I-64 INTERCHANGE + CONNECTOR STUDY

JEFFERSON & SHELBY COUNTIES
ITEM NO. 5-80000

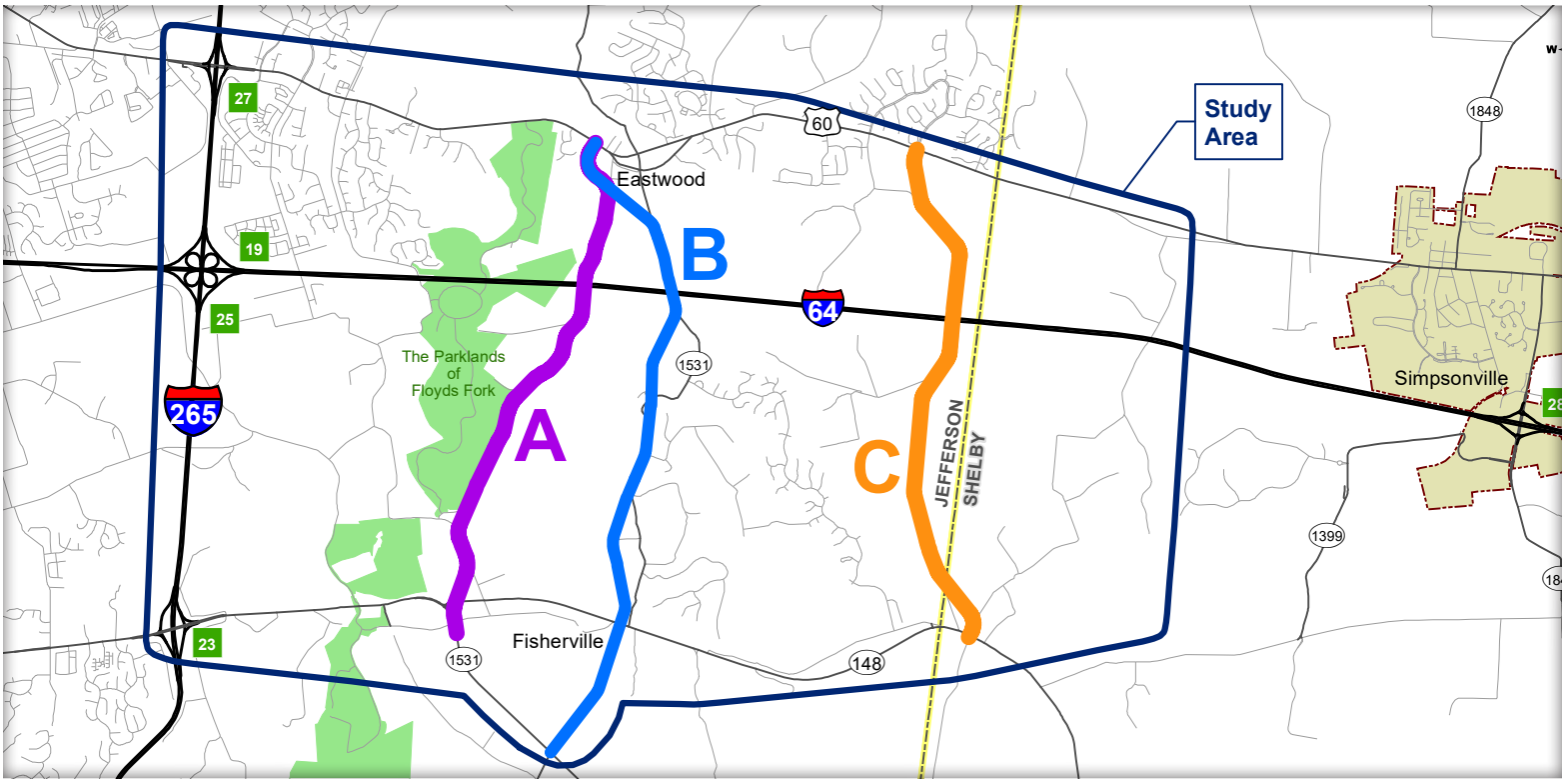
PREPARED BY

TEAM KENTUCKY
TRANSPORTATION CABINET

IN PARTNERSHIP WITH

QK4

FINAL REPORT | DECEMBER 2024



EXECUTIVE SUMMARY

The Kentucky Transportation Cabinet (KYTC) initiated this study to evaluate the need for and feasibility of providing increased access to I-64 in eastern Jefferson or western Shelby County. The current system provides no access to the interstate between Exit 19 at I-265 (Gene Snyder Freeway) and Exit 28 at KY 1848 (Buck Creek Road) for Simpsonville, a distance of about nine miles. The I-64/I-265 system interchange does not provide access to surface streets: it is another 1-2 miles beyond to enter/exit the interstate system. This is the longest gap in interstate access anywhere in Jefferson County and the longest along I-64 anywhere in Kentucky's urban areas. The study area[1] is shown in **Figure ES-1**.

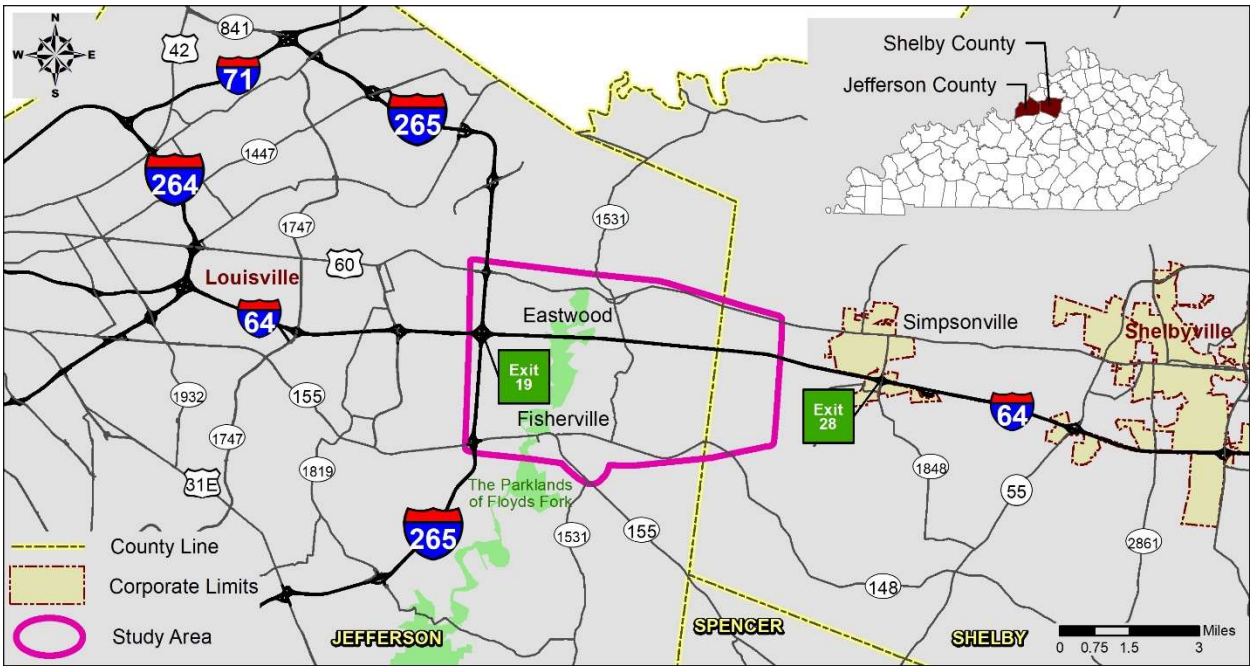


Figure ES-1: Study Area Boundary

Regional Planning Context

Eastern Jefferson County and western Shelby County have both experienced considerable development and population growth in recent years, with these trends expected to continue. Census Bureau estimates show a 13% increase in households from 2020 to 2022 for block groups overlapping the study area. While I-64, US 60 (Shelbyville Road), and KY 155/KY 148 (Taylorsville Road) provide relatively high mobility corridors running east-west through the study area, existing north-south connections beyond I-265 are lower mobility, narrow rural roadways that meander with the terrain, intended to provide access to less densely developed surrounding land uses.

[1] Should a new interchange concept advance, adjacent I-64 interchanges beyond the study area may be analyzed to demonstrate compliance with federal policies on interstate access points.

The study represents an update of a 2008 KYTC planning study (Item No. 5-8200),[2] which relied on an extensive community outreach effort to define a host of potential interchange and connector locations. While much of the study area remains low-density single family residential lots, notable changes have occurred since: including creation of the Parklands at Floyds Fork, construction of Echo Trail Middle School, large-scale commercial developments in Simpsonville, and a host of proposed subdivisions. Recommended corridors in the 2008 study stretch from US 60 at Eastwood to KY 155 near Fisherville. At the time, costs were estimated at $50 to $60 million. Continued coordination with residents, developers, local officials, and the railroads was recommended. Further, impacts to parks and terrain constraints are noted as special considerations should a Build concept advance. However, no additional work on the potential project occurred.

Beyond the 2008 study, analysts reviewed many other sources to understand the area's character and context:

- Large-scale roadway projects in the Commonwealth's FY 2024-2030 *Enacted Highway Plan* or KIPDA's *Connecting Kentuckiana* 2050 Metropolitan Transportation Plan
- Planning studies for overlapping transportation corridors and subareas
- Regional land use plans, like Louisville's 2040 *Comprehensive Plan* and the 2019 *South Floyd's Fork Vision Study*

Existing Highway Network

The highest mobility routes tend to run east-west through the study area with lower mobility collectors and local streets providing north-south connections. North-south routes tend to have narrow lanes and shoulders (**Figure ES-2**), lower speed limits, and substandard alignment elements—steep hills and sharp curves. Real-time travel speed data shows slowdowns due to peak period congestion—particularly along US 60 near I-265 and through Eastwood—as well as lower travel speeds associated with the steep and curvy north-south rural routes.

Three overpasses in the study area currently provide north-south connections above I-64: 056B00043N (South English Station Road), 056B00491N (Gilliland Road), and 056B00493N (Clark Station Road). At four other locations, I-64 bridges over another public roadway: 056B00490N (South Beckley Station Road), 056B0049N (Beckley Creek Parkway), 056B00492N (KY 1531), and 106B00107N (Connor Station Road).

