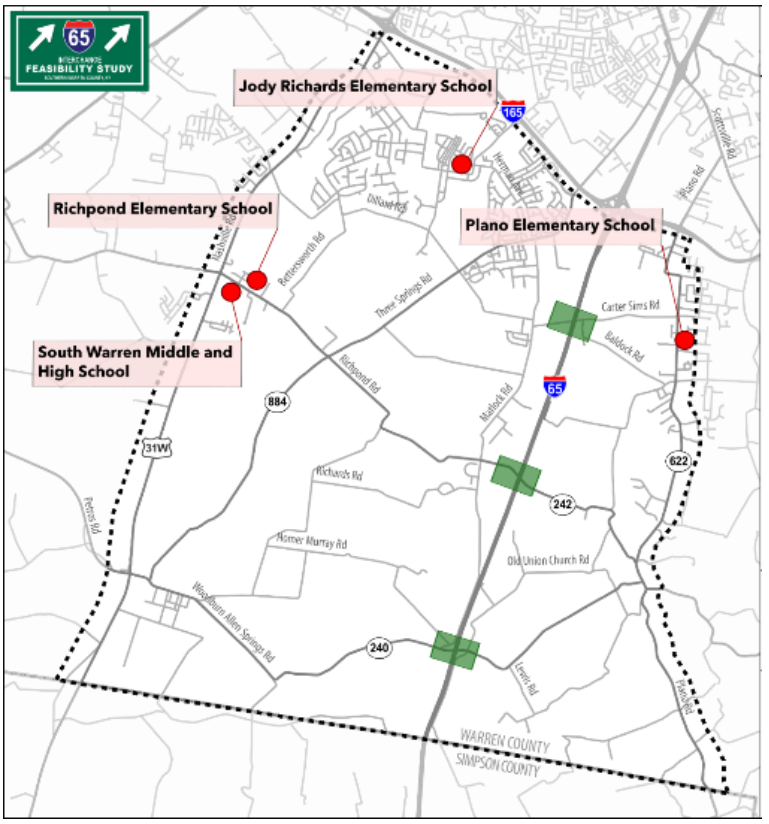


Figure 10: Schools within the Study Area

Simpson County Industrial Growth

Simpson County borders Warren County to the south. The county line is just a few miles south of KY 240. The land use across the county lines appear homogeneous today, both primarily being used for agriculture with few homes. Simpson County plans to expand their industrial and commercial growth northward, following US 31W. Zoning in Simpson County reflects these future land use plans, as much of the land surrounding US 31W north of Franklin is zoned for heavy or light industrial. This specification in Simpson County's Zoning and Comprehensive Plan has led to water and sewer utilities being much more readily available in the northern portion of the Simpson County than just a few miles north in southern Warren County. Sewer utilities expand up to just 2 miles south of the Warren/Simpson County divide, serving the Wilkey North Industrial Park.

Figure 11: Wilkey North Industrial Park in Northern Simpson County

Simpson County plans to continue their push of industrial growth northward, while Warren County's Focus 2030 Comprehensive Plan calls for the protection and preservation of the county's prime farmland, as well as maintaining the rural character in the area just north of the county's southern border. Simpson County's prime farmland is also not contiguous of Warren County's, with Simpson County's being in the western portion of the region. The discontinuity of prime farmland is a result of the soil being rockier and less productive for farming in Simpson County.

These conflicting priorities on growth, development, and land use between Simpson County and Warren County were considered in the development and analysis of interchange options and scenarios as discussed in Sections 4 and 6.

Environmental Issues

Desktop analysis, agency coordination, and field reconnaissance were used to identify environmental features and resources within the study area and to provide key findings in the following categories:

- Archaeology
- Historic Architectural Review
- Water Resources
- Threatened & Endangered Species (TES)
- Air Quality & Noise
- UST/HAZMAT Sites

The objective of examining the environmental conditions within the study area is to determine "red flag issues" which need to be avoided or mitigated regarding the human and the natural environment. A summary of the "red flag" environmental features and resources was prepared for each of the three potential interchange locations. Further investigations into the location and possible impacts upon threatened or endangered species will be necessary in the development of any potential interchange beyond this planning study.

Archaeology

There are six previously recorded archaeological sites within the study area. The lack of urban, suburban, and commercial development may have preserved many prehistoric sites that would be near ground surface. The study area is considered to have a moderate to high probability for prehistoric sites. Specifically, in areas situated on landforms along or adjacent to drainages and streams with areas adjacent to roadways having the highest probability as indicated on historic mapping. Minimal development and low-density occupation within the immediate area suggests a high probability that many prehistoric sites would remain relatively undisturbed and near the ground surface.

All archaeologically sensitive information including known site locations has been redacted from public mapping. Coordination with the Kentucky Heritage Council will be required along with potential archaeological field surveys if any interchange project is advanced to future phases.

Historic Architectural Overview

The historic architectural overview identified historic-age (50+ years) above-ground properties (buildings, structures, districts, and objects) that may be eligible for listing in the National Register of Historic Places (NRHP) through a review of the literature, records, and archival research. A full copy of the Historical Architecture Report can be found in Appendix C-6 and C-7.

Previously Identified Properties

One Previously Identified NRHP-Eligible Property, four Previously Identified NRHP-Listed Properties, and forty-four Previously Identified Demolished Properties were identified.

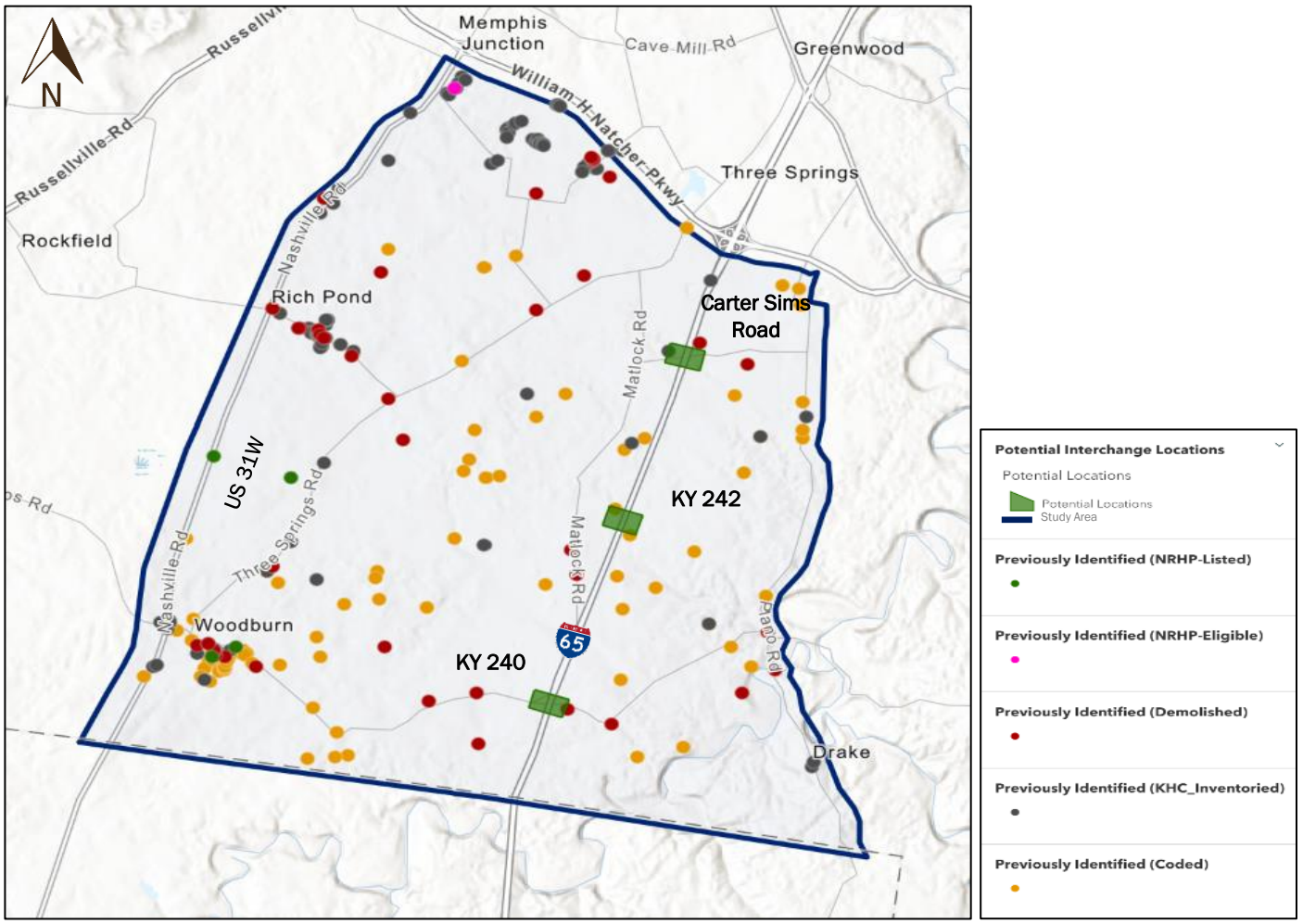


Figure 12: Identified Historical Properties

There are twenty-eight Previously Identified Modern Properties. (It is possible the original surveyors documented resources despite their age, the historic-age building was demolished and replaced with a new building, or the construction date on the PVA assessment is wrong). Please refer to Tables 1, 2, 5, and 6 in the full Historic Architectural Overview.

There are five previously identified historic resources, three newly identified historic-age resources, and one cemetery near potential interchange locations. The newly identified cemetery should be surveyed prior to any future construction activities. Of the previously identified resources, two warrant additional study (5037 Richpond Road and WA 107, the Jesse R. Kirby House).

Cemeteries

Ten cemeteries were identified within the previous survey results, several of which are associated with nearby churches, some are family plots on private properties, and at least one has been relocated. Please refer to Table 4 in the full Historic Architectural Overview for further information.

Newly Identified Properties

These properties are primarily residential (72%) or those zoned as "Farms" (18%). Two new religious properties (churches) were also identified. The majority of these buildings were constructed in the Mid-Century period.

Properties that Warrant Additional Research

Intensive-level surveys are recommended for the following resources: the four previously National Register listed properties, the National Register eligible property, the twenty-four cemeteries, any potential historic bridges (one bridge has been identified within the study area), the twenty-one properties potentially eligible under Criterion C, a potential historic district within the Woodburn community, and any historic-age above-ground properties that have not been previously photographed and documented.

Water Resources

Six unnamed tributaries are located in the central and northeast sections of the study area that are not connected with other surface streams due to karst drainage. There are a limited number of surface streams because much of the drainage is subsurface. The proposed interchange areas at KY 242 and KY 240 each contain one unmapped tributary that is not connected with other surface waters. There are no streams in the Carter Sims Road area.

West Fork Drakes Creek and two (2) unnamed tributaries are in the southeast corner of the study area. There is 100-year floodplain along West Fork Drakes Creek and within low elevations associated with sinkholes. None of the three locations contain 100-year floodplain. The Kentucky Division of Water (KDOW) listed West Fork Drakes Creek as a 303(d) / 305(b) impaired water within the study area, due primarily to PCB contamination from industrial sources, pH from upstream sources, and excessive temperature from loss of riparian habitat.

National Wetland Inventory (NWI) mapping identified

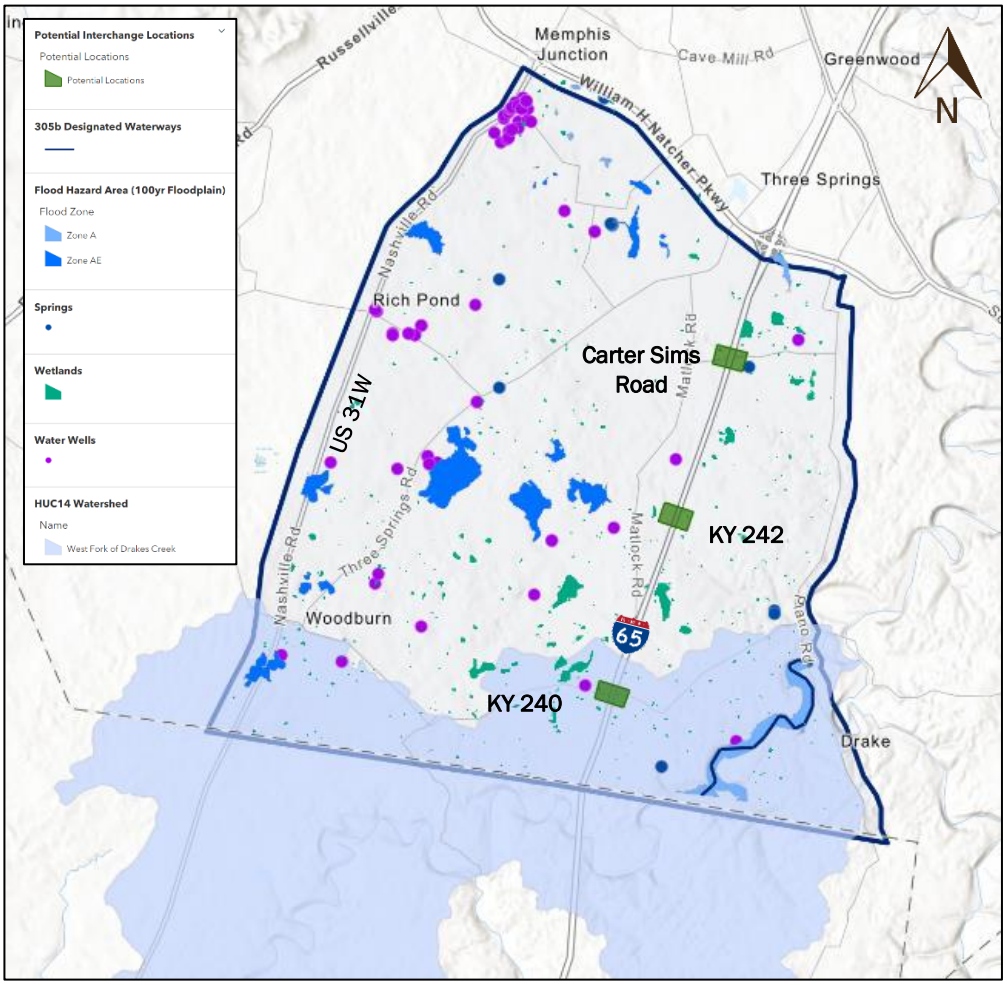


Figure 13: Water Resources

numerous features, including 418 ponds, 45 vegetated emergent wetlands, 12 shrub-scrub wetlands, and 33 forested wetlands, with larger wetlands mainly in the south central and northeast parts of the study area. The proposed KY 240 interchange area has one unmapped wetland and two ponds.

Several lakes and ponds are indicated within the study area. There are approximately 62 domestic groundwater and other local wells and 26 identified springs within the study area, some located near the proposed interchange areas. The proximity of water wells, springs, and streams are considered similar for the three interchange locations. Two springs and a water well are identified near Carter Sims Road Interchange area, two water wells and a spring are identified west of I-65 near KY 242 interchange area, one water well is identified west of I-65 near KY 240 interchange area.

Threatened & Endangered (T&E) Species Habitat

The US Fish and Wildlife Service (USFWS) lists 14 T&E species that should be considered as part of the effect analysis for the project including three species of bats, Kentucky cave shrimp, Price's potato bean, and nine mussel species.

Critical habitat for the Indiana bat is present within the study area. Additionally, scattered forested tracts, mostly in the eastern half of the study area, provide suitable summer habitat for the Indiana bat and roost habitat for the northern long-eared bat. Approximately two acres of forested habitat for the Indiana bat and northern long-eared bat is in the proposed KY 240 interchange area. The Carter Sims Road and KY 242 areas contain individual trees and narrow forested fence lines that provide at habitat. Field reconnaissance verified the presence of suitable forested and foraging bat habitat and Price's Potato-bean within all proposed interchange locations.

The Kentucky Department of Fish and Wildlife Resources (KDFWR) advised that watersheds along the southern end of the study area in the vicinity of West Fork Drakes

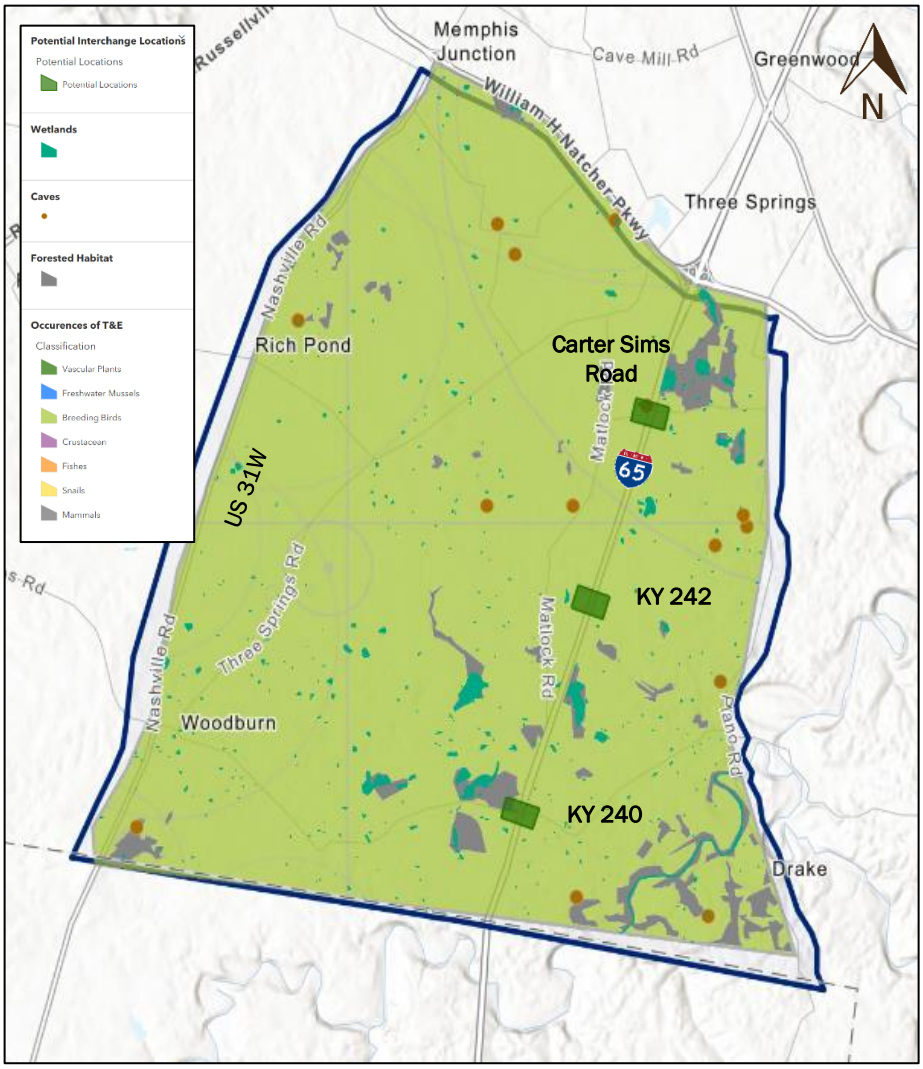


Figure 14: Threatened & Endangered Occurrence

Creek are designated as conservation areas for mussel species, aquatic species, and crayfish species. Field reconnaissance identified no habitat for the listed mussels within the proposed interchange areas. Any underground streams at the proposed interchange locations could represent habitat for Kentucky cave shrimp.

Air Quality and Noise

Warren County is in the South-Central Kentucky Intrastate Air Quality Control Region. The region is in attainment for all six pollutants included in the National Ambient Air Quality Standards. Numerous sensitive noise receptors as defined by the Federal Highway Administration (FHWA) were identified within the study area. However, no such sensitive noise receptors are located within the potential interchange locations.

UST/HAZMAT

There are approximately 78 oil and gas wells, a gas field approximately 3 miles north of Woodburn, and five oil fields within the study area. No specific gas, oil, or other types of wells were identified within the Carter Sims Road or KY 240 possible interchange areas. One gas, oil or other type of well was identified within the KY 242 area.

Sixty-seven UST/Hazmat records were identified within, or in proximity to, the study area. Most are industrial and/or commercial facilities located along existing roadways. It is recommended that the identified records within the proposed interchange location areas be further investigated during any future phase development.

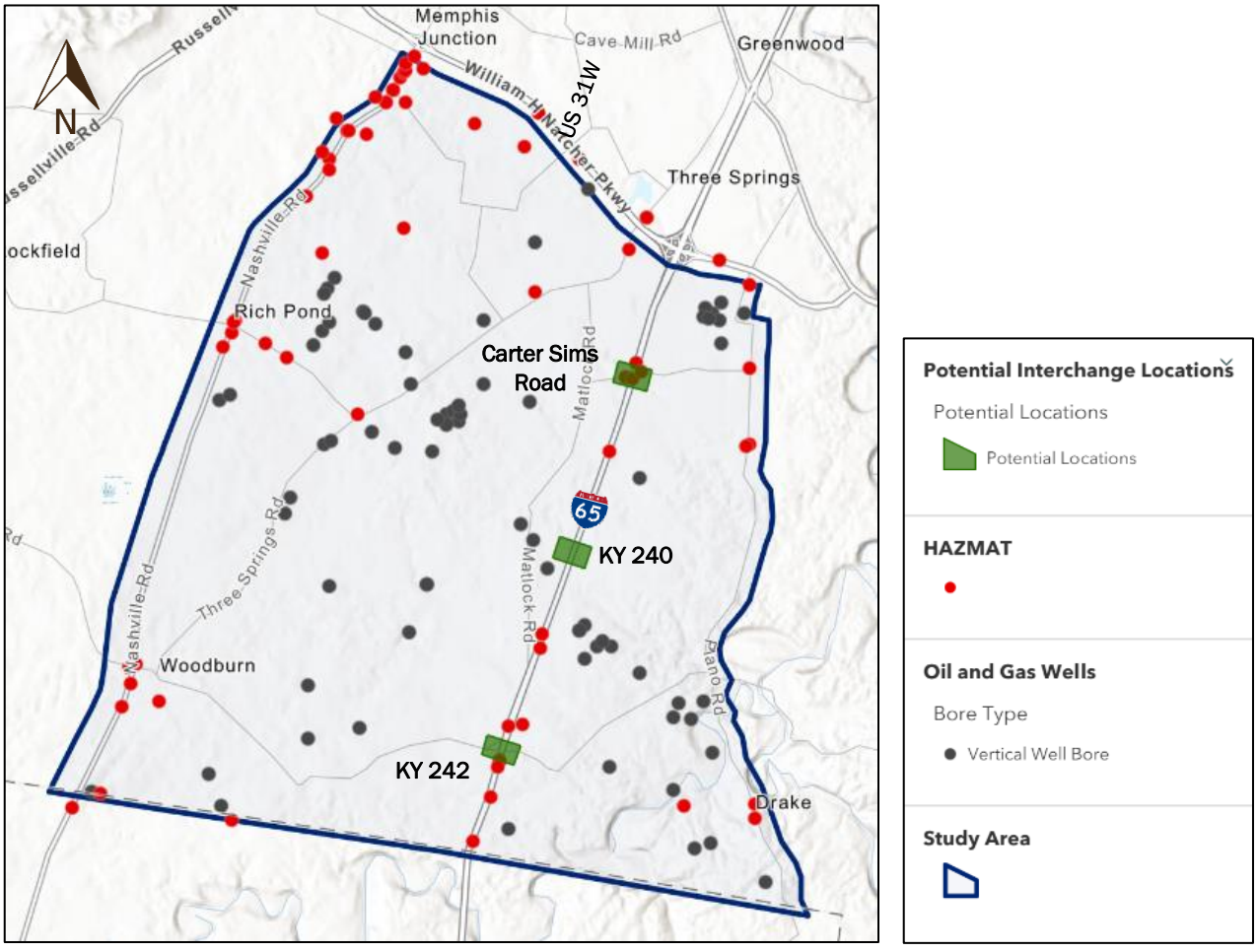


Figure 15: UST/HAZMAT Sites

Geotechnical Issues

The project study area is insouthcentral Kentucky. This region is a limestone plain characterized by numerous sink holes, sinking streams, streamless valleys, springs, and caverns. The karst potential within the study area is considered high and has a Karst/Sinkhole Hazard Score of Severe. The karst conditions are considered similar for all of the potential interchange locations.

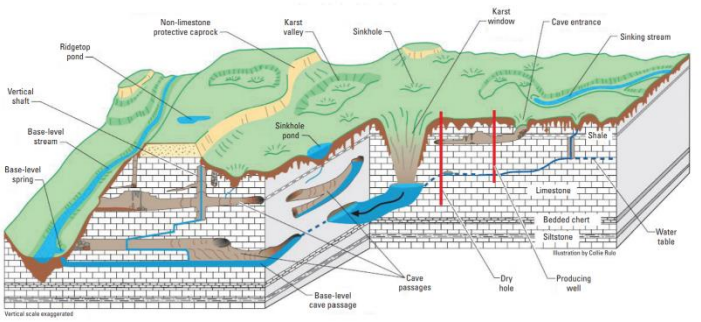


Figure 16: Karst Explanation

Kentucky Speleological Survey (KSS) data and other documentation identified 14 known caves, 1,033 mapped sinkholes, and 10 mapped springs scattered throughout the study area. The Carter Sims Road area has 14 mapped sinkholes, the KY 242 area has 3 mapped sinkholes, and the KY 240 area has 1 mapped sinkhole. Sinkhole treatments and associated costs will need to be considered during future phase development.

KSS records identified Carter Cave as being located in the Carter Sims Road area. However, at the reported cave location our field reconnaissance identified a large sinkhole filled with debris. The property owner advised that the sinkhole formerly had an underground passage before it was filled with debris.

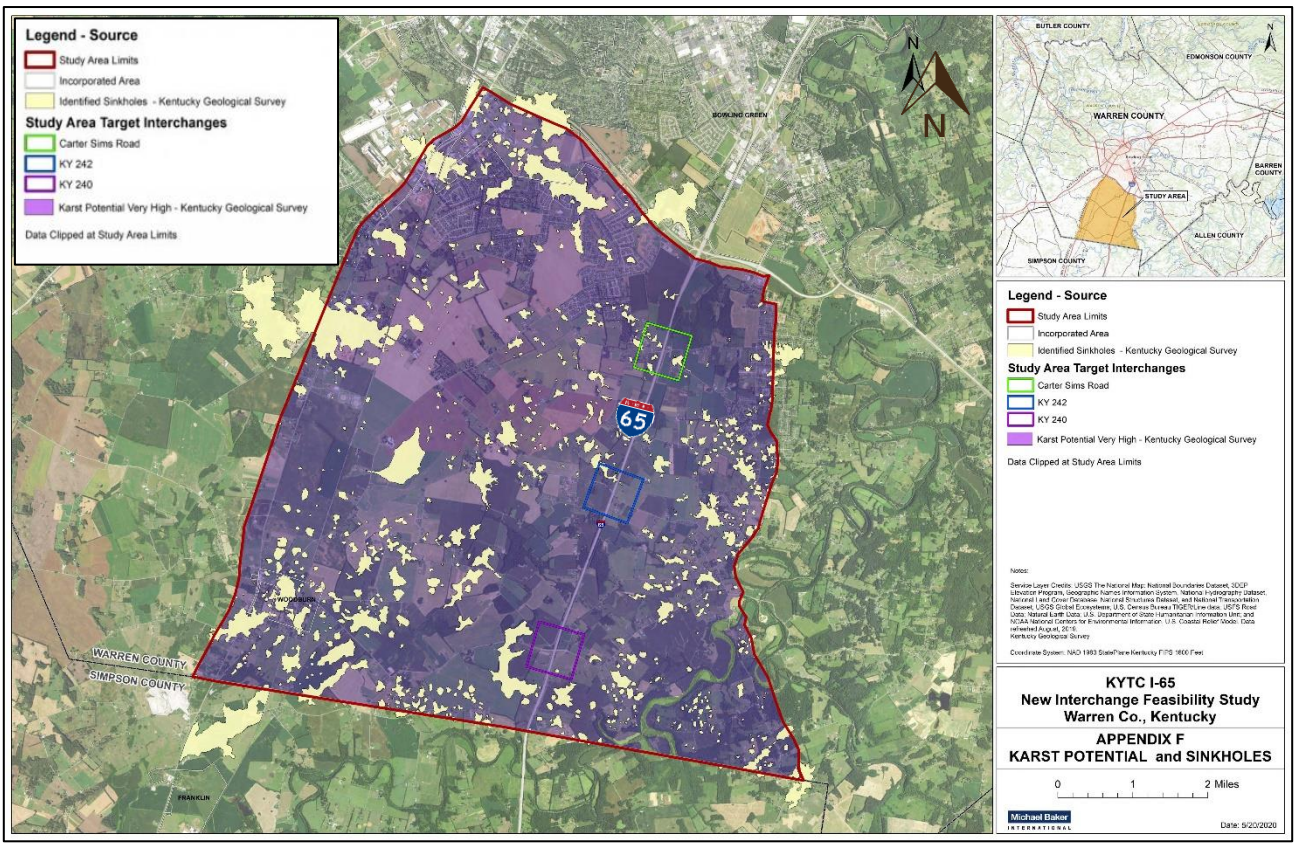
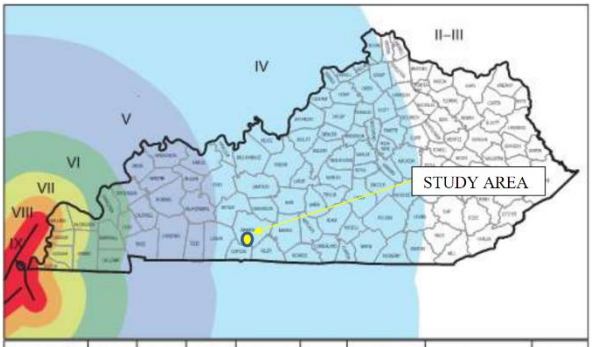


Figure 17: Karst and Mapped Sinkholes

Seismic Issues

Seismicity within Kentucky varies widely depending on location. The western portion of the state is dominated by the New Madrid and Wabash Valley source zones; however, the study area experiences much less frequent earthquakes because of the distance from these seismic zones.