[2] Online at https://transportation.ky.gov/Planning/Pages/Planning-Studies-and-Reports.aspx

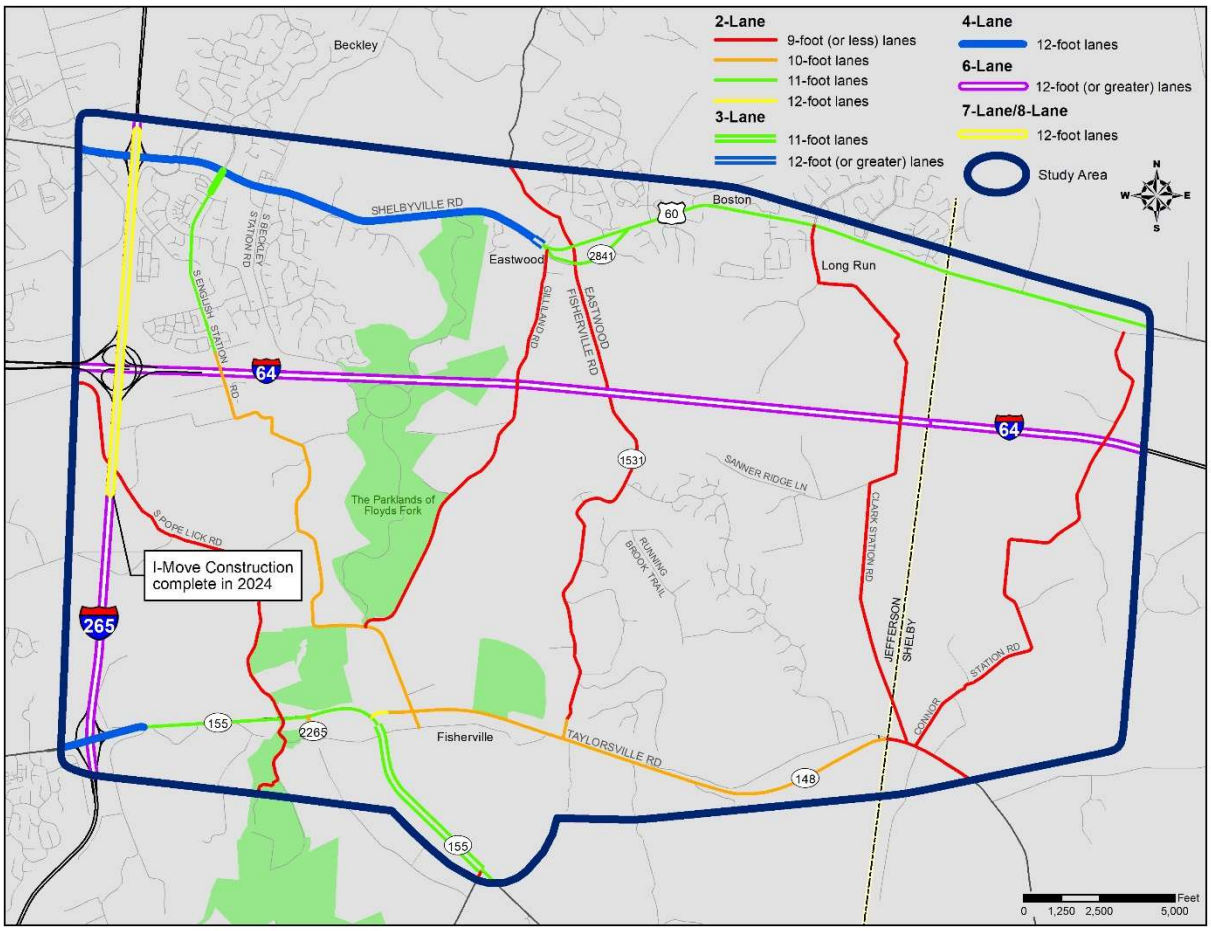


Figure ES-2: Number of Lanes and Lane Widths

Two rail lines run east-west through the study area. RJ Corman roughly follows the northern border of the study area, crossing under US 60 at Eastwood. Norfolk Southern (NS) runs just north of the KY 155/KY 148 corridor at the southern boundary of the study area. While most crossings are at-grade with warning flashers or gate arms on relatively low-volume rural highways, three are somewhat unique:

- A 1,000-foot tunnel carries the RJ Corman line beneath US 60, Rockcrest Way, and Eastwood Cutoff Road.
- A 772-foot-long trestle carries the NS tracks over South Pope Lick Road, Pope Lick Creek, and the Louisville Loop.
- A low-clearance, one-lane passage connects KY 1531 beneath the NS line.

Records show 1,856 total crashes were reported on study area roadways during 2018-2022—mapped by density in **Figure ES-3**. Approximately 85% of all study area crashes occurred along

the three highest-volume study routes: US 60 (578 crashes over 7.0 miles), I-64 (339 crashes over 6.6 miles), and I-265 (654 crashes over 4.3 miles). Six crashes (<1%) resulted in fatalities, 354 (19%) resulted in injuries, and 1,486 (81%) involved property damage only (PDO). Four fatalities were along I-265 with the other two on US 60. Predominant crash types are rear end collisions (48%), single vehicle crashes (18%), and same direction sideswipes (16%). Segments of I-265 and KY 155/KY 148 demonstrate higher crash rates than predicted by mathematical models—indicating a poor Level of Service of Safety.

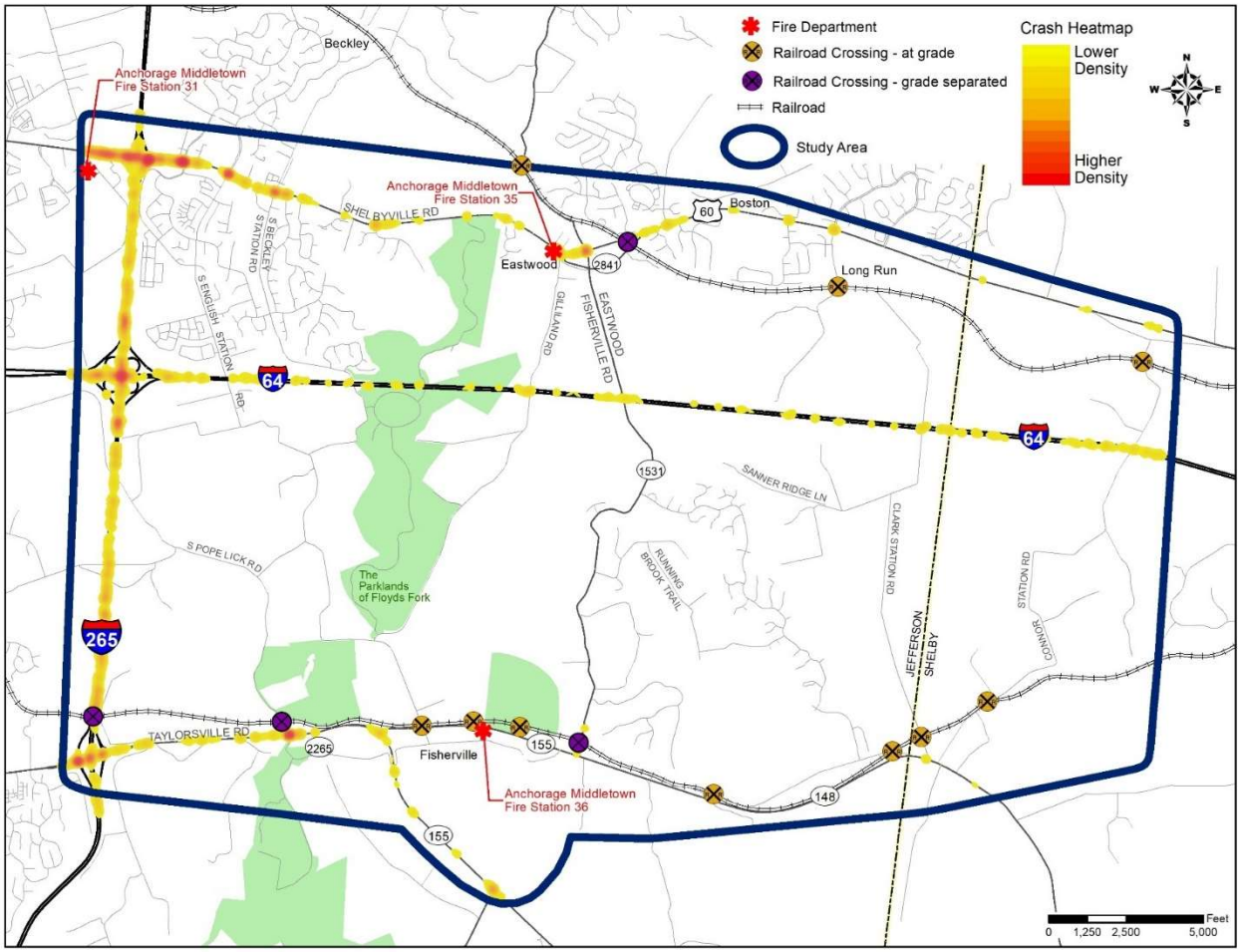


Figure ES-3: Heat Map of Crash Data (2018-2022)

Existing & Future Traffic

Figure ES-4 presents average daily traffic volumes for highway segments throughout the study area. Analyses indicated most roadway segments within the study area operate at acceptable Level of Service (LOS) and with a reasonable volume-to-capacity ratio (v/c) based on segment-level analysis. One segment currently operates at LOS E: KY 155 between I-265 and KY 148. However,

for busy urban corridors, capacity at intersections provides a more representative measure of overall operations than a segment-wide average.

Key operational metrics at 22 study intersections show a few operate at LOS E/F during one or both peak periods. Even where operations are at LOS D or better for the overall signal, several minor street movements exhibit poor LOS—especially along the busier sections of US 60 near I-265. Poor LOS but no movements approaching a v/c of 1.0 suggests there is excessive delay for a relatively low-volume move.