Perceived Shaking	Not Felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent
Potential Damage	None	None	None	Very Light	Light	Moderate	Moderately Heavy	Heavy
PGA (%g)	< 0.17	0.17–1.4	1.4–3.9	3.9–9.2	9.2–18	18–34	34–65	65–124
Instrumental Intensity	II	III	IV	V	VI	VII	VIII	IX

Figure 18: Seismic Activity

Soils

The National Resource Conservation Service (NRCS) soil information identified 36 soil types within the study area with the dominant soil type being "Crider silt loam". The corrosivity potential of the soils to steel and concrete is considered moderate to high, soil corrosivity testing should be conducted for any new structure. Areas of concern include soil unsuitable to dwellings because of the risk of flooding, soil unsuitable to dwellings because of the instability of sinkholes and the risk of ponding, and areas around sinkholes that are unstable and have a considerable risk of collapse if used for dwellings. No stream, river, or high-level terrace deposits; coal seams; coal mining; non-coal quarries; or landslides are indicated within the study area.

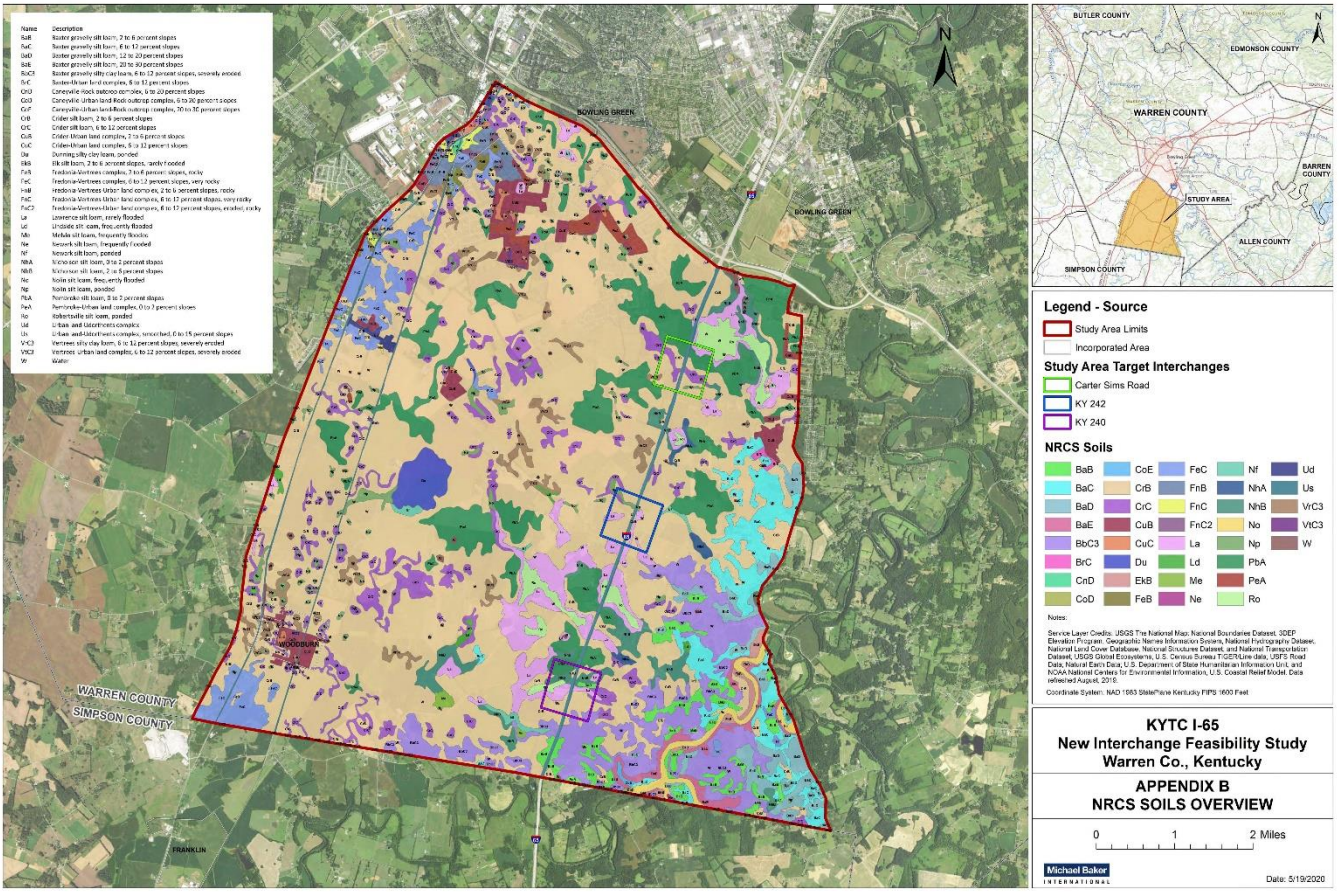


Figure 19: Soils Characteristics

Roadway Characteristics

Roadway characteristics profiles were assembled for the main connections within the study area from each of the three potential interchange locations to US 31W and KY 622, using a combination of traffic volumes and level of service, crash locations, and roadway characteristics. These profiles included the number of lanes, lane width, and shoulder type and width. All connections are two lane rural roadways and must cross the railroad to access US 31W.

Existing Traffic Conditions

Average Annual Daily Traffic (AADT) and Peak Hour Volumes (PHV) were gathered from KYTC Traffic Counts Maps. Gaps in the data were filled in with information from the KYTC Traffic Data repository and Streetlight Data. The historical traffic count data used for the study was collected by KYTC between 2014-2019. The volumes were used to establish growth rates along segments of roadway. Some growth rates were abnormally high and thus were exchanged for the growth rates in the Kentucky Transportation Center's ESAL (Equivalent Single Axle Load) Report which provides anticipated growth rates based on functional classification. Various other traffic factors were pulled from this data including K factors (proportion of annual average daily traffic occurring in an hour) and D factors (directional distribution) as well as truck percentages.

A level of service (LOS) map of the major roadways in the study area was developed using the examination of the current traffic volumes. LOS is a qualitative measurement used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measures like vehicle speed, density, congestion, etc. Levels of Service are assigned a designation from "A to F" where an LOS "A" is free flow traffic and an LOS "F" is gridlock. In rural areas a LOS C or better is desirable and in urban areas and LOS D or better is desirable. When analyzing the LOS for the connections to the possible interchange locations only a section of KY 242 experiences an LOS "C" during the morning peak travel hours from KY 884 to US 31W while all of the other connections exhibit LOS "B".