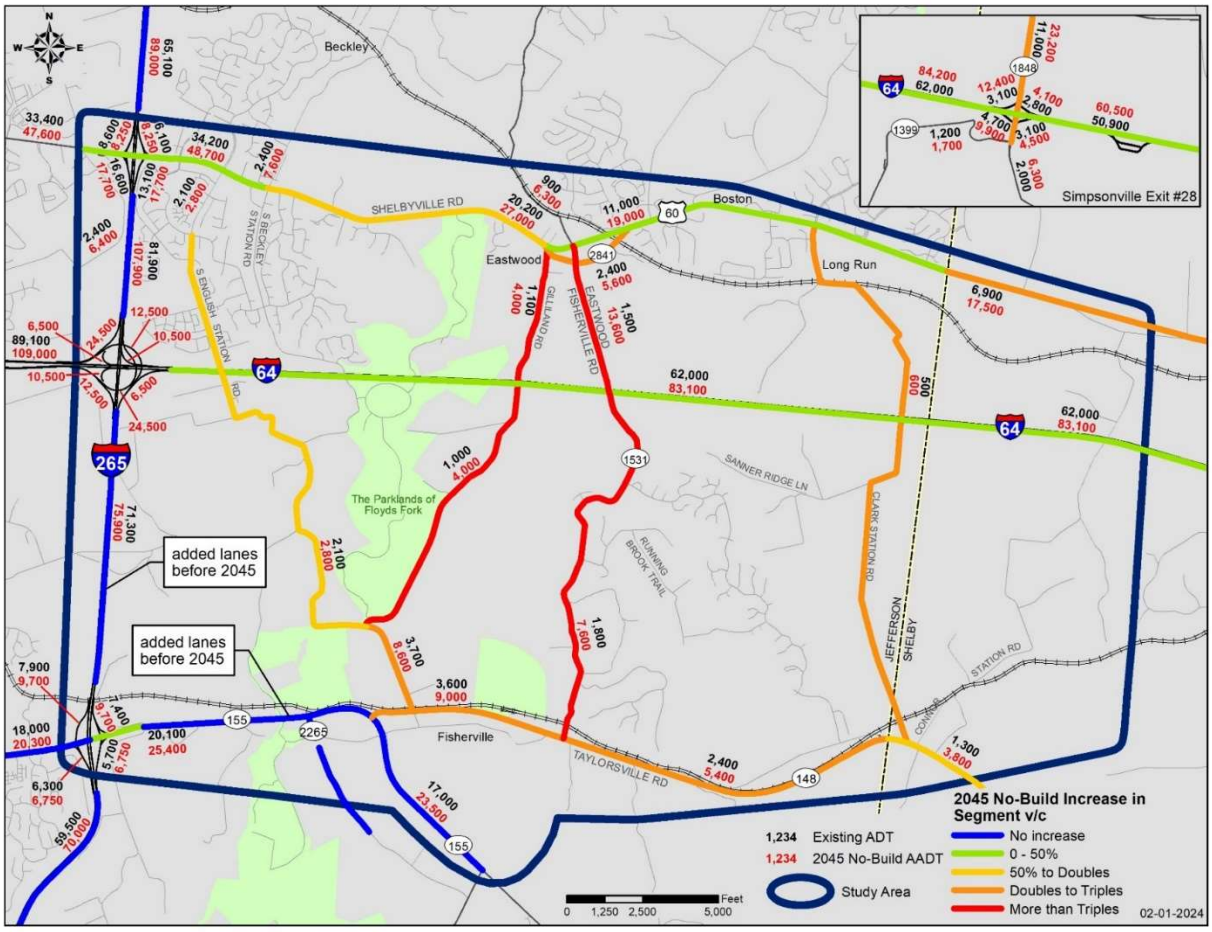


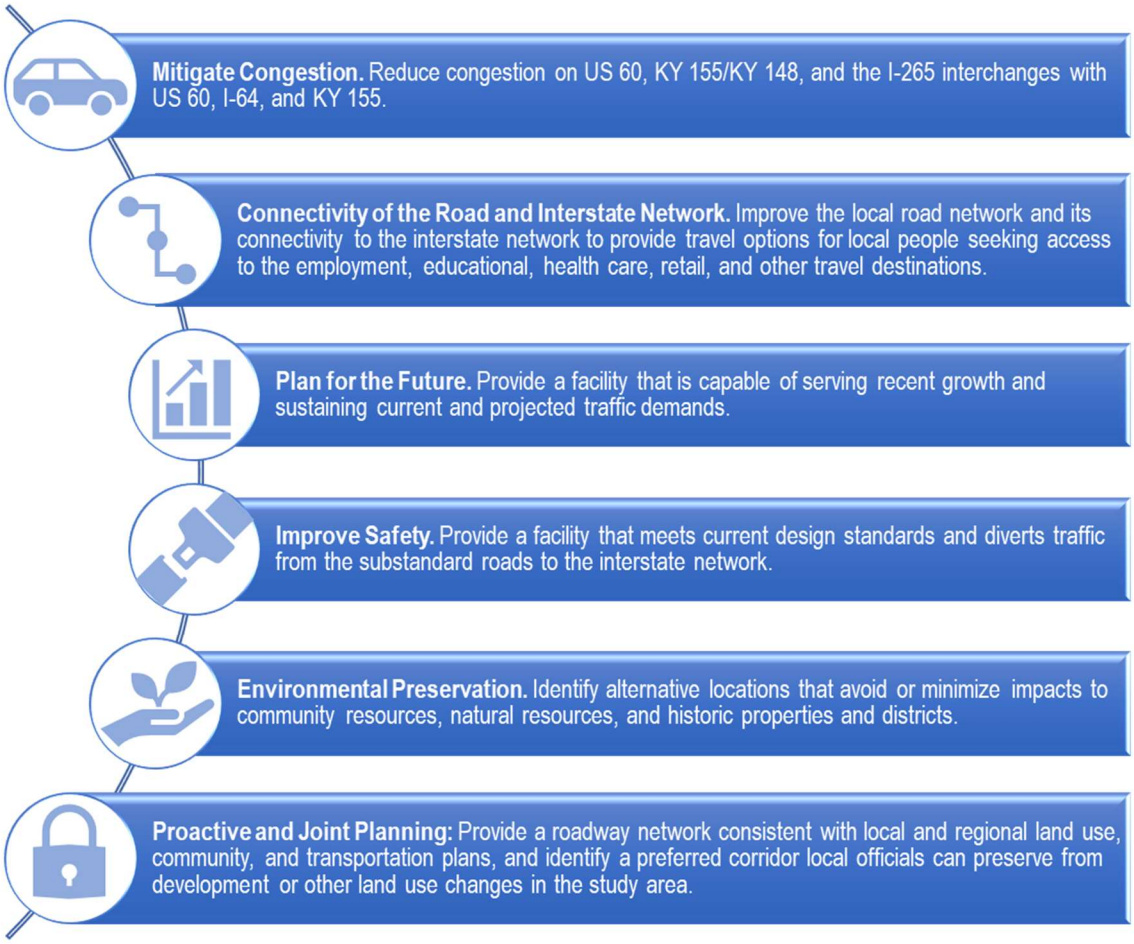
Figure ES-4: 2045 No-Build Traffic and Change in v/c

Year 2045 growth trends were coded into a project-specific travel demand model to forecast future traffic patterns. To ensure model assumptions reflect up-to-date development expectations, the project team compiled information from numerous sources to define socioeconomic growth assumptions: projections from both KYTC and KIPDA models; county-wide population projections; conversations with Planning & Zoning officials in Jefferson, Shelby, and Spencer counties; and input from key stakeholders as part of the Community Advisory Group (CAG) that met at key milestones.

With 6,000 new homes and 4,500 new jobs projected within the study area by 2045, traffic volumes are expected to increase over 2023 levels with or without a new interchange/connector. **Figure ES-4** shows 2045 No-Build projections alongside 2023 traffic and projected increases in v/c compared to existing levels. Based on expected growth in the area, existing highways will not be sufficient to handle expected traffic during peak travel periods. Substantial expected growth results in degraded performance at most study area intersections.

Goals & Objectives

Two primary goals drive the study: 1) to reduce congestion on the existing roadway network and 2) to improve connectivity to I-64 within the nine-mile stretch between I-265 and KY 1848. Several other screening metrics are important to consider when evaluating Build options. Combined with the primary goals above, these cover all six of the project goals from the 2008 study:



Development of Build Concepts

The 5-80000 concept development process occurred in two tiers, starting with broad planning-level corridors then advancing a subset of the most competitive options for more detailed analysis.

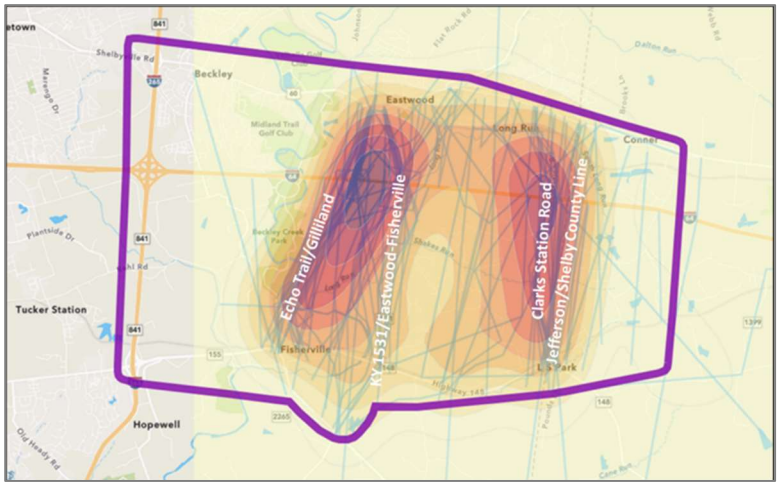


Figure ES-6: Public Suggestions on Corridors

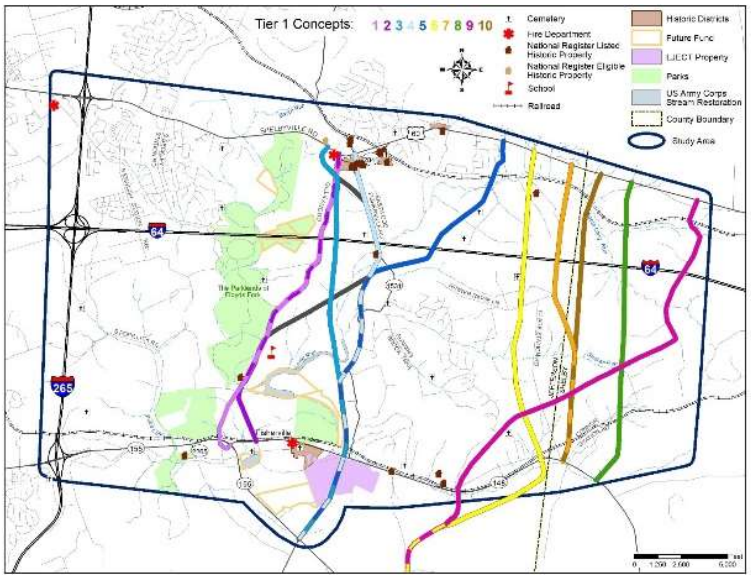


Figure ES-5: Tier 1 Corridors

Tier 1 corridors (**Figure ES-5**) were developed based on existing highway connections, expected growth patterns, terrain, environmental constraints, public suggestions (**Figure ES-6**), past planning efforts, and other engineering considerations. Each concept is assumed to have a 45-mph design speed, two lanes—increasing to a five-lane typical for any concepts north of I-64 and west of Eastwood—and a shared use path on one side. Each Tier 1 concept was screened against study goals and objectives and other engineering considerations like length, earthwork, utility impacts, etc. The most competitive corridors that represent a range of different geographic settings advanced for more detailed Tier 2 analyses.

More detailed options were developed for three Tier 2 corridors (**Figure ES-7**), representing the most competitive combinations from Tier 1 spread across the study area. Tier 2 concepts still represent a high-level corridor overview with broad assumptions rather than an alignment-level design. If any Build concept advances, preliminary design investigations would consider multiple alignments within a single corridor-level concept to define specific footprints, turn lane lengths, optimal traffic control devices, etc.

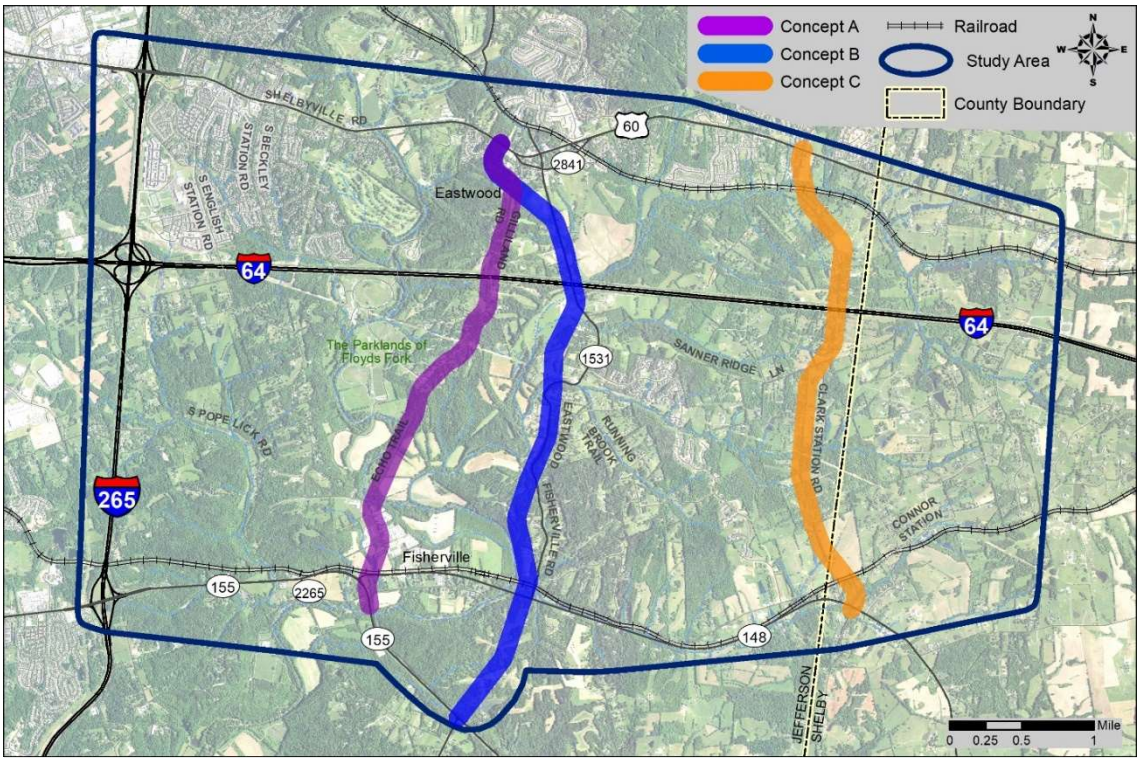


Figure ES-7: Range of Tier 2 Concepts

- The westernmost Build option, **Concept A** generally follows an improved Gilliland Road/Echo Trail. It ties to US 60 west of Eastwood and creates a partial interchange with KY 155/KY 148 to overpass the NS railroad line. It is 3.6 miles long with five lanes north of I-64, two lanes south, and three lanes near the school. Forecasts show 26,700 vehicles per day (vpd) on the new corridor north of I-64 and 13,500 vpd south of I-64. Of the three options, Concept A is closest to the Parklands but requires the least earthwork as it follows existing roadways for most of its length. Costs are estimated at $130 million in 2023 dollars but with the projected traffic increases along I-64, both Concepts A and B may require additional thru lanes between I-265 and the new interchange to operate at LOS D or better during peak hours.

- The central Build option, **Concept B** generally follows an improved KY 1531 (Eastwood-Fisherville Road). It ties to US 60 west of Eastwood, crosses above the NS railroad line at KY 148 bypassing the one-lane underpass, then ends at KY 155 opposite KY 1531 (Routt Road). It is 4.4 miles long with five lanes north of KY 148 and two lanes south. Forecasts show 28,600 vpd north of I-64, 30,200 vpd south, and 11,400 vpd south of KY 148. Of the three options, it carries the most traffic but has the longest and widest footprint and the most impacts (e.g., streams, conservation easements, and neighborhoods). Costs are estimated at $170 million but with the projected traffic increases along I-64, both Concepts

A and B may require additional thru lanes between I-265 and the new interchange to operate at LOS D or better during peak hours.

- The easternmost Build option, **Concept C** generally follows Clark Station Road near the Jefferson/Shelby county line, bridging over both rail lines. It is 3.4 miles long with two lanes for its entire length. Forecasts show 16,000 vpd on the connector north of I-64 and 9,100 vpd south. It has the shortest length, lowest cost, and fewest impacts but carries the least traffic. Concept C falls near the midpoint of the 9-mile I-64 interchange gap. Costs are estimated at $120 million.

Volumes suggest each new interchange with I-64 would need signals at both ramp termini and dual left turn lanes from the eastbound off-ramp to support peak hour traffic. However, additional intersection control evaluations should be examined during any future design work.

The same hybrid travel demand model was used to simulate Tier 2 Build concepts alongside other KYTC capacity-improving projects. Each scenario measures traffic volumes projected to use a new interchange and connector, as well as changes in traffic along existing highways. **Table ES-1** summarizes daily traffic volumes on key highway links.

Table ES-1: Daily Traffic for 2045 Scenarios

Segment	No-Build	Concept A	Concept B	Concept C
New Connector, north of I-64	X	26,700	28,600	16,000
New Connector, south of I-64	X	13,500 18,100[1]	30,200 11,400[2]	9,100
US 60, east of I-265	48,700	41,400	40,400	45,300
US 60, near Parklands	27,000	19,700	16,700	23,600
US 60, east of Eastwood	19,000	21,600	21,000	20,000
I-64, east of I-265	84,400	114,000	114,000	95,000
I-64, at Shelby County Line	84,400	81,000	82,000	74,000
KY 155, east of I-265	25,400	21,400	22,800	24,400
KY 155, north of Routt Road	23,500	25,800	19,200	19,700
KY 148, east of Fisherville	5,400	5,600	8,300	6,500
I-265, north of I-64	107,900	99,500	100,400	108,300
I-265, south of I-64	75,900	72,000	71,700	75,300

[1] South of South Pope Lick Road; [2] South of KY 148

As shown, the No-Build option carries higher traffic volumes on US 60 west of Eastwood than any Build scenario. Capacity analyses suggest major widening of US 60 alongside other smaller scale intersections improvements will likely be necessary to provide adequate capacity for future growth.

Any Build concept reduces regional vehicle-hours of travel (VHT); that is, cumulative trips are completed in less time than in the No-Build scenario, suggesting faster travel speeds and less time spent in congested areas. The western Build concepts (A-B) are more effective in reducing regional congestion than Concept C. The model shows a new connector without an interchange does not effectively improve regional traffic congestion.

Table ES-2: Regional Congestion Metrics

	Vehicle-Miles of Travel	Vehicle-Hours of Travel (VHT)	% VHT Change from No-Build
Base (2021)	5,738,195	179,541	-
No-Build	7,386,489	278,942	-
Concept A	7,416,265	275,298	-1.31%
Concept B	7,416,511	275,397	-1.27%
Concept C	7,412,392	276,645	-0.82%

In addition to traffic performance, Tier 2 concepts were screened to evaluate impacts on the surrounding properties and environmental resources. While any future project development phases will include more in-depth assessments, this screening is intended to highlight major "red flag" concerns that would affect decision-making and prioritization.

Table ES-3: Comparative Impacts between Build Concepts

Metric	Concept A	Concept B	Concept C
Corridor Length	3.6 miles; 2-5 Lanes	4.4 miles; 5 lanes	3.4 miles; 2 lanes
% on New Alignment	32%	80%	44%
New Right-of-Way	50-60 acres	100-110 acres	60-70 acres
Recreational Resources	Near Parklands	-	-
Conservation Easements	-	Bisects LJCET	-
NRHP Historic Resources	Eastwood HD +3 other sites	Eastwood HD +3 other sites	2 sites
Potential Relocations	50-60 acres plus ±8 relocations	100+ acres plus ±8 relocations	60-70 acres plus ±3 relocations
Community Resources	Serves fire depts, school, Industrial Park	Serves fire departments	-
Planned Developments	1 subdivision; 2 businesses	2 subdivisions; 1 business	-
Stream Impacts	4 crossings; 1,600 ft	9 crossings; 2,700 ft	7 crossings; 1,600 ft
Earthwork (1,000s CY)	70 cut; 230 fill	190 cut; 160 fill	180 cut; 310 fill
Utility Impacts	Most	Some	Some

Meetings

The study incorporated numerous opportunities to engage with diverse stakeholder groups.

- The project team met regularly, reviewing technical analyses and comments from Community Advisory Group (CAG) members, public surveys, and other sources.
- The CAG is comprised of 18 invited members, selected to act as a link between KYTC and the community at-large to provide meaningful discussions, viewpoints, and feedback throughout the study. The CAG met four times throughout the study.
- Two sets of public meetings were held to share information, answer questions, and collect insights. In-person events were supplemented with a dedicated project website and online surveys. Engagement opportunities were crafted to ensure equal access and non-discrimination.
    - In August 2023, a set of two public meetings were held to introduce the study and collect insights on area needs. Over the 5-week comment period, 276 survey responses were collected with 60% supporting a new interchange/connector.
    - In April 2024, another set presented the Tier 2 concepts and collected feedback. Over the 4-week period, 307 surveys were collected with 75% agreeing that a connection/interchange would improve travel in the study area. Concept A received the most support and Concept C received the least. About 20% preferred a No-Build option.
- KYTC briefed local elected officials and other stakeholders prior to each public meeting.
- KYTC sent requests for information to 70 resource agencies regarding study goals, scoping concerns, conservation/development plans, sensitive locations, and mitigation strategies.
- Two meetings with the Federal Highway Administration (FHWA) provided an update to federal partners, who play a key role in future approvals should a Build option advance.

Recommendations

Independent of a Build corridor, four standalone future projects are recommended for consideration:

- Major widening of US 60 to extend the five-lane section to near the county line, with the exact limits to be determined based on traffic investigations along that corridor,
- Major widening of KY 155—covered by other ongoing KYTC design projects,
- Minor widening along KY 1531 to address safety concerns as traffic increases, and
- A new east/west connector between Echo Trail and KY 1531.

The project team dismissed **Concept B** from further consideration in light of impacts to the LJCET easement, costs, stakeholder feedback, and interchange operations.

Concepts A and **C** are both viable options that satisfy the purpose, providing regional traffic benefits that outweigh anticipated costs. Future design efforts should examine different alignments within the preferred corridor(s), specifically considering intersection-level operations and connections at US 60 and KY 155/KY 148. The corridor could be considered a minor arterial although the rural/urban designation warrants further consideration during future design phases.

The next phase in the project development process is Preliminary Engineering and Environmental Analyses, including an Interchange Justification Study (IJS) and continued engagement with FHWA. Coordination with local officials, key stakeholders, the already-established CAG, and the public is essential as concepts are advanced for implementation.

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ACRONYMNS LIST

ADT	Average Daily Traffic
CAG	Community Advisory Group
CHAF	Continuous Highway Analysis Framework
DHV	Design Hourly Volume
DRO	Development Review Overlay
EJ	Environmental Justice
FHWA	Federal Highway Administration

FRA	Federal Railroad Administration
HCM	Highway Capacity Manual
HDM	Highway Design Manual
HIS	Highway Information System
JCPS	Jefferson County Public Schools
KGS	Kentucky Geological Survey
KYTC	Kentucky Transportation Cabinet
LEO	Local Elected Official
LEP	Limited English Proficiency
LJCET	Louisville Jefferson County Environmental Trust
LOS	Level of Service
LOSS	Level of Service of Safety
LWCF	Land and Water Conservation Fund
MP	Milepoint
mph	miles per hour
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NBI	National Bridge Inventory
NEPA	National Environmental Policy Act
NHS	National Highway System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NS	Norfolk Southern
NTN	National Truck Network
PDO	property damage only
PEL	Planning & Environmental Linkage
RCRA	Resource Conservation/ Recovery Act
SHIFT	Strategic Highway Investment Formula for Tomorrow
SHPO	State Historic Preservation Office
STAA	Surface Transportation Assistance Act
STIP	Statewide Transportation Improvement Program
TARC	Transit Authority of River City
TED	Transportation Enterprise Database
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
v/c	volume-to-capacity ratio
VHT	vehicle-hours of travel
VMT	vehicles-miles of travel
vpd	vehicles per day

1.0 INTRODUCTION

The Kentucky Transportation Cabinet (KYTC) initiated an I-64 Interchange and Connector Study in May 2023 to evaluate the need for and feasibility of providing increased access to I-64 in eastern Jefferson or western Shelby County. The current system provides no access to the interstate between Exit 19 at I-265 (Gene Snyder Freeway) and Exit 28 at KY 1848 (Buck Creek Road) for Simpsonville, a distance of about nine miles. The I-64/I-265 systems interchange does not provide access to surface streets: it is another 1-2 miles beyond to enter/exit the interstate system via US 60 (Shelbyville Road), KY 913 (Blankenbaker Parkway), or KY 155 (Taylorsville Road). The study area covers 26 square miles, shown in **Figure 1**.

Eastern Jefferson County and western Shelby County have both experienced considerable development and population growth in recent years, with these trends expected to continue. While I-64, US 60 (Shelbyville Road), and KY 155/KY 148 (Taylorsville Road) provide relatively high mobility corridors running east-west along the edges of the study area, existing north-south connections beyond I-265 are lower mobility rural roadways that meander with the terrain, intended to provide access to less densely developed surrounding land uses.