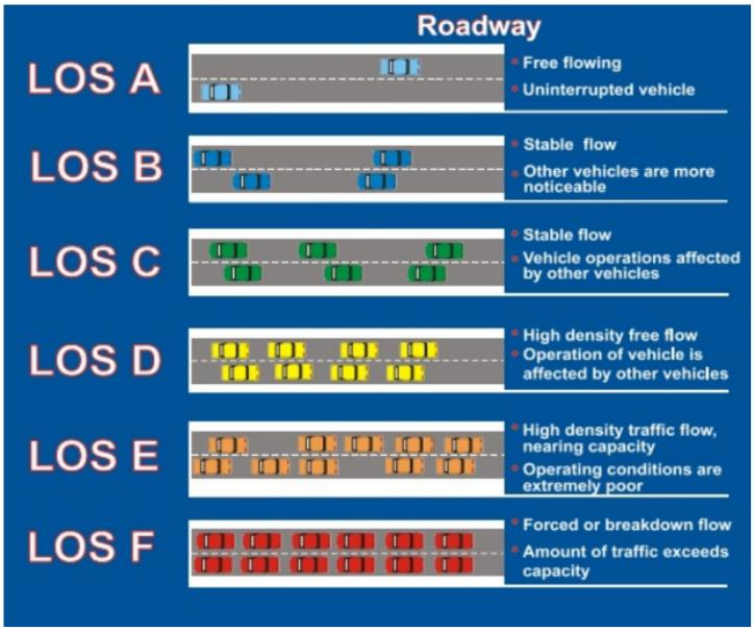


Figure 20: LOS Depictions

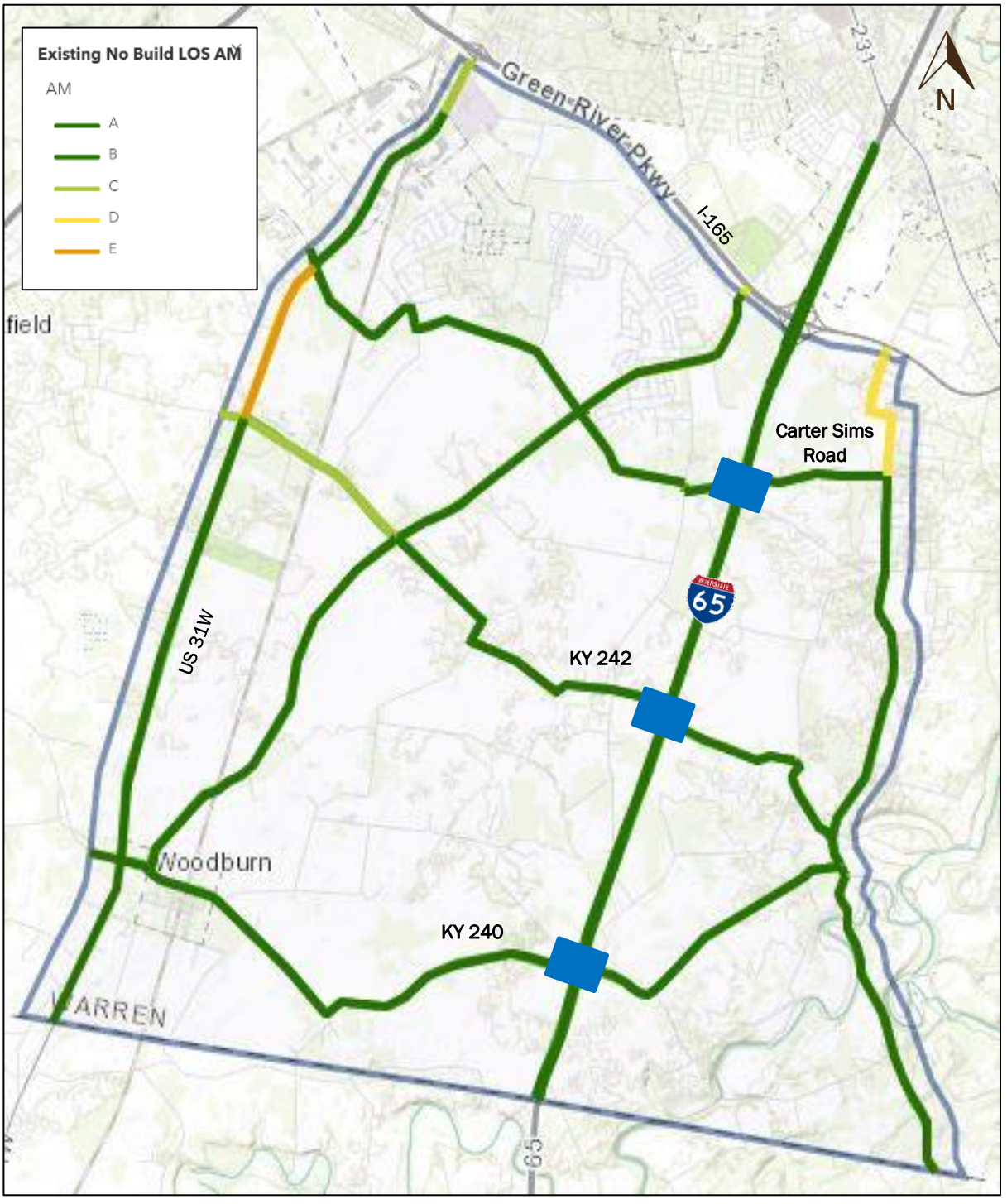


Figure 21: AM Levels of Service

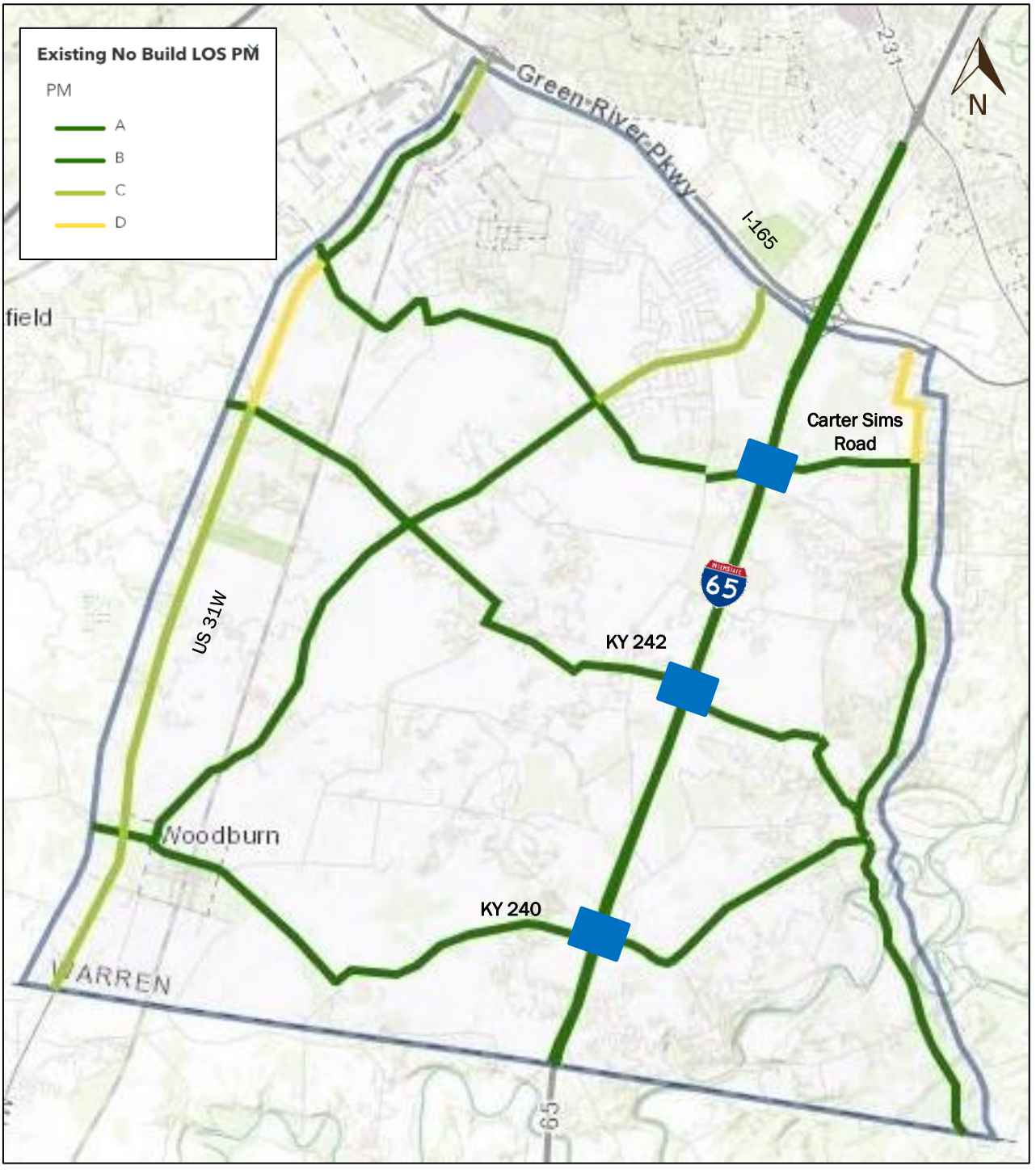


Figure 22: PM Levels of Service

Crash Data

Crashes were also identified along the routes within the study area. Crash data was collected for the time period between January 2015 and December 2019, for analysis of the study area existing conditions. A total of 892 reported crashes occurred in the study area in that time. Of those crashes, property damage only crashes comprised 74-89% with 11-25% injury crashes, typical ratios of crash severity. Seven fatalities occurred spread over multiple study area routes and were generally attributed to driver error with no indication of a relationship between the crashes and roadway characteristics. Single vehicle crashes were the predominant type of crash, with two exceptions on KY 242 and US 31W. All crashes (identified by their collision types) are shown in Figure 24, on the next page.

KY 242 experienced a crash cluster of rear end crashes near South Warren High School, involving primarily younger drivers aged between 16-18 years old driving to and from school. US 31W experienced a larger proportion of angle and rear end crashes; it is also a primary north-south route to Bowling Green. As US 31W approaches Bowling Green, the land use transitions to urbanized with more crossroads and higher annual average daily traffic (AADT). In the northeast section of the study area, on KY 622 between Journey Drive and Atlantis Way, there is a cluster of crashes involving vehicles stopped in the roadway attempting to turn left. KY 622 also experiences a larger proportion of rear end crashes. A comparison of crashes by roadway is shown in Figure 23.

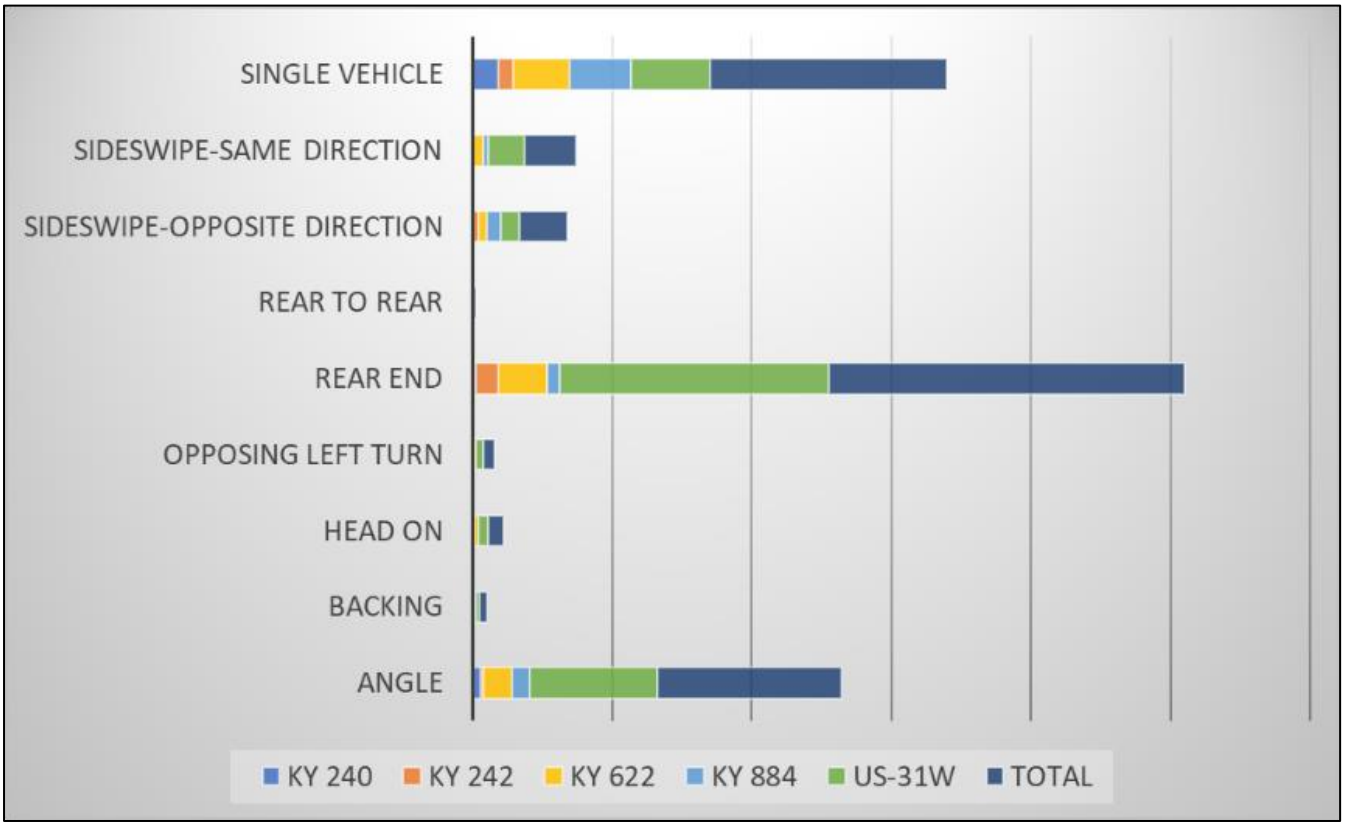


Figure 23: Collision Types by Roadway

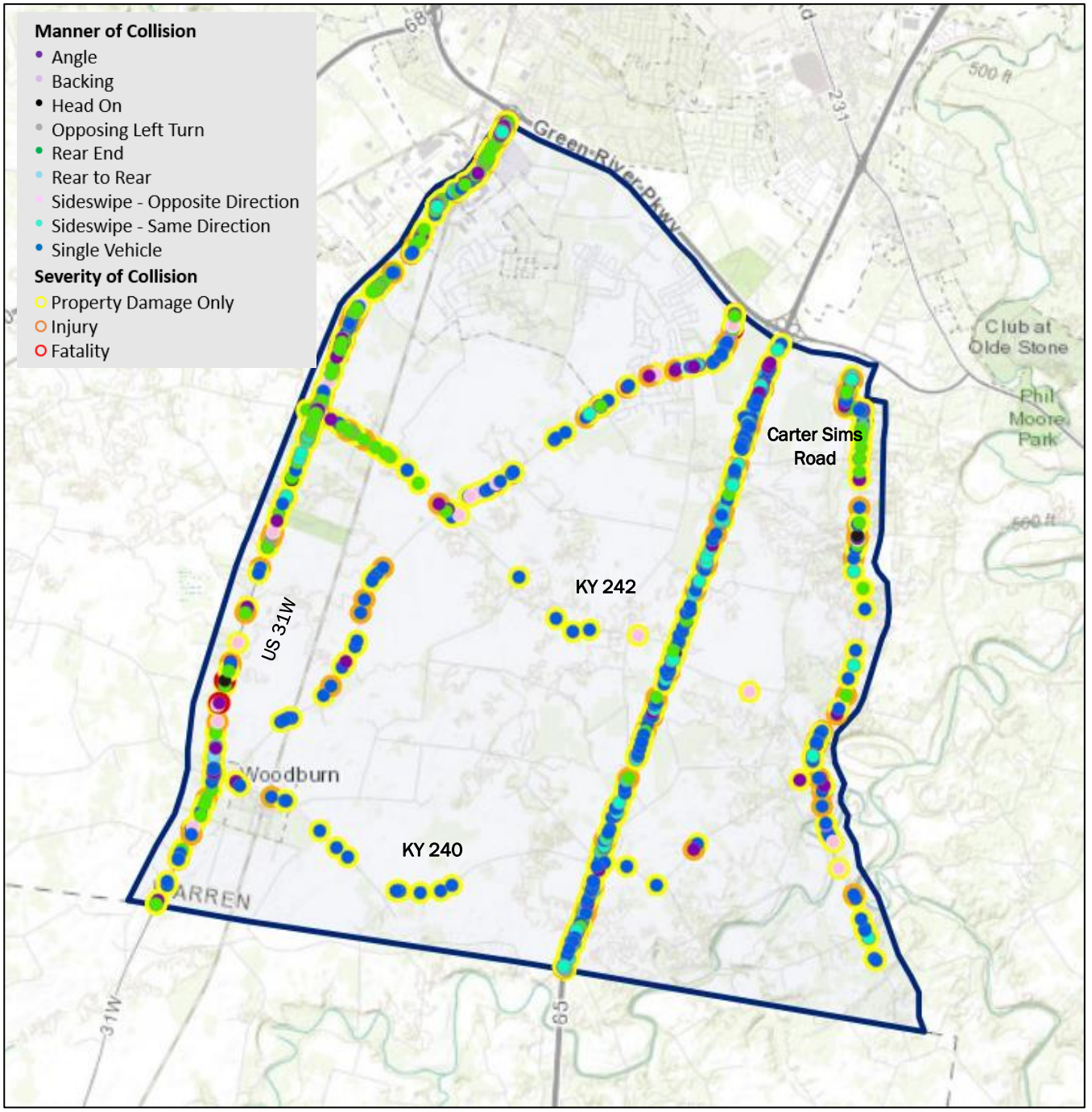


Figure 24: Collision Types throughout the Study Area

Roadway Systems and Geometric Characteristics

Existing roadway characteristics were obtained from the KYTC Planning Highway Information (HIS Database), KYTC General Highway Map, Google Aerial Imagery, Google Street View, and Bridgereports.com.

KYTC's HIS data base was queried during May 2020 in order to obtain roadway systems information and geometric characteristics of the existing study routes. Characteristics from the HIS database that were included in the study include:

- Number of Lanes and Lane Widths
- Speed Limits
- Shoulder Widths
- Roadway Lengths
- Functional Classifications

Table 1 displays an example of the information gathered from the HIS database. Roadways queried include I-65, I-69, I-165 (Natcher Parkway), Dillard Road, Long Road, Carter Sims Road, KY 242, KY 240, KY 884, KY 622, and US 31W. Each roadway has categories for lane width, shoulder width, speed limit and functional classification. Detailed information about each road is included in Appendix B.

Table 1 - Roadway Characteristics

Route	Local Road Name	County	Begin Milepoint	End Milepoint	Section Length (miles)	Functional Class	Facility Type	Lane Width (feet)	Shoulder Width (feet)		Median Type	Median Width (feet)	Posted Speed Limit (MPH)
									Stabilized Shoulder	Paved Shoulder			
CR 1241	Neal Howell Rd	Warren	0	0.615	0.615	Urban Minor Collector	2-Lane Undivided Highway	10	2 LT&RT	1 LT&RT	None	0	35
CR 1243	Matlock Rd	Warren	0.995	1.072	0.077	Rural Minor Collector	2-Lane Undivided Highway	10	2 LT&RT	1 LT&RT	None	0	35
CR 1244	Carter-Sims Rd	Warren	0	1.771	1.771	Rural Minor Collector	2-Lane Undivided Highway	9	2 LT&RT	1 LT&RT	None	0	35
CR 1265	Long Rd	Warren	0	1.18	1.18	Urban Minor Collector	2-Lane Undivided Highway	9	2 LT&RT	1 LT&RT	None	0	35
CR 1266	Dillard Rd	Warren	0	2.47	2.47	Urban Minor Collector	2-Lane Undivided Highway	9	2 LT&RT	1 LT&RT	None	0	35
I-65		Warren	13.711	20.522	6.811	Rural Interstate	6-Lane Divided Highway	12	0 LT&RT	14 LT 10 RT	Concrete Barrier	31	70
KY 240	Woodburn Allen Springs Rd	Warren	5.47	9.867	4.397	Rural Minor Collector	2-Lane Undivided Highway	9	0 LT (5.47 to 5.732) 3 LT (5.732 to 9.867) 3 RT	2 LT (5.47 to 5.732) 1 LT (5.732 to 9.867) 1 RT	None	0	35 (5.47 to 6.457) 45 (6.457 to 6.583) 55 (6.583 to 9.867)
KY 240	Woodburn Allen Springs Rd	Warren	9.867	10.245	0.378	Rural Minor Collector	2-Lane Undivided Highway	11	0 LT&RT	10 LT&RT	None	0	55
KY 240	Woodburn Allen Springs Rd	Warren	10.245	12.733	2.488	Rural Minor Collector	2-Lane Undivided Highway	9	3 LT&RT	1 LT&RT	None	0	55
KY 242	Richpond Rd	Warren	3.463	3.883	0.42	Rural Major Collector	2-Lane Undivided Highway	11	2 LT&RT	1 LT&RT	None	0	35
KY 242	Richpond Rd	Warren	3.883	5.133	1.25	Rural Major Collector	2-Lane Undivided Highway	10	3 LT&RT	0 LT&RT	None	0	35 (3.883 to 4.109) 55 (4.109 to 5.133)
KY 242	Richpond Rd	Warren	5.133	10.275	5.142	Rural Minor Collector	2-Lane Undivided Highway	8	2 LT&RT	1 LT&RT	None	0	55
KY 884	Three Springs Rd	Warren	0	3.616	3.616	Rural Minor Collector	2-Lane Undivided Highway	10	2 LT&RT	1 LT&RT	None	0	45 (0 to 0.471) 55 (0.471 to 3.616)
KY 884	Three Springs Rd	Warren	3.616	5.516	1.9	Rural Major Collector	2-Lane Undivided Highway	10	2 LT&RT	1 LT&RT	None	0	55 (3.616 to 5.433) 45 (5.433 to 5.516)
KY 884	Three Springs Rd	Warren	5.516	7.438	1.922	Urban Major Collector	2-Lane Undivided Highway	10	2 LT&RT	1 LT&RT	None	0	45

Functional Classification

Functional Classification is the process of grouping streets and highways according to the type 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 local trips to higher classifications facilitating long trips and interstate travel.

Functional Classification has come to assume additional significance regarding regional traffic planning. Functional Classification includes expectations about roadway design such as speed, capacity, demand, and relationship to regional development. Federal legislation uses classification in determining eligibility for funding under the Federal-aid program. Transportation agencies often describe roadway system performance, benchmarks, and goals by functional classification.

- Freeways and Interstates provide high speed, high mobility links for long distance trips.
- Principal Arterials serve major centers of metropolitan areas, provide a high degree of mobility, and can also provide mobility through rural areas.
- Minor Arterials provide service for trips of moderate length, serve geographic areas smaller than their higher principal arterial counterparts, and offer connectivity to the higher arterial system. The primary difference is usually multiple arterial routes serve a particular urban area, radiating from the urban center to serve the surrounding region. In contrast, an expanse of a rural area of equal size would often be served by a single arterial.
- Local Roads are not intended for use in long distance travel, except at the origin or destination end of the trip, due to their direct access to abutting land. They are often designed to discourage through traffic.

SECTION 3: COMMUNITY ENGAGEMENT - PHASE 1

Figure 25: Fact Sheet

At the conclusion of the review of the study area profile, KYTC in partnership with the MPO hosted virtual public meetings on August 24, 2020 with a group of local officials and stakeholders and on Thursday, September 10, 2020 with the general public. The virtual Local Officials and Stakeholders meeting was held at 1:30 pm and lasted roughly one hour. The purpose of the meeting was to allow the local officials, stakeholders, and other team members to become more familiar with the project and ask questions in advance of the public meeting. Prior to the meeting, the local officials and stakeholders were provided with the fact sheet (pictured on the left) and were encouraged to make their constituents aware of the public meeting.

To advertise for the first public meeting, KYTC prepared a media advisory on September 4, 2020 announcing the meeting and placed identical Dynamic Message Signs at the following locations within the study area: US 31W, KY 884, & KY 622. The consultant team prepared informative project meeting postcards and mailed those to the residences and businesses in the study area.

Two weeks after a Local Officials and Stakeholders meeting, the virtual Public Meeting #1 was held and ran from 5:30 pm to 7:00 pm. It included two viewings of the meeting presentation and facilitated discussions of comments and questions provided by attendees through the meeting chat box. Approximately 120 participants were involved in the meeting. The meeting included live and pre-recorded presentations from the consultant staff that included a summary of the study background, methodology, and schedule, an overview of the existing human and natural environmental conditions within the study area, and an overview of the traffic conditions within the study area.

During the presentation, participants were encouraged to answer three questions through live polling. About 50 of the 100 attendees during the first viewing of the presentation participated in the polling questions. A quick summary of the polling question responses was provided after each polling

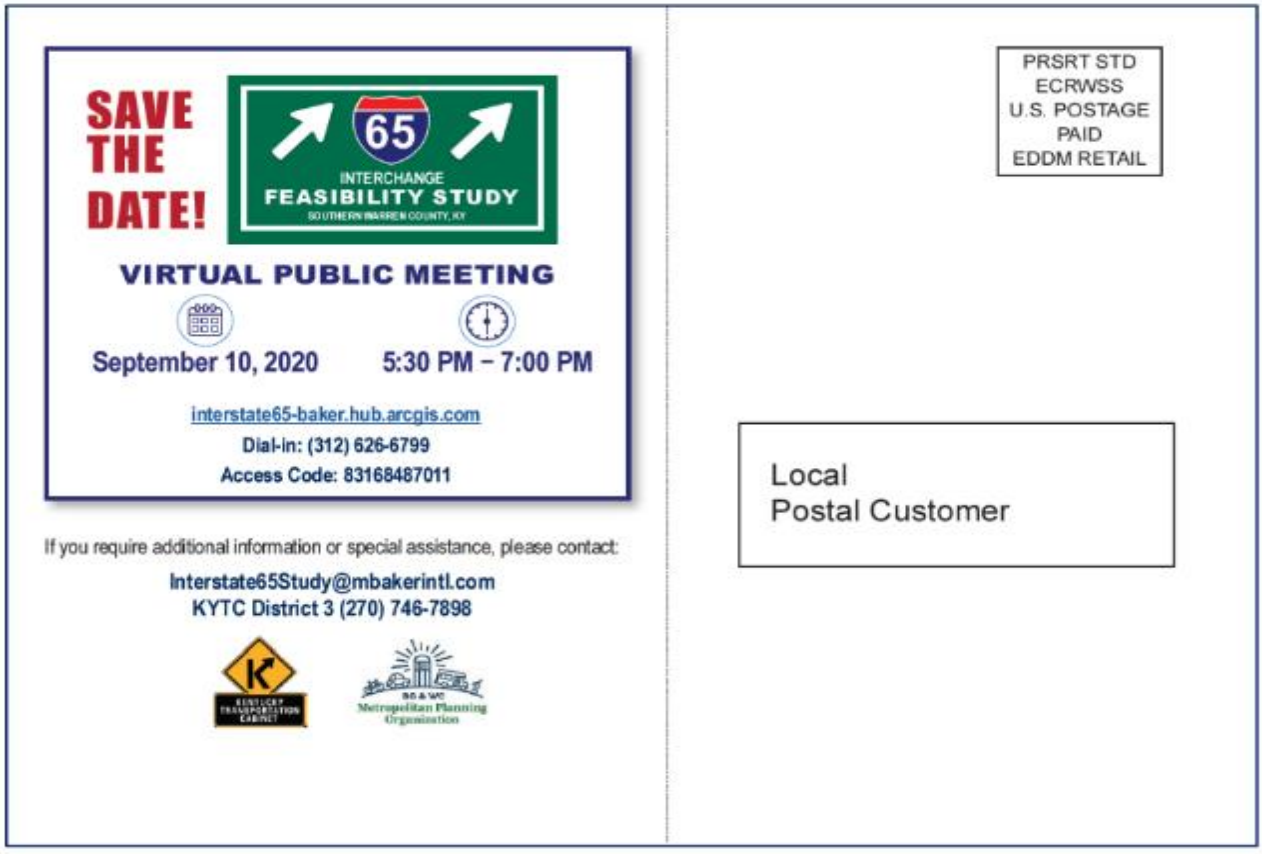


Figure 26: Public Meeting #1 Postcard

question. The first question was posed to the participants during the introductory remarks and concerned their personal interest in the feasibility study. Seventy-six (76%) percent of the participants responded that they were residents in the area, while eleven percent (11%) replied that they were associated with a local agency and an additional eleven percent (11%) indicated that they were local elected officials. Only two percent (2%) responded that they were only motorists passing through the study area.

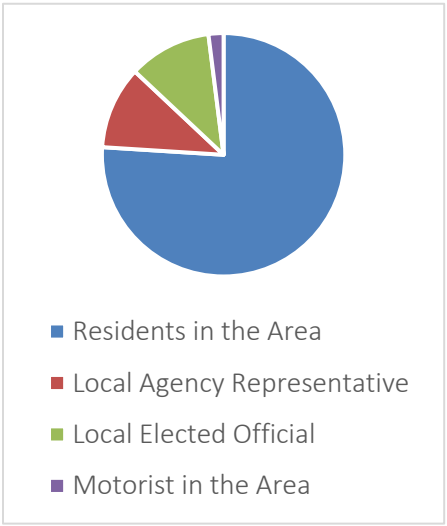


Figure 27: Survey Participants

After the recorded portion of the presentation regarding the environmental conditions within the study area, participants were asked to select their top two environmental concerns. Seventy-three percent (73%) of the participants indicated that impacts to rural and agricultural lands were a major concern while thirty percent (30%) responded that caves and sinkholes in the area were a major concern. Twenty-seven percent (27%) of the participants indicated that water quality was also a major environmental concern. Impacts to minority and low-income populations within the study area was selected by twenty four percent (24%) of the participants. Impacts to historic properties and archeological sites (8%) and threatened and endangered species (3%) were the lowest selected concerns.

Figure 28: Public Meeting #1 Presentation Introduction Slide

The third and final polling question asked meeting attendees to indicate their potential level of use of a new interchange within their travels. The highest response was that thirty-three percent (33%) of the participants would use the interchange "sometimes" which was defined as one to three times per week while twenty-eight percent (28%) responded that they would "seldom" use the new interchange as little as once or twice per month. Fifteen percent (15%) of the attendees replied that they would use the new interchange "often" which was defined as once per day while eleven percent (11%) of the participants indicated that they would use the new interchange "very often" which was defined as twice or more per day. Thirteen percent (13%) responded that they would "never" use a new interchange.

The polling questions during the second viewing of the presentation only included about a dozen participants. The range and weight of responses from this group were very similar to the fifty polling participants during the first viewing. However, when asked about their level of use of a new interchange, this second group of participants responded greater in percentages to "often" (20%) and "very often" (30%), but none indicated "sometimes" while forty percent (40%) indicated "seldom".

Throughout the presentation, the attendees were reminded of how they could provide their input through the on-line survey, which would be available until September 25, as well as through the project email address. The team provided links within the presentation to the project website which included the on-line survey link and meeting materials. A recording of the public meeting was posted to the project website along with a "question and answer summary" that addressed the questions and comments submitted throughout the meeting via the chatbox.

The meeting minutes for both meetings and the full presentation slides for the public meeting are included in Appendix A.

During the public meeting, the issue of access for emergency service providers was mentioned. After the meeting the project team met with key representatives from the local police departments, the volunteer fire departments, and EMS providers in the area on September 24, 2020. A key takeaway from that meeting was that responders have difficultly accessing incidents on I-65 due to the distance between interchanges. They indicated that this is a frequent issue. Because fire and EMS personnel are stationed within the study area, responding to an incident off the interstate is not a major concern but transporting patients to the hospitals would be faster with another access point on I-65. The concern over delays at the railroad tracks was mentioned during this meeting as well as during the first public meeting. It was noted that the existing at-grade crossing on KY 242 and KY 240 can delay emergency response.

SECTION 4: DEVELOPMENT OF INTERCHANGE OPTIONS

After the first public meeting, the consultant team began the process of developing the options for the three interchange locations (Carter Sims Road, KY 242, and KY 240). Four (4) possible interchange location options were considered. One being the "no-build" and three being the build options. For the "build" options it was assumed that the new or improved connecting roadways would consist of two, 12-foot lanes, with 10-foot shoulders per KYTC design standards for rural arterial roads. The wider shoulders were recommended as this provides a safer location for cyclists in the area as well as recovery space for vehicles that for a variety of reasons may leave the travel lanes. To develop the options, a base map of constraints such as historical properties, threatened and endangered species habitat and prime farmland was overlaid on the study area map. Each option was also developed to minimize impacts to residences and businesses. The study team developed scenarios that incorporated possible connection improvements and connectors which included a new railroad crossing for each location. The scenarios were vetted with KYTC and the MPO then finalized for review and comment during the second round of public meetings.

Future Year Traffic Conditions

The study team also reviewed future year levels of service (LOS) to determine if there were congested areas that needed to be addressed. The LOS indicated that future traffic is expected to be slightly worse than projected 2020 traffic and that the areas experiencing delay in 2020 will experience more delay in 2045. The comparison LOS maps are provided in Figures 28 and 29 below.

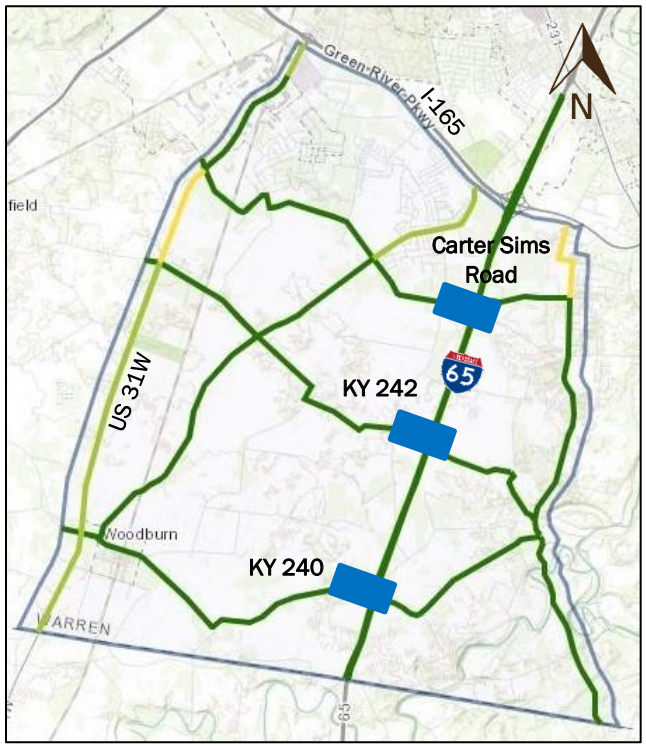


Figure 29: LOS 2020

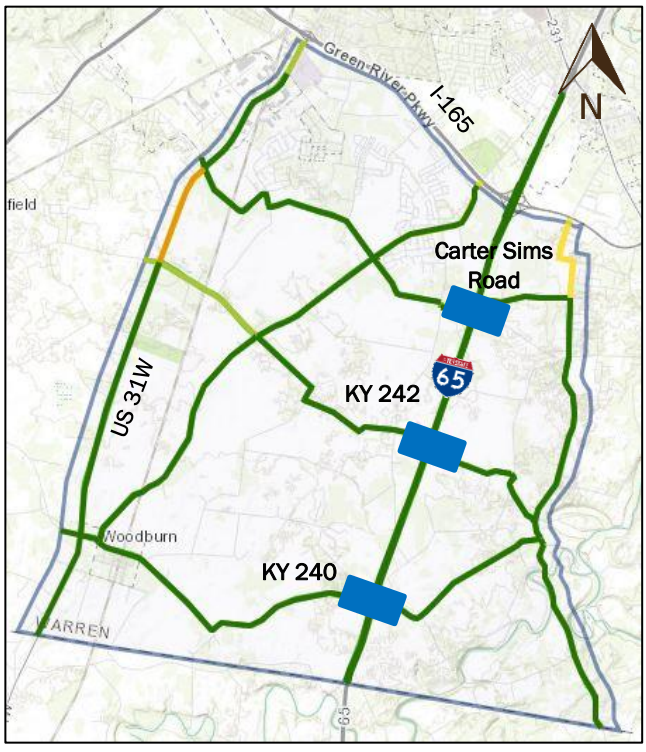


Figure 30 LOS 2045

Comparison Matrix Development

This study took into consideration Kentucky's performance measures and the impact the project may have on them. These performance measures were set during recent federal funding authorization and are defined by Transportation Performance Management (TPM) and Performance-Based Planning and Programming (PBPP). TPM is a strategic approach that uses system data to make investments and to support policy decisions to achieve performance goals. PBPP is a system-level, data-driven process that builds upon the concept of performance management. This data-driven process increases accountability and transparency to the public and stakeholders while efficiently maximizing the return on investment of resources to address a transportation need.