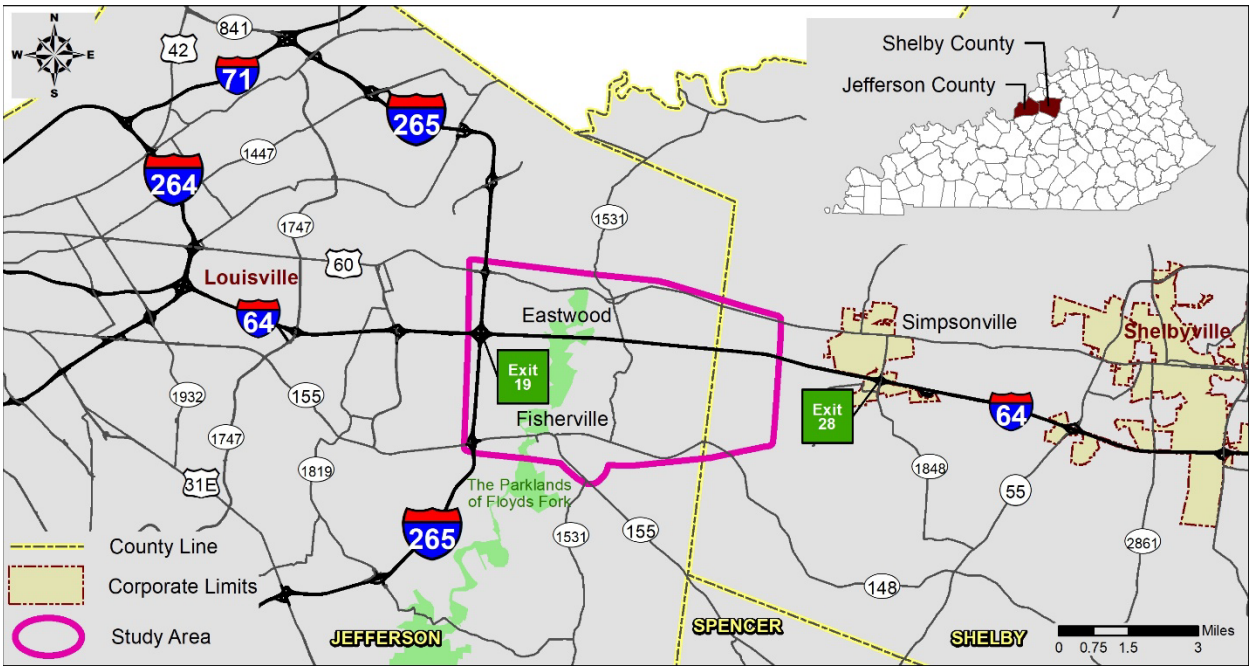


Figure 1: Study Area Boundary

The study area contains about 32 miles of state-maintained highways and 21 miles of local routes. Study area routes with their milepoint (MP) limits are summarized in **Table 1**. The study represents an update of an earlier KYTC planning study, discussed further in **Section 1.2**. Since the type of project considered would require approval by FHWA to introduce new interstate access, the

update was developed as a Planning and Environmental Linkage (PEL), intended to streamline future environmental analyses and coordination efforts.

Table 1: Study Routes

ROUTE	LOCAL NAME	COUNTY	BEGIN MP	END MP
I-64	Interstate 64	Jefferson Shelby	18.693 23.974	23.974 25.300
I-265	Gene Snyder Freeway	Jefferson	22.807	27.062
US 60	Shelbyville Road	Jefferson Shelby	11.700 0.000	17.375 1.300
KY 148	Taylorsville Road Fisherville Road	Jefferson Shelby	0.000 0.000	3.394 0.600
KY 155	Taylorsville Lake Road Taylorsville Road	Jefferson	2.900 4.280	4.280 6.279
KY 1531	Eastwood Fisherville Road	Jefferson	5.500	9.800
KY 1848	Buck Creek Road	Shelby	4.200	5.900
KY 2265	Hatmaker Trail	Jefferson	0.000	0.145
KY 2841	Eastwood Cutoff Road	Jefferson	0.000	0.643
KY 6332	US 60 Frontage Road	Jefferson	0.000	0.040
CR-1002J	S English Station Road	Jefferson	0.000	4.043
CR-1004J	Clark Station Road	Jefferson	0.000	3.463
CR-1009J	Echo Trail	Jefferson	0.000	1.655
CR-1010J	Gilliland Road	Jefferson	0.000	1.107
CS-1005J	Old Routt Road	Jefferson	0.000	1.375
CR-1233	Conner Station Road	Shelby	0.000	3.508

1.1 Two Primary Questions to Answer

This *I-64 Interchange and Connector Study* is intended to resolve two key questions:

- **Is there a need for improved access to I-64 or improved north-south connectivity in the study area?**
- **If so, do the benefits of a new interchange/connector outweigh the associated costs and impacts?**

The technical analyses documented in subsequent chapters were conducted to resolve these questions. Study tasks included:

- Preparing an inventory of existing conditions and environmental features.
- Evaluating the existing transportation system and developing future traffic forecasts.
- Developing new road and interchange concepts with planning-level cost estimates.

- Conducting stakeholder and public involvement activities to gage community perceptions.
- Documenting the study process and recommendations to inform future decision-making.

1.2 2008 KYTC Study

In 2008, KYTC published its *I-64 Interchange and New Connector Alternatives Planning Study*[3] that evaluated the same basic study premise and area. The study explains that:

> The area has experienced significant growth in recent years, rapidly transitioning from rural residential to residential suburban neighborhoods. Continued rapid growth and development are expected in and surrounding the study area.
>
> In light of existing and anticipated growth, local and regional access via the interstate system and local roadway network is gaining importance. At present, I-64 bisects the study area and I-265 is to the west; however, there is no access to I-64 between I-265 and KY 1848, a distance of about 9 miles. This distance creates one of the longer gaps between interchanges on Kentucky's rural interstate system.
>
> The development of the area now accentuates this lack of access. Road users crowd existing highways. Limited access to I-64 has contributed to ever increasing traffic volumes on US 60 and KY 155/KY 148. The existing highways, interchanges, and intersections service a region much larger than the study area and have met or exceeded their original design capacity.

The 2008 study process relied on an extensive community outreach effort to define a host of potential interchange and connector locations, intended to satisfy one or more of six key goals (**Table 2**), with congestion on existing high-volume roadways like US 60 and I-265 overshadowing other concerns. A four-lane divided highway section was assumed, applied to a wide range of locations to understand the effects on traffic, costs, and impacts.

Table 2: 2008 Study Goals

Mitigate Congestion	Connect I-64	Serve Future Growth	Improve Safety	Minimize Impacts	Land Use Coordination

[3] Online at https://transportation.ky.gov/Planning/Pages/Planning-Studies-and-Reports.aspx

Analyses showed that a western corridor would attract more traffic than options further east—up to 28,200 vehicles per day (vpd) estimated by 2030. Eastern corridors (gray in **Figure 2**) were not recommended as they would provide fewer traffic benefits and due to grade challenges to bridge the CSX railroad tracks near US 60. Yellow corridors in **Figure 2** were recommended but pre-date the Parklands. At the time, costs were estimated at $50 to $60 million in 2007 dollars, including design, right-of-way, utility, and construction phases.

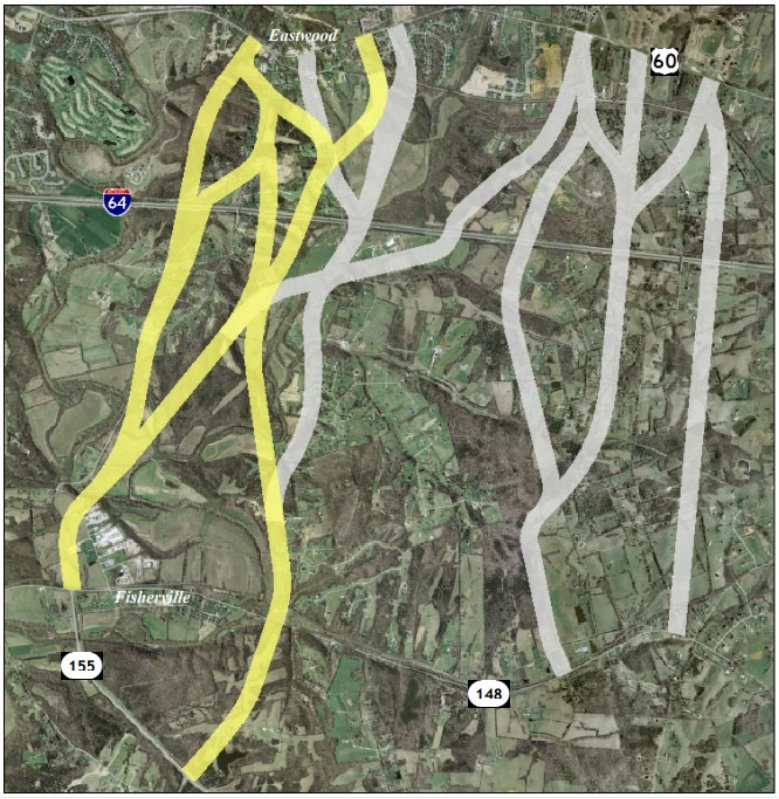


Figure 2: 2008 Build Concepts Considered

The study culminated in the recommendation that "a new interchange with I-64 in eastern Jefferson County and a north-south connector road be advanced into the preliminary engineering and environmental analysis stage, during which feasible Build Alternatives and the No-Build Alternative would be explored in greater detail." Continued coordination with residents, developers, local officials, and the railroads was recommended. Further, impacts to parks and terrain constraints are noted as special considerations should a build concept advance.

2.0 OTHER STUDY AREA PLANS AND PROJECTS

The study area exists within a rich planning environment, overseen by multiple jurisdictions and with multiple transportation projects advancing through the project development process that

could influence long-term mobility for the study area. Before assessing specific needs, it is important to understand other factors in the vicinity that will influence traffic flows and inform the area's vision.

2.1 Nearby Transportation Projects

Three main sources describe transportation projects in the vicinity:

- Every two years, the Kentucky General Assembly approves a Six-Year Highway Plan, which defines the Commonwealth's biennial transportation budget. The current plan is the *FY 2024—FY 2030 Enacted Highway Plan.*[4]
- Other potential future projects near the study area have been compiled from the Continuous Highway Analysis Framework (CHAF) database, which is the starting point for the biennial SHIFT process[5] that informs the two-year budget cycle identified in the Highway Plan. CHAF projects are not currently funded but compete statewide for limited funding.
- KIPDA's Metropolitan Transportation Plan (MTP)[6] is a comprehensive, fiscally reasonable policy document projecting the transportation needs and outlining the vision and priorities for the region for the next 20+ years.

Figure 4 presents a visual summary of Highway Plan, CHAF, and MTP projects near the study area, with additional details in subsequent tables.

Figure 3: I-Move Construction

Most visibly, the I-Move project is under construction as this 5-80000 planning study is underway. I-Move is a $180 million investment to widen sections of I-71 and I-265, improve safety and traffic flow at the I-71/I-265 interchange, and reconstruct the I-64/I-265 interchange at the western edge of the 5-80000 study area.

[4] Online at https://transportation.ky.gov/Program-Management/Pages/default.aspx
[5] SHIFT, or the Strategic Highway Investment Formula for Tomorrow, is a data-driven project scoring process to compare and prioritize statewide capital improvement projects to make better use of limited transportation funds in the Commonwealth's biennial budget.
[6] Online at https://www.kipda.org/transportation/core-products/metropolitan-transportation-plan/