During phase two of the feasibility study, the PBPP process was the foundation of the tools used in the analysis of the possible interchange location options and their associated connection improvement scenarios. Using the performance goals of the MPO Metropolitan Transportation Plan and the KYTC Long Range Statewide Transportation Plan as a framework, the data that was collected from the existing conditions analysis and community engagement was used to further refine the draft purpose and need statement created in phase one and to create a comparison matrix in phase two. Both tools were used to measure the future performance of the interchange location options and connection improvement scenarios.

A comparison matrix was developed to compare the interchanges options and scenarios based upon their potential performance in four critical criteria (Operational, Safety, Land Use Impacts, and Environmental Impacts) and the draft purpose and need. The matrix also contained cost information of each scenario for each interchange location option. The consultant led a team exercise with KYTC and the MPO to establish a weight for each of these criteria with the combined scores totaling 100. The categories and criteria are shown on the following pages.

1. Operational (Connectivity & Mobility)
How many miles of new construction of roadways will need to be built to accommodate the interchange and its connections?
How many miles of roadways will need to be reconstructed to accommodate the interchange and its connections?
Does this interchange and its connections support other planned transportation improvements in the area?
Does this interchange provide improved travel time savings (access) if the Elrod Road and I-165 Interchange is constructed? (measured via traffic forecast)
Does this interchange provide improved travel time savings (access) if the Elrod Road and I-165 Interchange is NOT constructed? (measured via traffic forecast)
Does this interchange and its connections improve the mobility of bicyclists in the area?
Does this interchange and its connections improve the mobility of school busses and school related traffic in the area?
Does this interchange and its connections improve the mobility of freight (heavy trucks) in the area?

The project team determined that the final weight for the Operational criteria was 30%.

2. Safety
Does this interchange and its connections improve roadway safety issues?
Does this interchange and its connections provide improved emergency access and response times to I-65?
Does this interchange and its connections provide improved emergency access and response times to the residents and businesses in the area?

The project team determined that the final weight for the Safety criteria was 25%.

3. Land Use Impacts
Is the interchange and its connections consistent with current land use planning and zoning?
How many potential residences and/or businesses are required to be relocated for this interchange and its connections?
How many potential acres of "farmland of state importance" will be required for the construction of this interchange and its connections?
Does this interchange and its connections adversely impact the character or function of neighborhoods or community resources (schools, churches, parks, businesses, etc.)?
Does this interchange and its connections provide benefits to the character or function of neighborhoods or community resources (such as schools, churches, parks, businesses, etc.)?

The project team determined that the final weight for the Land Use Impacts criteria was 20%.

4. Environmental Impacts
Geotechnical Issues to be addressed?
Archaeology Sites affected?
Historic Properties/Structures Properties affected?
Water Resources impacted?
Threatened & Endangered Species (TES) Habitat impacted?
Air Quality & Noise impacts?
UST/HAZMAT Sites impacted?

The project team determined that the final weight for the Environmental Impacts criteria was 10%.

5. Costs
Engineering and Design
Right of Way (ROW)
Utilities Relocation
Construction
TOTAL COST

The project team determined that the final weight for the Costs criteria was 15%.

Interchange Options and Scenarios

No Build

This option assumes that a decision is made to not construct a new interchange at any of the three possible locations and traffic would operate along the current roadway network. This option is important for comparing any build options against taking no action to determine how well the build options work or do not work to address existing and future conditions.

Carter Sims Road

This proposed interchange location option near Carter Sims Road would be located south of the existing overpass with I-65. Due to existing land development and the electrical substation, an interchange at the existing overpass does not appear feasible. The following two scenarios were developed for this option:

- Scenario A would require the construction of a new roadway from the proposed interchange location to KY 884 (Three Springs Road) on the west side and from the interchange to KY 622 (Plano Road) on the east side. Additional improvements may include tying back into the existing Long Road to the west of the intersection of Long Road and KY 884.

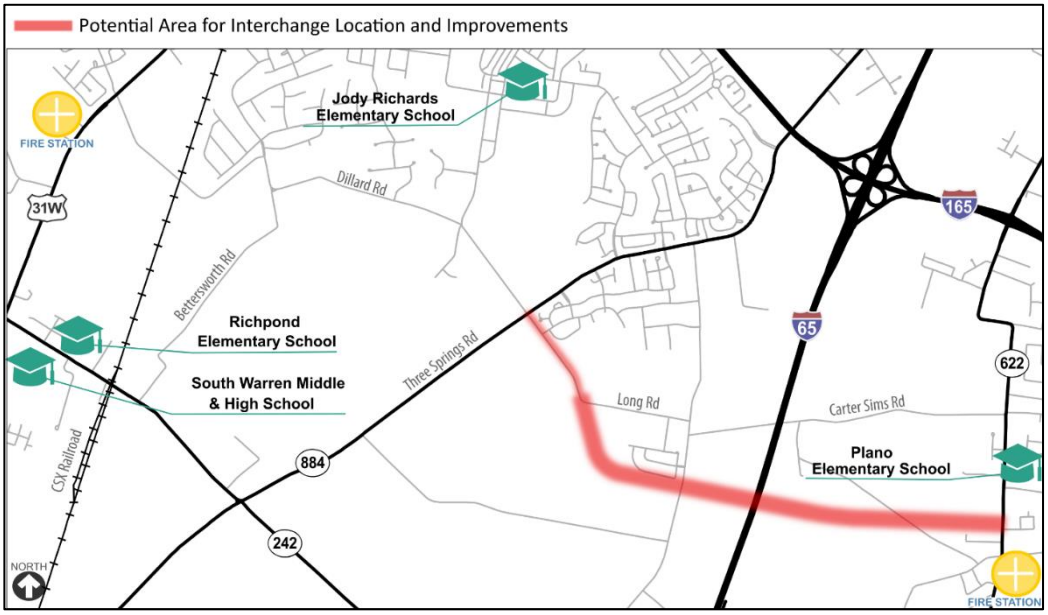


Figure 31: Carter Sims Road Scenario A

- Scenario B would include Scenario A plus the construction of a new connector roadway from the Long Road intersection with KY 884 to intersect with US 31W (Nashville Road) near the existing intersection of US 31W and Dillard Road.

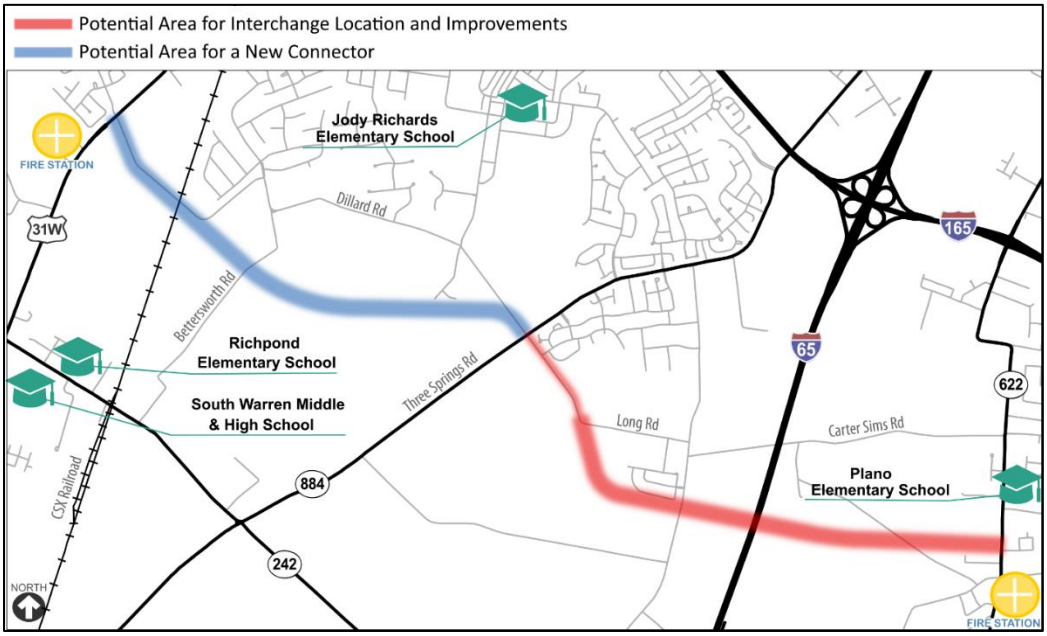


Figure 32: Carter Sims Road Scenario B

KY 242

The proposed interchange location option could be located at a point north or south of existing KY 242 overpass or at the existing location. The existing overpass is narrow; therefore, a new overpass would need to be constructed. The connection improvements for any of these three locations for the KY 242 interchange would require major realignment of KY 242 to connect to US 31W to the west and to connect to KY 622 to the east. Four scenarios were developed for this option:

- Scenario A follows the existing alignment of KY 242 from US 31W to KY 884 and closely follows the existing alignment from KY 884 to KY 622 addressing some sharp curves.

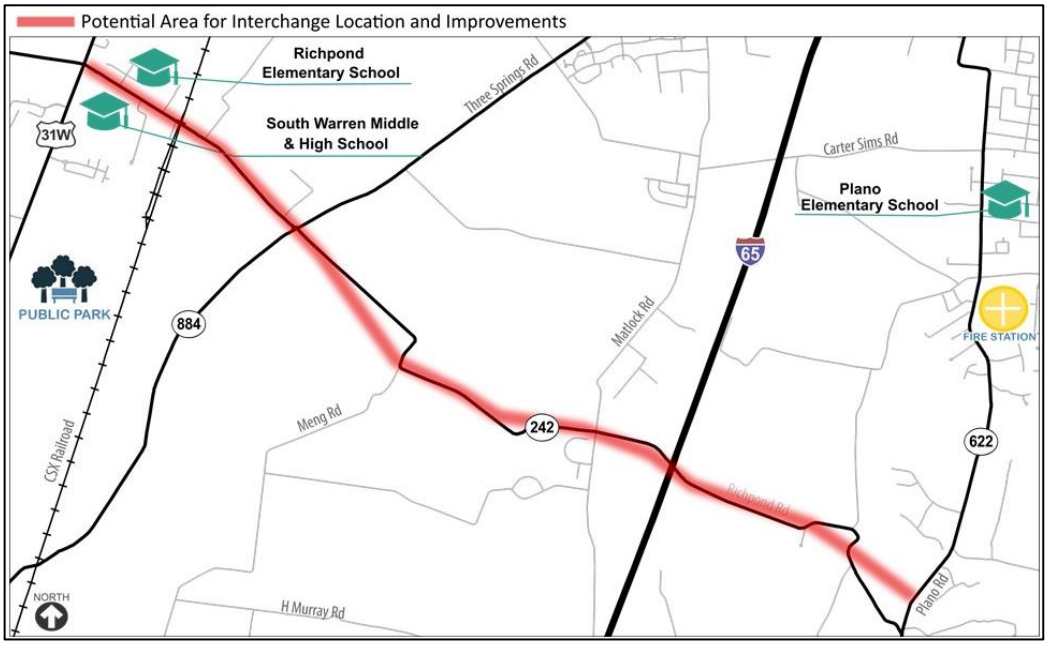


Figure 33: KY 242 Scenario A

- Scenario B would include the improvements in Scenario A plus the construction of a new connector (bypass) from a point just east of KY 884 to intersect with US 31W north of Buchanon Park.

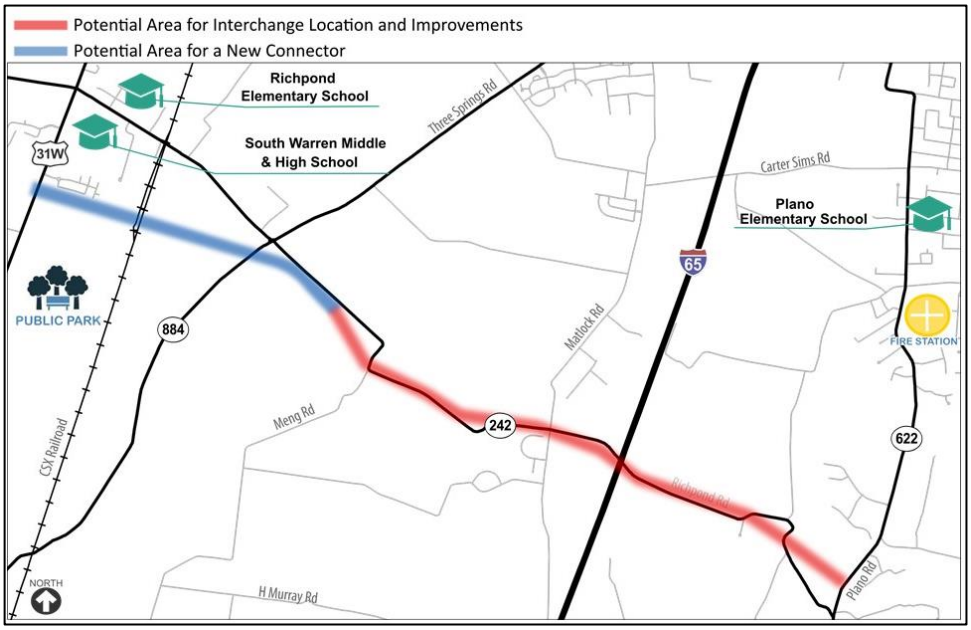


Figure 3: KY 242 Scenario B

- Scenario C includes a new interchange location either north or south of the existing overpass to make construction easier. The alignment could be anywhere between the red lines below. The new connector would require reconstruction of KY 242 from approximately a half mile east of KY 884 to KY 622.

Figure 35: KY 242 Scenario C

- Scenario D includes the widening and construction in Scenario C with the addition of a new connector (bypass) as discussed in Scenario B.

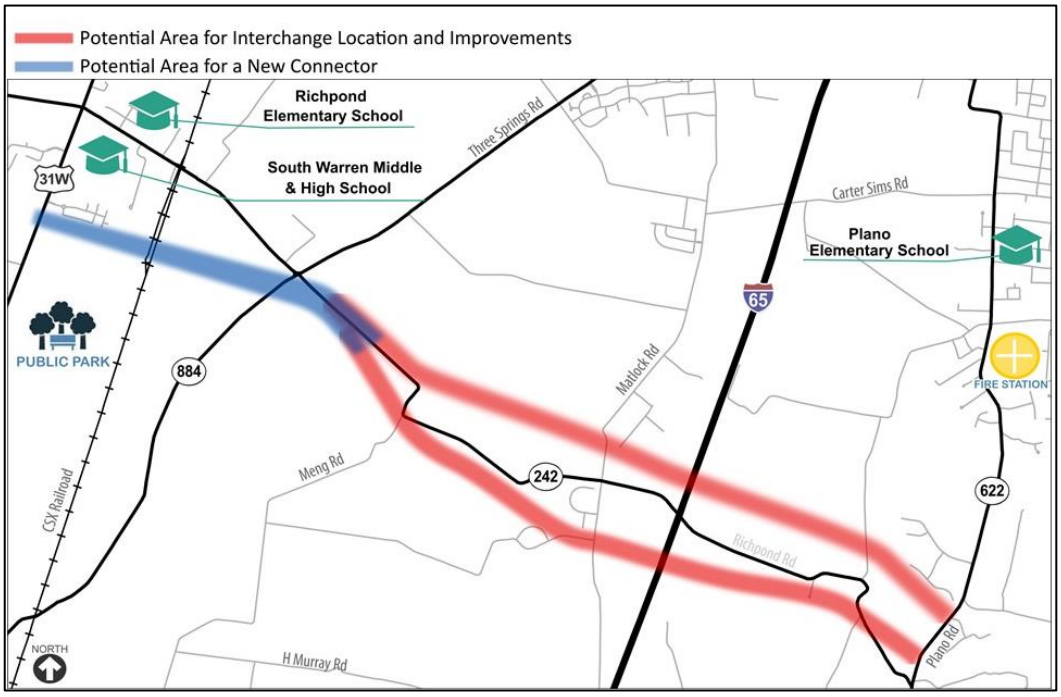


Figure 36: KY 242 Scenario D

KY 240

This proposed interchange option would use the current location of the overpass across I-65 and requires spot improvements along the existing KY 240 eastward to the intersection with KY 622 and westward to just west of the city of Woodburn. The following scenarios were developed for this option:

- Scenario A would follow the existing KY 240 alignment westward through Woodburn to US 31W and eastward to the intersection with KY 622.

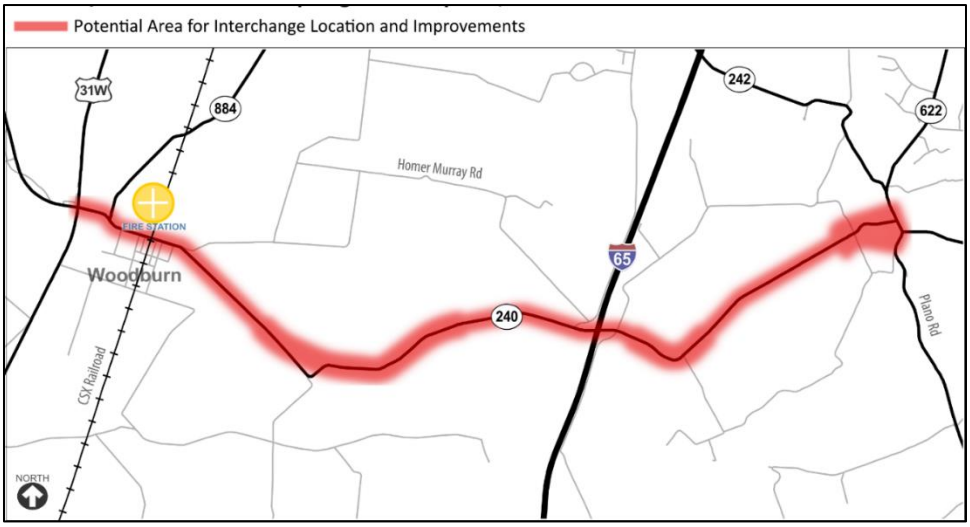


Figure 37: KY 240 Scenario A

- Scenario B would include a new connector (bypass) to be constructed from a point east of Woodburn to the intersection with US 31W north of the existing intersection of US 31W and KY 240.

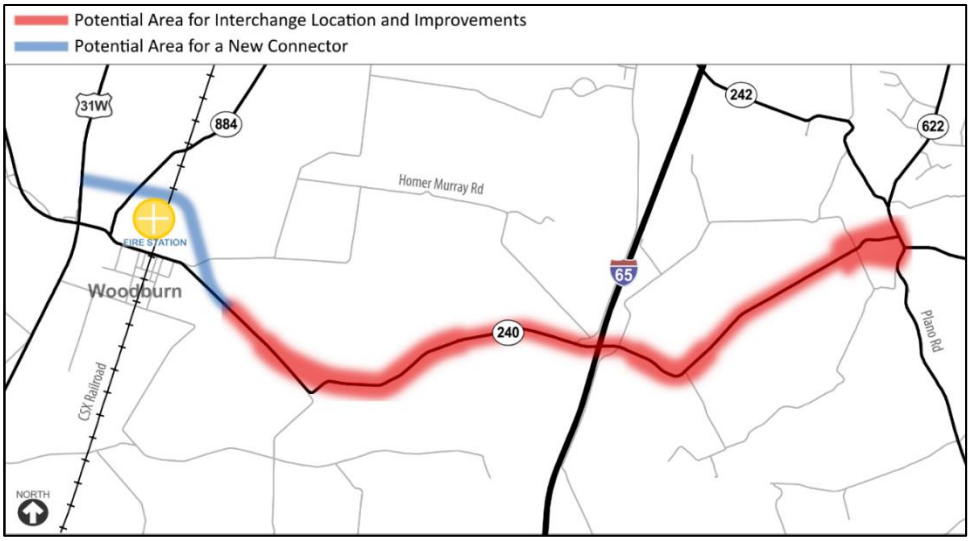


Figure 38: KY 240 Scenario B

Final Comparison Matrix

Using criteria from the purpose and need and from completed analyses, data for five general categories for evaluation was collected. A weight was assigned to each question, as well as each category, and final scores were tabulated. Overall, the various build scenarios scored relatively closely to one another.

Table 2 Interchange Scenario Comparison Matrix

Criteria	Alternate Scenarios*									
	No Build Alternative	Carter Sims Road New Overpass (KY 884 to KY 622)	Carter Sims Road New Overpass (US 31W to KY 622) w/ Bypass	KY 242 Richpond Road Widen Existing Overpass	KY 242 Richpond Road Widen Existing Overpass w/ Bypass	KY 242 Richpond Road New Overpass	KY 242 Richpond Road New Overpass w/ Bypass	KY 240 Woodburn Allen Springs Road	KY 240 Woodburn Allen Springs Road w/ Bypass	Weight
1. Operational (Connectivity & Mobility)										
How many miles of new construction of roadways will need to be built to accommodate the interchange and its connections?	0	2.65	5.13	3	4.5	4	5.5	2.75	4.44	8
How many miles of roadways will need to be reconstructed to accommodate the interchange and its connections?	0	0.56	0.86	3.33	1.7	2.23	0.6	4.36	3	8
Does this interchange and its connections support other planned transportation improvements in the area?	No	No	No	No	No	No	No	Yes	Yes	9
Does this interchange provide improved travel time savings (access) if the Elrod Road and I-165 Interchange is constructed? (measured via traffic forecast)	No	Low	Low	Medium	Medium	Medium	Medium	Medium	Medium	5
Does this interchange provide improved travel time savings (access) if the Elrod Road and I-165 Interchange is NOT constructed? (measured via traffic forecast)	No	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	7
Does this interchange and its connections improve the mobility of bicyclists in the area?	No	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	5
Does this interchange and its connections improve the mobility of school busses and school related traffic in the area?	No	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	5
Does this interchange and its connections improve the mobility of freight (heavy trucks) in the area?	No	Low	Low	Low	Low	Low	Low	Medium	Medium	5
2. Safety										
Does this interchange and its connections improve roadway safety issues?	No	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	9
Does this interchange and its connections provide improved emergency access and response times to I-65?	No	Low	Low	High	High	High	High	High	High	8
Does this interchange and its connections provide improved emergency access and response times to the residents and businesses in the area?	No	Low	Low	Medium	Medium	Medium	Medium	High	High	8
3. Land Use Impacts										
Is the interchange and its connections consistent with current land use planning and zoning?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	9
How many potential residences and/or businesses are required to be relocated for this interchange and its connections?	0	4	4	8	8	13	13	4	6	6
How many potential acres of "farmland of state importance" will be required for the construction of this interchange and its connections?	None	Low	Low	Low	Low	Low	Low	Low	Low	3
Does this interchange and its connections adversely impact the character or function of neighborhoods or community resources (schools, churches, parks, businesses, etc.)?	No	Low	Low	Low	Low	Low	Low	Low	Low	8
Does this interchange and its connections provide benefits to the character or function of neighborhoods or community resources (such as schools, churches, parks, businesses, etc.)?	No	Low	Low	Low	Low	Low	Low	Low	Low	7
4. Environmental Impacts										
Geotechnical Issues to be addressed?	None	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	7
Archaeology Sites affected?	None	Medium-High	Medium-High	Medium-High	Medium-High	Medium-High	Medium-High	Medium-High	Medium-High	5
Historic Propeties/Strcutures Properties affected?	0	1	1	1	1	1	1	0	0	6
Water Resources impacted?	None	Low	Low	Low	Low	Low	Low	Low	Low	7
Threatened & Endangered Species (TES) Habitat impacted?	None	High	High	High	High	High	High	Low	Low	6
Air Quality & Noise impacts?	None	Low	Low	Low	Low	Low	Low	Low	Low	7
UST/HAZMAT Sites impacted?	None	Low	Low	Low	Low	Low	Low	Low	Low	5
5. Costs										
Engineering and Design	$0	$5,700,000	$9,100,000	$7,600,000	$8,400,000	$9,000,000	$10,000,000	$7,600,000	$9,000,000	
Right of Way (ROW)	$0	$4,200,000	$5,200,000	$5,400,000	$5,800,000	$8,000,000	$8,300,000	$4,600,000	$5,600,000	
Utilities Relocation	$0	$700,000	$1,100,000	$2,600,000	$1,300,000	$1,600,000	$800,000	$3,300,000	$2,100,000	
Construction	$0	$17,900,000	$30,000,000	$22,100,000	$26,400,000	$26,300,000	$30,700,000	$22,400,000	$28,000,000	
TOTAL COST	$0	$28,500,000	$45,400,000	$37,700,000	$41,900,000	$44,900,000	$49,800,000	$37,900,000	$44,700,000	10
SUMMARY/SCORE	39.2	52.4	44.9	54.3	53.5	51.1	50.1	61.8	59.2	

SECTION 5: COMMUNITY ENGAGEMENT– PHASE 2

A final round of community engagement was held after the interchange options and scenarios were developed. This also included an initial meeting with local officials to apprise them of the progress and findings of the study. That Local Officials and Stakeholders meeting for the second phase of the study occurred on Monday, March 1, 2021 at 1:00 pm. Once again, local officials and stakeholders were given an updated fact sheet and asked to encourage their constituents to attend the second public meeting. Thirty-nine people attended the Local Officials and Stakeholders meeting and were given an opportunity to watch a presentation explaining the study progress to date as well as the interchange location options and scenarios developed in Phase 2 which included the "no build" option (not constructing an interchange in the study area). The local officials were also given early access to the on-line survey to capture their preferences and concerns.

Figure 39: Flyer for Public Meeting #2

To advertise for the second public meeting, KYTC prepared a media advisory on March 4, 2021 announcing Public Meeting #2, the on-line survey and the Virtual Town Hall. The consultant team also prepared project postcards and mailed those to the residences and businesses in the study area.

Two weeks after a local official meeting the virtual public meeting was held on Tuesday, March 16, 2021, and ran from 5:30 pm to 7:00 pm, including two viewings of the study presentation and discussions of the chat box comments and questions. Approximately 130 participants were registered in the meeting.

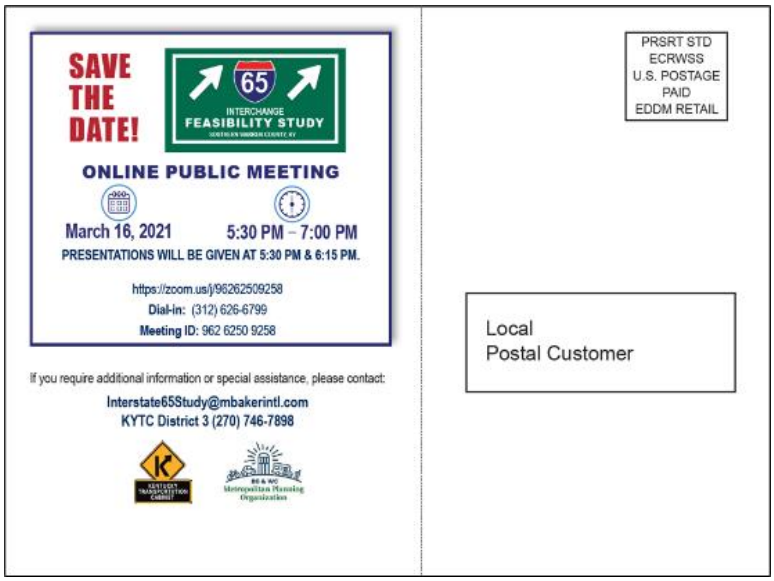


Figure 40: Public Meeting #2 Postcard

The meeting consisted of live and pre-recorded presentations from the consultant staff that included a summary of the study background, methodology, and schedule, an overview of the existing human and natural environmental conditions within the study area, and an overview of the traffic conditions within the study area. The presentation then provided an overview of the three interchange location options (Carter Sims Road, KY 242, and KY 240) and their associated connection improvements and the "no build" option. An explanation was provided via a comparison matrix showing projected performance of the options and scenarios based upon the evaluation criteria of Operational, Safety, Land Use Impacts, Environmental Impacts, and Costs.

During the two viewings of the presentations, participants were encouraged to answer three questions through live polling. The first question was posed to the participants during the introductory remarks and concerned their participation in the first public meeting for this project. Forty-two percent (42%) of the participants responded that they had participated in the September 2020 public meeting. Attendees were asked a second polling question to best describe their relationships to the study area as either: Resident within the study area, Commuter along the Corridor, Area Business Owner, or Local Agency or Government Representative. Approximately eighty percent (80%) of the poll participants indicated that they were residents within the area while only four percent (4%) indicated that they were business owners. Thirteen percent (13%) of the participants indicated that they were commuters in through the study area and fourteen percent (14%) of the participants indicated that they were representing local government or local agencies.