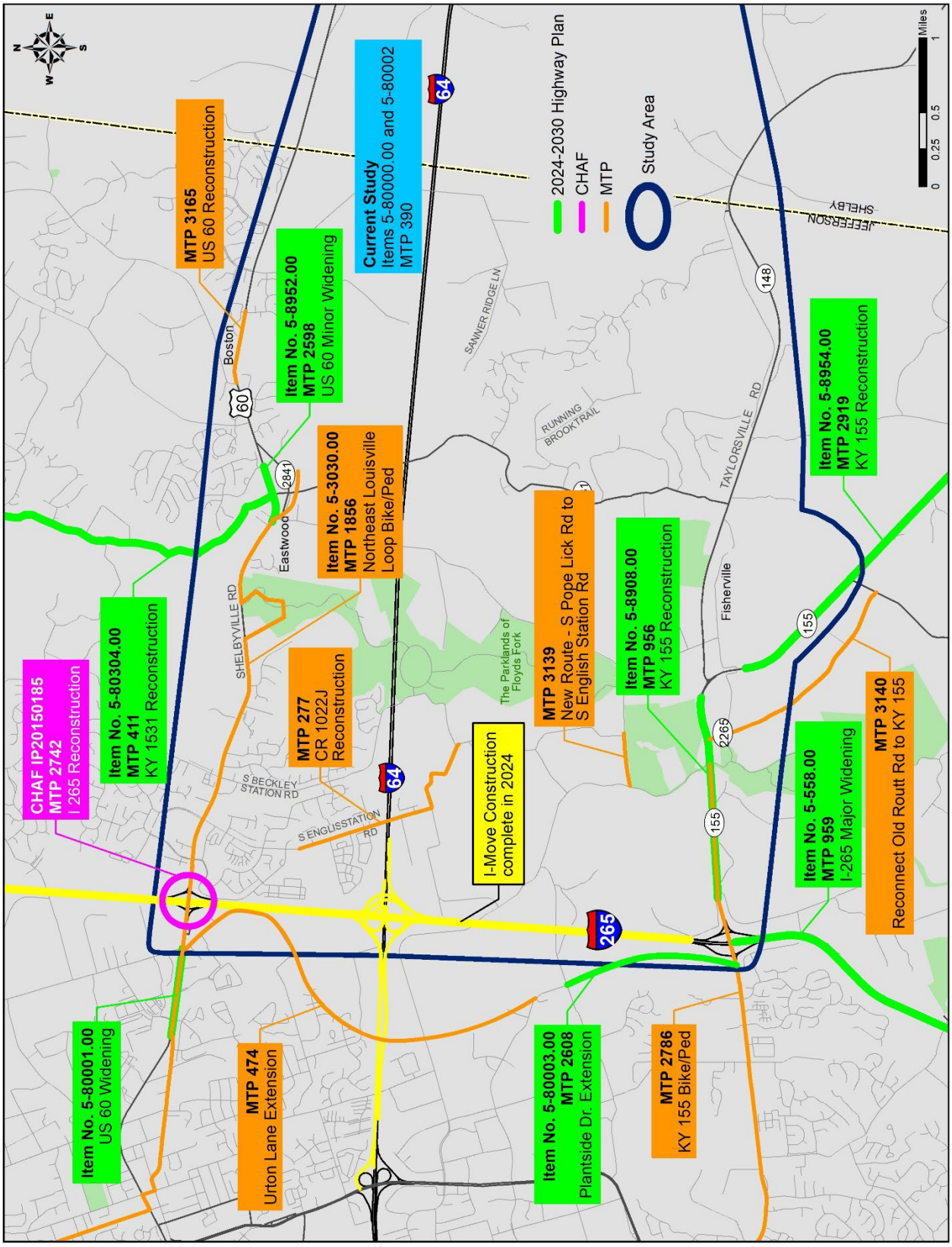


Figure 4: Nearby Transportation Projects

Table 3: Nearby Six-Year Plan Projects

ID	Description	Phase	Funding	Year
Item 5-558 MTP #959	Improve safety and reduce congestion on I-265 from US 31E (Bardstown Rd) to KY 155 (Taylorsville Road).	D R U	$7.5M $2.5M $1.5M	26-27 28 28
Item 5-8908	Widen KY 155 (Taylorsville Road) to three lanes* from I-265 to KY 148.	R U C	$2.5M $0.5M $21.2M	25 25 26-27
Item 5-8952 MTP #2598	Widen US 60 (Shelbyville Road) including realignment of Gilliland Road and Eastwood Cutoff to Rockcrest Way.	C	$1.0M	25
Item 5-8954 MTP #2919	Improve safety and traffic operations on KY 155 from MP 2.0 in Spencer County to Floyds Fork.	D R U C	$2.0M $3.2M $8.5M $21.5M	25 27 28 28
Item 5-80000 MTP #390	**CURRENT STUDY** Eastwood Fishersville Connector to I-64	D R U C	$5.0M $8.0M $2.0M $45.0M	25 29 29 30
Item 5-80001	Widen US 60 (Shelbyville Road) to six lanes from Old Shelbyville Rd to North English Station Road.	R U C	$0.5M $0.6M $4.3M	26 26 28
Item 5-80002	**CURRENT STUDY**	P	$0.6M	26
Item 5-80003 MTP #2608	Extend Plantside Drive from Rehl Road to KY 155 Taylorsville Road.	R U	$0.2M $0.8M	25 25
Item 5-80304 MTP #411	Relocate & reconstruct KY 1531 (Johnson Road) with improved geometry from US 60 (Shelbyville Road) to Aiken Road. Project will consider a 2-lane road (no additional lanes) and a 4- to 6-foot shoulder.	D R U C	$0.9M $0.5M $0.2M $10.2M	25 27 27 29

Current designs include a five-lane typical section

Table 4: Nearby CHAF Projects

ID	Description	Cost	SHIFT 2024
IP20150185	Reconstruct I-265/US 60 interchange as a single point urban interchange and construct needed improvements to connect with the I-265/I-64 interchange.	$64.4M	Not sponsored

Table 5: Nearby MTP Projects

ID	Description	Cost	Sponsor
MTP #277	Reconstruct English Station Road as a 2-lane (no additional lanes) road from Wibble Hill Road to Christian Academy (700 South English Station Road). Construct pedestrian accommodations on both sides of English Station Road for the length of the project.	$5.0M	Louisville Metro
MTP #474	Extend and widen Urton Lane from 2 to 3 lanes (3rd lane will be a center turn lane) from north of I-64 to Seatonville Road.	$100M	Louisville Metro
MTP #1856 Item 5-3030	Design and construction of a shared-use path connecting Miles Park on Shelbyville Road to River Road.	$40M	Louisville Metro

ID	Description	Cost	Sponsor
MTP #2786	Construct a 10-foot-wide multi-use bicycle/pedestrian trail along Taylorsville Road from Chenoweth Run Road to South Pope Lick Road/Parklands.	$5.5M	Jeffersontown
MTP #3139	New east-west route with complete street facilities from South English Station Road to South Pope Lick Road.	$5.0M	Louisville Metro
MTP #3140	Rebuild of Old Routt Road from Taylorsville Road south to Routt Road, including new bridge over Floyd's Fork	$9.4M	Louisville Metro
MTP #3165	Improve safety and reduce congestion on US 60 from Long Run Road to Locust Park Place. Project design will evaluate 3-lane widening with a continuous two-way center turn lane and other lower impact alternatives. Design will also consider accommodations for bicyclists, pedestrians, and future transit users.	$4.8M	KYTC

2.2 Nearby Transportation Studies

In addition to the three sources discussed above, several project-specific transportation planning studies have been completed in recent years that help inform a future vision for the area. While the build concepts recommended by these plans are not funded (unless noted in **Table 3**), the project team reviewed each to help understand the study area context.

In 2020, KYTC completed an *I-65 to I-71 Regional Corridor Study* (Item No. 5-564)[7] to examine the need for and the feasibility of a highway connecting I-65 in Bullitt County to I-71 in Oldham County. The study considered 15 corridors—some overlapping the 5-80000 study area—before eliminating routes through eastern Jefferson County. Cost estimates range from $700 million to $1.2 billion.

The 2019 *Middletown to Simpsonville Needs Analysis Study*[7] examined transportation needs related to safety and congestion on key routes in portions of Jefferson, Oldham, and Shelby counties to assist KYTC District 5 personnel and other elected public officials in the decision-making process as the 2020 SHIFT cycle began. This 5-80000 interchange/connector concept was one of dozens of projects studied; results from the study were intended solely to aid in SHIFT sponsorship decisions.

KIPDA completed an *I-265 Programming Study*[8] in 2015, considering short- and long-term solutions for the Gene Snyder Freeway (I-265) between I-65 and the East End Bridge. Five sections were prioritized, with the five-mile stretch between KY 155 (Taylorsville Road) and KY 3084 (Old Henry Road) identified as the top priority. Three of the five sections are addressed with the I-Move project currently under construction.

[7] Online at https://transportation.ky.gov/Planning/Pages/Planning-Studies-and-Reports.aspx
[8] Online at https://kipdatransportation.org/archived-studies/

The 2009 *Rehl Road/I-265 Interchange Feasibility Study*[7] evaluated an additional I-265 interchange between I-64 and KY 155. The report concludes that "a new interchange with collector/distributor lanes would be feasible." To date, no additional project development activities have been undertaken; the Rehl Road interchange is not considered a committed project for inclusion in future traffic analyses.

KYTC's 2007 *Taylorsville Road Scoping Study*[7] evaluated short- and long-term solutions along KY 155 from Jeffersontown to KY 148 (Taylorsville Lake Road). Intersection improvements at KY 155/KY 148 and KY 155/South Pope Lick Road were recommended as high priorities and have since been constructed, along with long-term widening to a divided four-lane section with a multi-use path and sidewalk which is currently in the right-of-way and utility phases.

2.3 Future Land Use Plans

Land use patterns within the study area also influence regional traffic demands. While much of the study area remains low-density single family residential lots, notable changes have occurred since the 2008 KYTC planning study (**Section 1.2**). Census Bureau estimates show a 13% increase in households from 2020 to 2022 for block groups overlapping the study area. Existing land uses are shown in **Figure 5**.

- Creation of the Parklands at Floyds Fork, a visitor-supported public park system totaling nearly 4,000 acres of land across four parks along Floyds Fork creek in eastern Jefferson County.
- Construction of the new Echo Trail Middle School, which opened with its inaugural sixth grade class for the Fall 2023 school year. The school is open to sixth and seventh grades for the 2024-25 school year, and will include eighth grade for the 2025-26 school year.
- Opening of the Outlet Shoppes of the Bluegrass, a nearly 370,000 square foot outlet mall—Kentucky's largest mall—located in Simpsonville at the Buck Creek Road interchange with I-64 east of the study area limits. It attracts more than 3.5 million visitors per year.
- Also east of the study area, the 140-acre "Simpsonville Commons" business park (**Figure 6**) is under construction, which will include retail, office, research/development, logistics, and manufacturing uses.
- Numerous large subdivisions have been constructed and more are proposed throughout the area, focused within Jefferson County. Proposed and approved development applications are concentrated between Echo Trail and KY 1531, south of I-64.