After the recorded portion of the presentation regarding the three interchange location options and associated improvement connections, as well as the "no build" option, participants were asked a third and final polling question: Considering the draft purpose and need statement, which of the interchange and connection improvement scenarios (KY 240, KY 242, Carter Sims Road, or No Build) would be most effective in meeting the purpose and goals of the project? Forty-five percent (45%) of the participants responded that the KY 240 location option was most effective in meeting the purpose and goals of the project, but a close thirty-five percent (35%) indicated their preference for KY 242. Only nine percent (9%) of the participants selected Carter Sims Road as the most effective option and eleven percent (11%) indicated the preference for the No Build option.

The polling questions during the second viewing of the presentation only included about a dozen participants. The range and weight of responses from this group were very similar to the polling participants during the first viewing.

Throughout the presentation, the attendees were reminded of how they could provide their input through the on-line survey, which would be available until April 1, and through the project email address. The team provided links within the presentation to the project website which included the on-line survey link and the virtual town hall that contained the meeting materials including detailed boards for each of the interchange location options.

A recording of the public meeting was posted to the website along with a summary that addressed the questions and comments submitted throughout the meeting via the chatbox. The summary of the questions and answers and general comments is provided following the Public Meeting Presentation within this Public Meeting #2 Summary located in Appendix A.

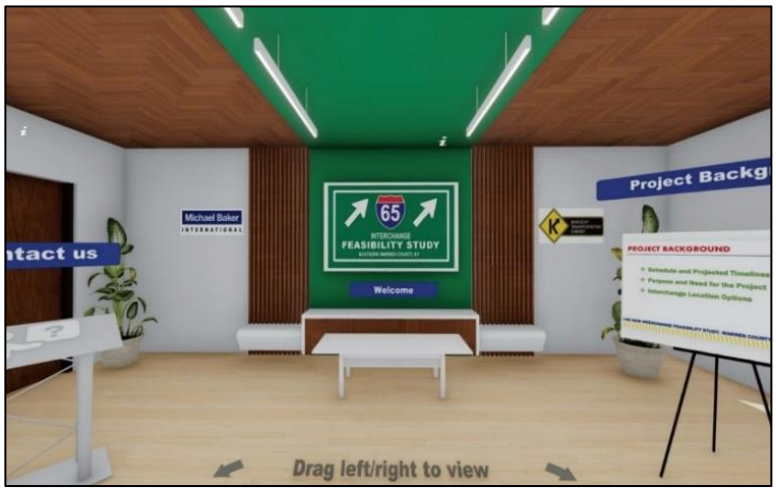


Figure 41: Virtual Town Hall

SECTION 6: RECOMMENDATION

The final step in the study was to develop a recommendation. The following paragraphs discuss how well each location met the purpose and need, as well as the feedback received from the public for each location, which is the basis for the development of the study recommendation.

As stated previously, the purpose of this project is to address the mobility and connectivity issues of access to I-65 from the road network in Southern Warren County. The project goals include:

1) Improve connections for all users among and between the local roadway network and the access to I-65.
2) Enhance public safety through improved emergency response times.
3) Accommodate the ongoing and future planned land use within Southern Warren County.
4) Support freight movements within Southern Warren County.

As this study entered the final steps, a clear concept of the recommendation for future actions emerged based upon the guiding purpose of the study, technical analysis of the location options, and the input from local leaders, stakeholders, and the public. Unlike some other new interchanges being considered along the state's fully controlled highways, a defined economic traffic generator was not identified within Southern Warren County, so the mobility and connectivity issues are dispersed throughout the area. Connectivity is the stronger of the two issues for this project since a new interchange and its improved connections will provide enhanced access for emergency services to I-65 and address the lack of redundancy for traffic seeking travel-time savings.

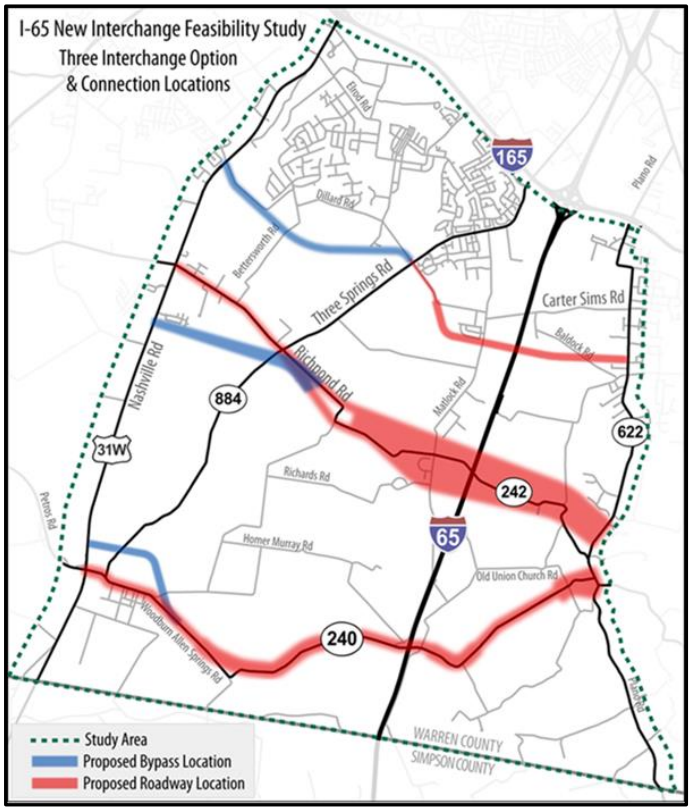


Figure 42: New Interchange Locations and Connection Improvements

No Build

As per the accepted linkage between planning and the National Environmental Policy Act (NEPA), the "no-build" option for a possible interchange on I-65 in Southern Warren County is one option recommended to move forward into any future phases of project development. The next steps in this project will include detailed environmental studies that must include the "no-build" option to compare with the recommended option per federal requirements.

Carter Sims Road

Concerning Carter Sims Road as a new interchange location option, this location does not strongly satisfy the project purpose and goals. With the proximity of the existing interchange at Plano Road, which connects to I-165 and I-65 and the interchange of US 31W and I-165, a new interchange at Carter Sims Road would not provide much additional connectivity. This location does not provide the span of connectivity, especially regarding the emergency response to incidents on the stretch of I-65 from Exit 6 to Exit 20, as does the KY 242 and KY 240 location options. Furthermore, connection improvements

would not support freight movements and connectivity will be made more challenging due to established and planned residential and commercial developments limiting the alignment options of the connecting roads without significant rights of way costs. The community expressed a strong dislike of this location option for the aforementioned reasons.

KY 240 (Woodburn Allen Springs Road)

Concerning KY 240 as a new interchange location option, this location attained top support of the options by a small margin in matrix scoring and public response. The greatest advantage of this location option is that the existing KY 240 is wider and straighter than the other two routes connecting to a possible I-65 interchange for their respective locations. Likewise, the existing KY 240 overpass at I-65 can likely be transformed into an interchange with much less construction costs than either the Carter Sims or KY 242 locations. There seemed to be a perception among the public that the solution should be least expensive and least complicated as opposed to most effective in improving the mobility and connection for the area. There also seemed to be the thought among the survey participants that an interchange would be built without the connection improvements, which in comparison with the narrower and more winding KY 242, provided the KY 240 location option a greater advantage. Additionally, there is strong support for the connector which will align traffic away from the heart of the community of Woodburn and also address the at-grade CSX rail crossing in Woodburn. The sparsity of residential development along KY 240 does provide fewer neighborhood impacts; however, it also serves the least amount of population and has a greater impact to existing farmland which was a major concern of the public and is counter to the planned vision of growth within the comprehensive plan for Southern Warren County. This location also has less impact on school traffic, either positively or negatively since it is farther away from the four area schools. This location option does provide the most support for freight movement, but the origin of the trucks is more regional rather than within Southern Warren County. Regarding the benefit to emergency response, especially to incidents on I-65, this location option does provide a midpoint access along the 14-mile section of I-65.

KY 242 (Richpond Road)

Concerning KY 242 as a new interchange location option, this location received greater public support than the Carter Sims Road option and just slightly less support than the KY 240 location option. The challenges of this location include existing geometric condition of the roadway, with narrow lanes, multiple substantial curves and an existing bridge overpass that would need to be widened or replaced with a new overpass constructed either to the north or south. A major concern expressed by the public is the possible negative impact on the existing school traffic that travel to and from the four schools in the area: Plano Elementary School, Richpond Elementary School, South Warren Middle School, and South Warren High School. This location does have a growing number of neighborhoods nearby, in and around Richpond, along with a significant amount of remaining farmland. Despite these concerns which were expressed by the public, there was a great deal of support voiced for the connector especially regarding its possible alignment to the south of the school campuses. The stakeholder group stated that this option provided greater improvement for connectivity to the most rapidly developing portion of the study area, when compared to the KY 240 option, and provided better response time to incidents on I-65 than the Carter Sims location. This location also has more utilities available to accommodate growth. Based on where the majority of the population is located in the study area, KY 242 would have a greater level of use and would better accommodate growth as compared to the other two options.

Study Recommendations

Considering a possible new interchange along I-65 in Southern Warren County, the results of the tasks performed in this study determined that the location options at both KY 242 and KY 240 are feasible. Although the option at KY 240 was the most well-received by the public of the possible interchange locations, the survey comments reflected that this option was only slightly more preferred (45% versus 35%) as discussed on the previous page. When looking at the overall effect that a new interchange and connection improvements at the KY 242 option would provide, the following points became evident:

- Improvements along KY 242 including wider lanes, paved shoulders, straighter alignments, and a connector around Richpond and the schools located there would accommodate the already increasing traffic generated by the residential and commercial development in the study area and provide additional safety, connectivity, and mobility for motorists and cyclists; in conjunction with a new interchange that would improve access to the road network and I-65.
- A new interchange at KY 242 maximizes the benefit for responders with an interstate access point along I-65 between existing Exit 6 and Exit 20 and has the benefit of serving the bulk of the population within the study area which is located in the Richpond, Plano and surrounding communities.
- The KY 242 interchange option and connection improvements would accommodate the current and continued growth in the study area while addressing the requests for road improvements from residents at City-County Planning Commission meetings related to rapid growth and development.
- Based on the Planning Commission's Comprehensive Plan, the lingering desire for better access between Nashville Road and I-65 (expressed by some as substantial roadway improvements connecting US 68 to I-65 such as the Southwest Parkway - a proposed roadway from US 68/Russellville Road to I-65), and experiences with previous new interchanges in the Bowling Green area (such as Cemetery Road/Exit 26), the KY 242 option aligns with anticipated growth and development needs.
- The KY 242 interchange location and its connection improvements address the current issues of mobility and connectivity which are already present in this area of Southern Warren County and that will continue to increase as new planned residential and commercial development comes on-line.

In conclusion, the KY 242 location option for an interchange and its connection improvements is recommended to move forward to project development and delivery in order to provide a greater and more immediate relief to Southern Warren County. However, at some future point in time, the KY 240 location option and its connection improvements is also feasible and might be considered a project of regional importance and be considered for project development and delivery when development and growth warrant.

SECTION 7: NEXT STEPS

The next steps in moving toward a new interchange for Southern Warren County would involve Preliminary Engineering/Environmental Analysis and an Interchange Justification Study to better refine the corridor and to identify and confirm environmental constraints. However, Kentucky's FY 2020 – FY 2026 Highway Plan has not identified any funds for these items. The table below includes steps that KYTC and the MPO may take to move this project toward construction.

Table 3 - Next Steps

Agency	Project #	Action Item
MPO & KYTC	MTP ID: 60 CHAF ID: IP20150074 (MTP)	Within the MTP (Metropolitan Transportation Plan) and CHAF*, update description/costs of project: "NEW Improve access with a new interchange on I-65 at KY-242." Support this project's consideration within SHIFT* and eventual inclusion into KYTC's Highway Plan and the MPO's Transportation Improvement Program (TIP). Reference to the Southwest Parkway should be added to this project description.
MPO & KYTC	MTP ID: 67 CHAF ID: IP20070133 (MTP)	Within the MTP and CHAF, update description/costs of project: "Improve access with a new interchange on I-65 at KY 240."
MPO & KYTC	MTP ID: 67 CHAF ID: IP20070133 (MTP)	Within the MTP and CHAF retain, update description/costs and combine the following project with MTP item 03 114 A0065 42.00: "Improve access with a new interchange on I-65 at KY 240.
MPO	N/A	Develop a corridor preservation plan to support an interchange at KY 242 and its associated connection improvements.
MPO	N/A	Update land use plan to support an interchange at KY 242.
MPO & KYTC	N/A	Update elected officials on study recommendation.

** Continuous Highways Analysis Framework (CHAF), is an application used by KYTC and other transportation agencies including the MPO, to collect, track and analyze identified transportation needs. CHAF also provides a means to sponsor, score and rank projects as part of the Strategic Highway Investment Formula for Tomorrow (SHIFT).*

SECTION 8: ADDITIONAL INFORMATION

Contacts for obtaining more information about this study are included below.

Written requests for additional information should be sent to:

Mr. Mikael B. Pelfrey, PE, Director
KYTC Division of Planning
200 Mero Street
Frankfort, KY 40622

Additional study information can be obtained from:

Mr. Benjamin D. Hunt, PE
KYTC District 3 Planning Department
900 Morgantown Road
Bowling Green, KY 42101
Phone: (270) 746-7898

Appendix A

Meetings

Appendix A-1: Project Team Kick Off Meeting #1 Minutes
Appendix A-2: Current and Future Land Use Meeting Summary
Appendix A-3: Meeting with Franklin-Simpson County Planning & Zoning
Appendix A-4: Meeting with Simpson County Planning & Zoning and Simpson County Industrial Authority
Appendix A-5: Local Officials/Stakeholders Meeting #1 Minutes
Appendix A-6: Public Meeting #1 Summary
Appendix A-7: Emergency Responders Meeting Minutes
Appendix A-8: Local Officials/Stakeholders Meeting #2 Minutes
Appendix A-9: Public Meeting #2 Summary

Appendix B

Roadway & Traffic Characteristics

Appendix B-1: Existing Conditions Summary
Appendix B-2: Crash Data
Appendix B-3: Level of Service Data
Appendix B-4: Traffic Model Validation Report

Appendix C

Environmental Overview

Appendix C-1: Environmental Overview Summary
Appendix C-2: Environmental Overview
Appendix C-3: Socioeconomic Study
Appendix C-4: Archaeological Overview (confidential, provided by USB)
Appendix C-5: Historic Architectural Overview

Appendix D

Geotechnical Overview