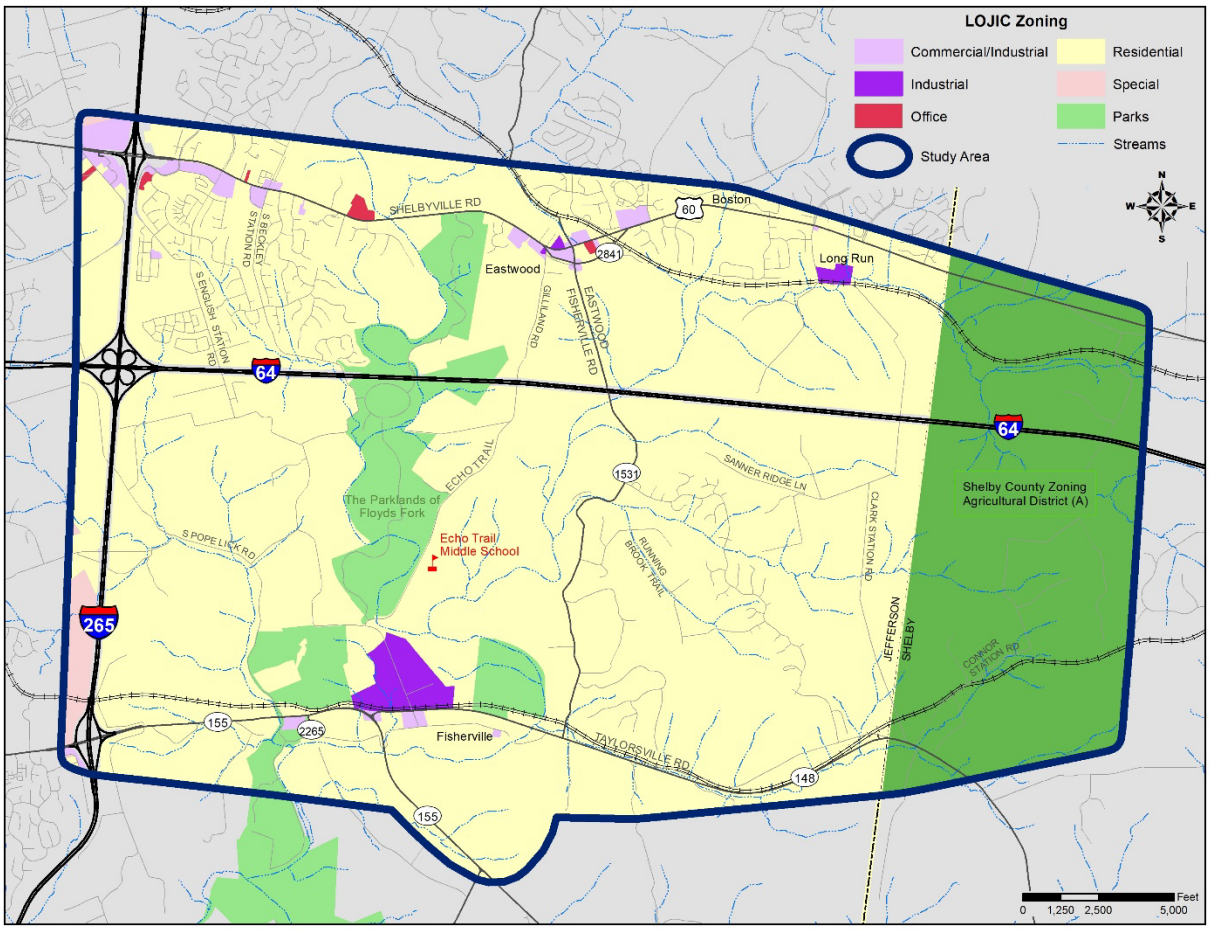


Figure 5: Existing Land Use/Zoning

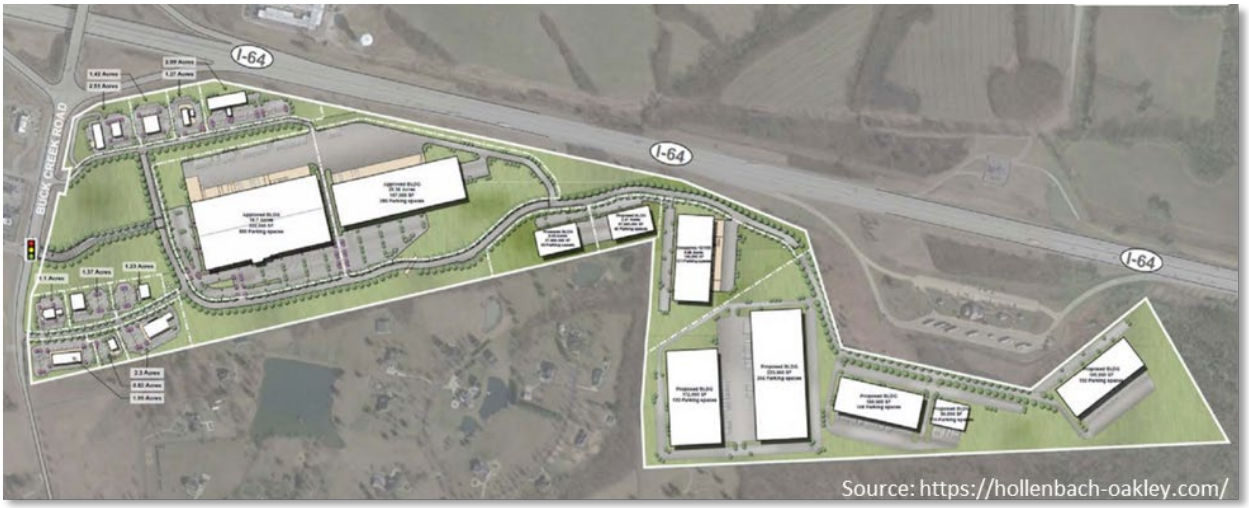


Figure 6: Simpsonville Commons Site Plan

As with the project-specific transportation planning studies discussed above, other area plans have been completed in recent years that help inform a future vision for the study area.

Louisville Metro's 2019 *Plan 2040* comprehensive plan[9] builds on "recent initiatives like Vision Louisville, Sustain Louisville, and Move Louisville to make Louisville a more connected, competitive, creative and compassionate place to live, work, and create." By 2040, the largest percentage of growth is expected between I-264 and I-265. All other areas in eastern Jefferson County outside I-265 are also anticipated to experience sizable growth.

The 2019 *South Floyds Fork Vision* study[10] describes a vision to guide growth and protect natural assets, touching on land use, community form, transportation, connectivity, sustainability, and infrastructure. The study area stretches between I-265 and the county line, covering all areas between US 31E (Bardstown Road) and US 60 (Shelbyville Road).

The plan establishes a future vision for land use (**Figure 7**) with the denser development areas in the north, overlapping the 5-80000 study area. It places a strong emphasis on low-impact development patterns, designed to minimize disturbances and preserve open space.

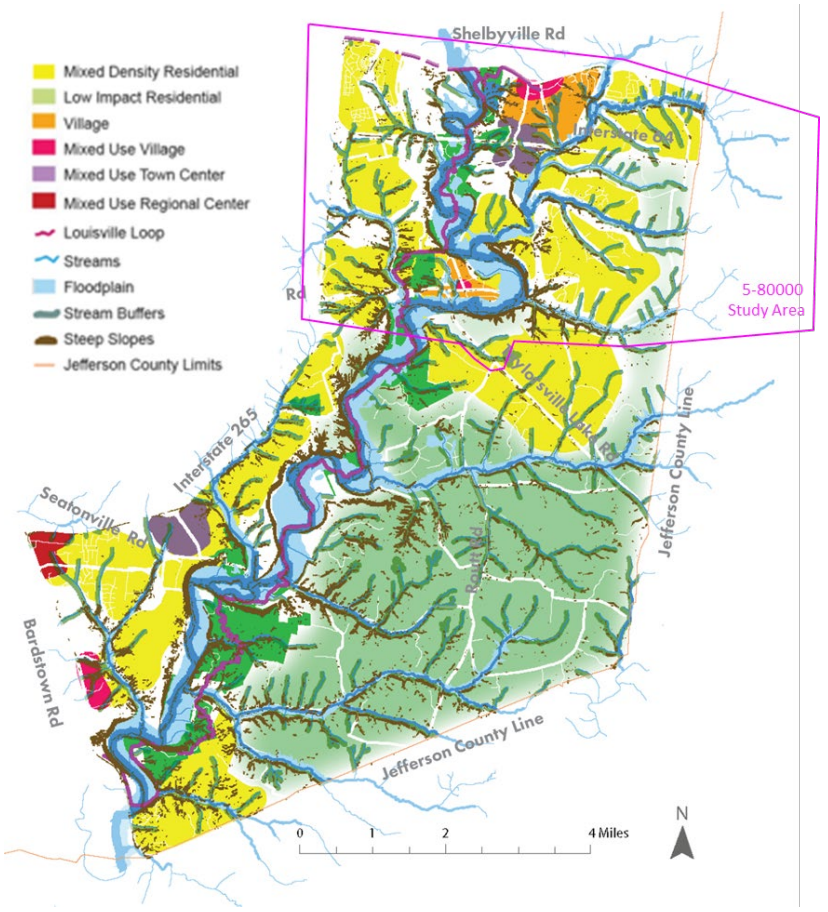


Figure 7: South Floyds Fork Vision for Future Land Use

The 2019 plan also establishes a Master Road Plan and acknowledges that "the transportation system in Floyds Fork will need significant upgrades to better serve the growing population of the area, in addition to the increasing traffic from neighboring counties." **Figure 8** summarizes the vision for the area transportation system—with an emphasis on complete streets, greenways/trails, streetscaping, and boulevard-like parkways to fit the area's context. This

[9] Online at https://louisvilleky.gov/government/office-planning/comprehensive-plan
[10] Online at https://www.documentcloud.org/documents/23837578-south_floyds_fork_plan-1

document was adopted as an approved Neighborhood Plan in 2020.[11] The mobility section of this study recognizes a potential new I-64 interchange with new connections north to US 60 and south to KY 148—emphasizing "now is the time to aggressively pursue the next step—developing a throughfare plan for preserving rights-of-way, settling connectivity ratios and policies, and providing multi-modal access."

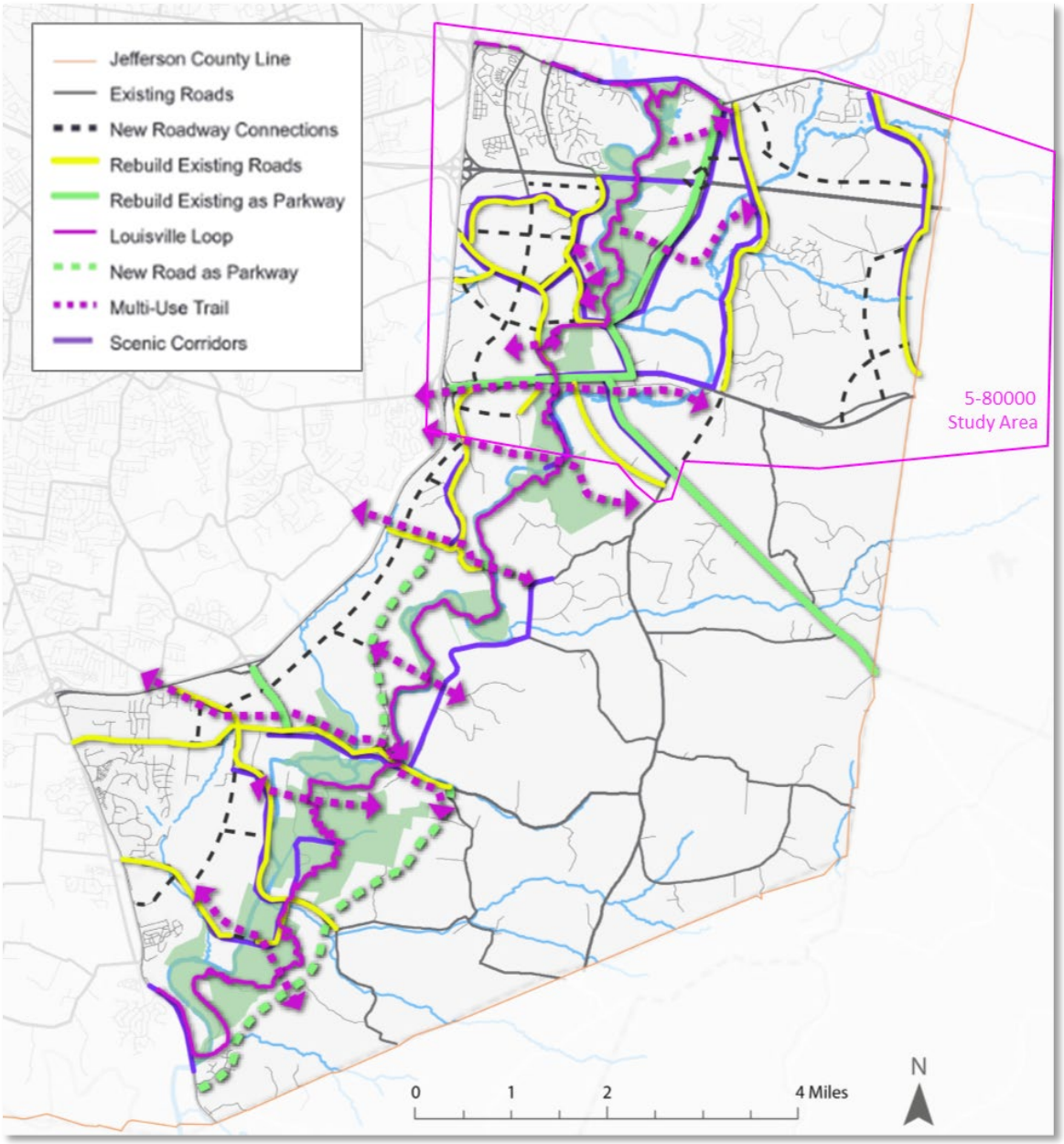


Figure 8: South Floyds Fork Master Road Plan

[11] Online at https://louisvilleky.gov/advanced-planning-and-sustainability/document/south-floyds-fork-vision

A draft 2023 *Upper Floyds Fork Sewer Facilities Plan* recommended expanding Floyds Fork Water Quality Treatment Center from 6.5 to 10 million gallons per day with a parallel treatment train. A series of recommended projects over a ten-year implementation window are recommended to expand the capacity.

The 2005 *Eastwood Neighborhood Plan* defines a vision to manage growth/redevelopment at Eastwood with an emphasis on preserving the area's rural character. It includes a discussion on a potential new I-64 interchange in the vicinity, noting: "the location of such an interchange will severely alter traffic patterns in the area, not only along the Shelbyville Road corridor but also along whichever collector road a future interchange connects to. Locating the interchange east of Eastwood would have two beneficial results. It would help reduce the amount of traffic on Shelbyville Road traveling westbound through Eastwood to access the interstate system, and it would locate an access nearer to where future growth is anticipated to occur. Locating the interchange at or west of Eastwood will require greater lane capacity that would severely alter the rural character of Gilliland Road or Eastwood-Fisherville Road." However, the plan acknowledges no traffic analyses were conducted to support these conclusions.

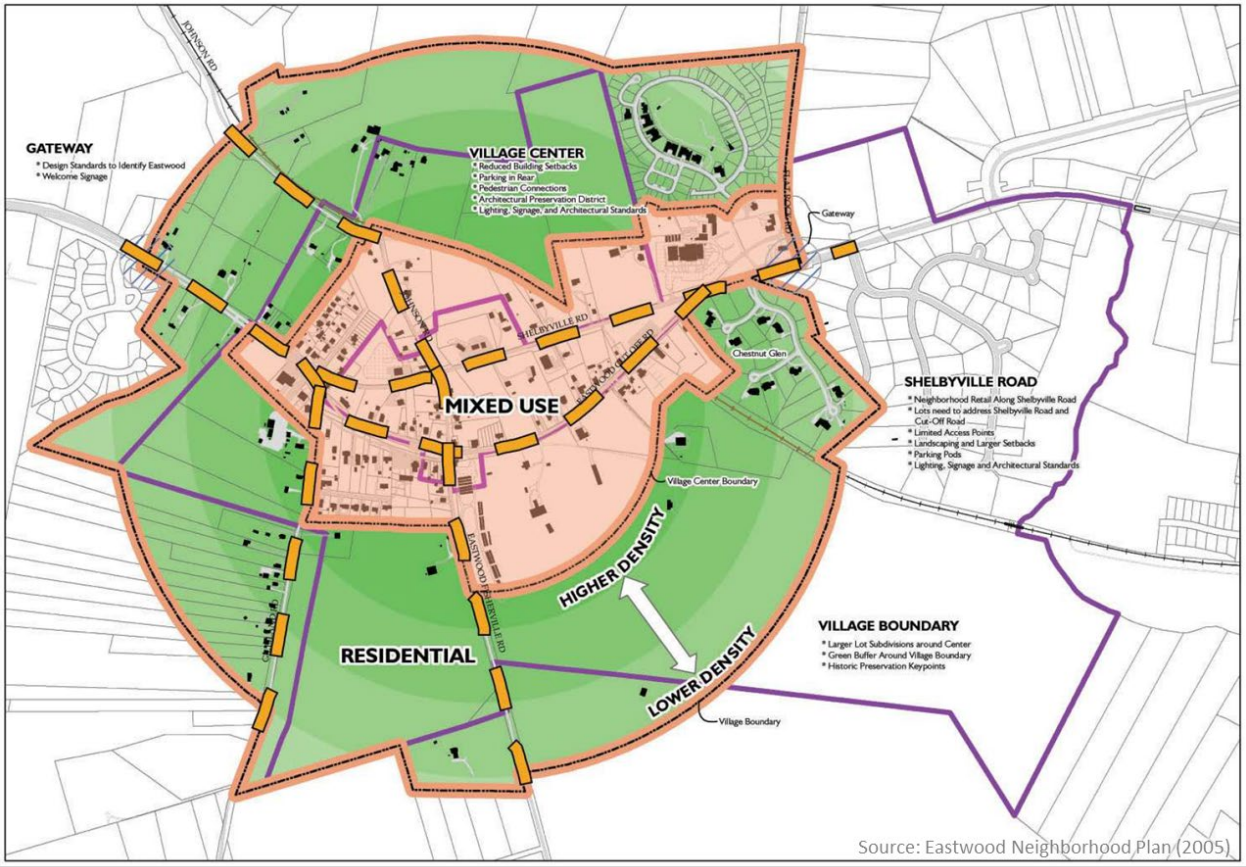


Figure 9: Proposed Form Districts

3.0 EXISTING CONDITIONS

Existing transportation network conditions assembled for this study include roadway geometrics, roadway systems, multimodal facilities, crash history, and traffic volumes. Data were collected from KYTC's Highway Information System (HIS) database, KYTC's Transportation Enterprise Database (TED), traffic counts, and field reviews.

3.1 Functional Class and Roadway Systems

Functional Class. Functional Classification is the process of grouping streets and highways according to the character of travel service and access to adjacent land use they provide. This classification system recognizes that travel involves movement through a hierarchical system of facilities that progress from lower classifications handling short, locally oriented trips to higher classifications serving longer distance travel at higher mobility levels. Traditionally, a roadway's classification is further designated as urban or rural based upon whether it is within FHWA's Adjusted Urban Area boundaries. More recently, design policies acknowledge a broader spectrum of land use contexts: rural, rural town, suburban, urban, and urban core. The major functional classes with brief definitions are listed below.

Freeways & Interstates	Provide high speed, high mobility links for long distance trips.
Principal Arterials	Serve major centers for 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 Principal Arterial counterparts, and offer connectivity to the Principal Arterial system.
Collectors	Gather traffic from local roads and funnel to the arterial network. Classified as either a major or minor collector; generally serve intra-county travel and shorter trips.
Local Roads	Not intended for long distance travel, except at the origin or destination end of the trip, due to their direct access to abutting land. Often designed to discourage through traffic.

Additionally, functional classification is used as a tool for transportation agencies and designers. A roadway's functional class suggests expectations about roadway design: specifically, vehicle speed, capacity, and the roadway's relationship to land use development. Federal legislation uses functional classification in determining eligibility under the Federal-aid program. Transportation agencies typically describe roadway system performance, benchmarks, and goals by functional classification.

Figure 10 shows functional classification of study area routes. The highest mobility routes (i.e., arterials) tend to run east-west at the boundaries of the study area with lower mobility collectors and local streets providing north-south connections.

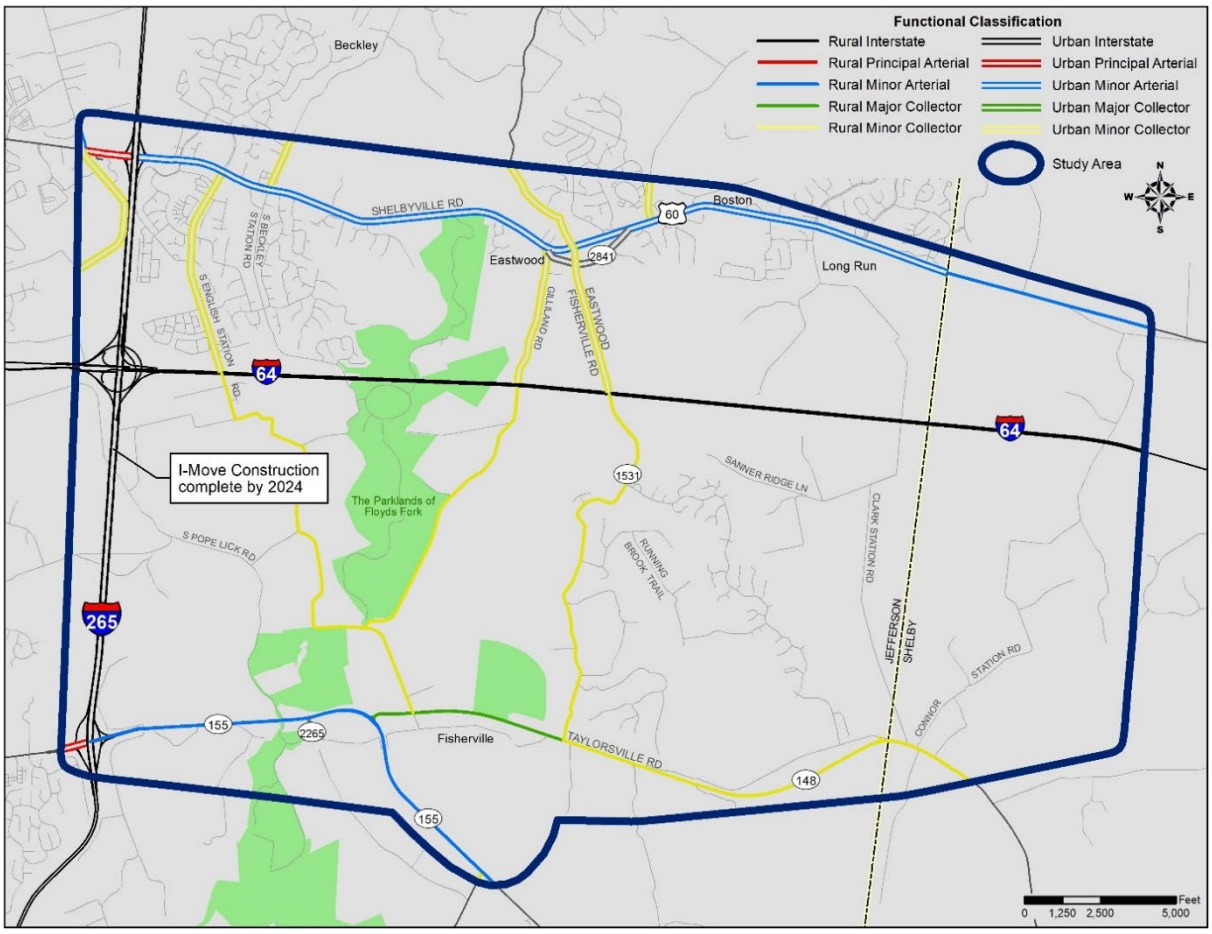


Figure 10: Functional Classification

Highway Systems. The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. Study area NHS roadways include the interstate system.

The Kentucky State Highway System classifies state-maintained roadways by the type of service and function they provide.

- Major state-owned routes in the study area like I-64, US 60, and KY 155 are on the State Primary System. This includes Interstates, parkways and other long distance, high volume intrastate routes of statewide significance that generally link major urban areas within the state.
- Smaller state-owned routes like KY 1531 and KY 148 are on the Rural Secondary System. These are routes of sub-regional significance which might include urban arterial streets

and other collectors, often with access to land use activity such as farm-to-market routes as their main function.

Beyond the state system, Metro designated several study area routes as scenic corridors and parkways. These include I-265, US 60, KY 155, KY 148, plus portions of KY 1531, Clark Station Road, Poplar Lane, South Pope Lick, and Rehl Road.

Truck Routes. In compliance with the Surface Transportation Assistance Act of 1982 (STAA), Kentucky established a network of highways on which commercial vehicles with increased dimensions may operate. These "STAA" vehicles include semi-trucks with 53-foot-long trailers and single-unit trucks with a total length of 45 feet. STAA routing in Kentucky corresponds to the National Truck Network (NTN), plus state-maintained highways within five miles of the NTN, 15 miles from interstate or parkway interchanges, and one mile from the interchange on other public highways.

Designated truck routes in the study area are shown in **Figure 11**. I-64, I-265, and KY 155 are federally designated truck routes. I-64, I-265, KY 155, and US 60 are also listed on the Kentucky Highway Freight Network.

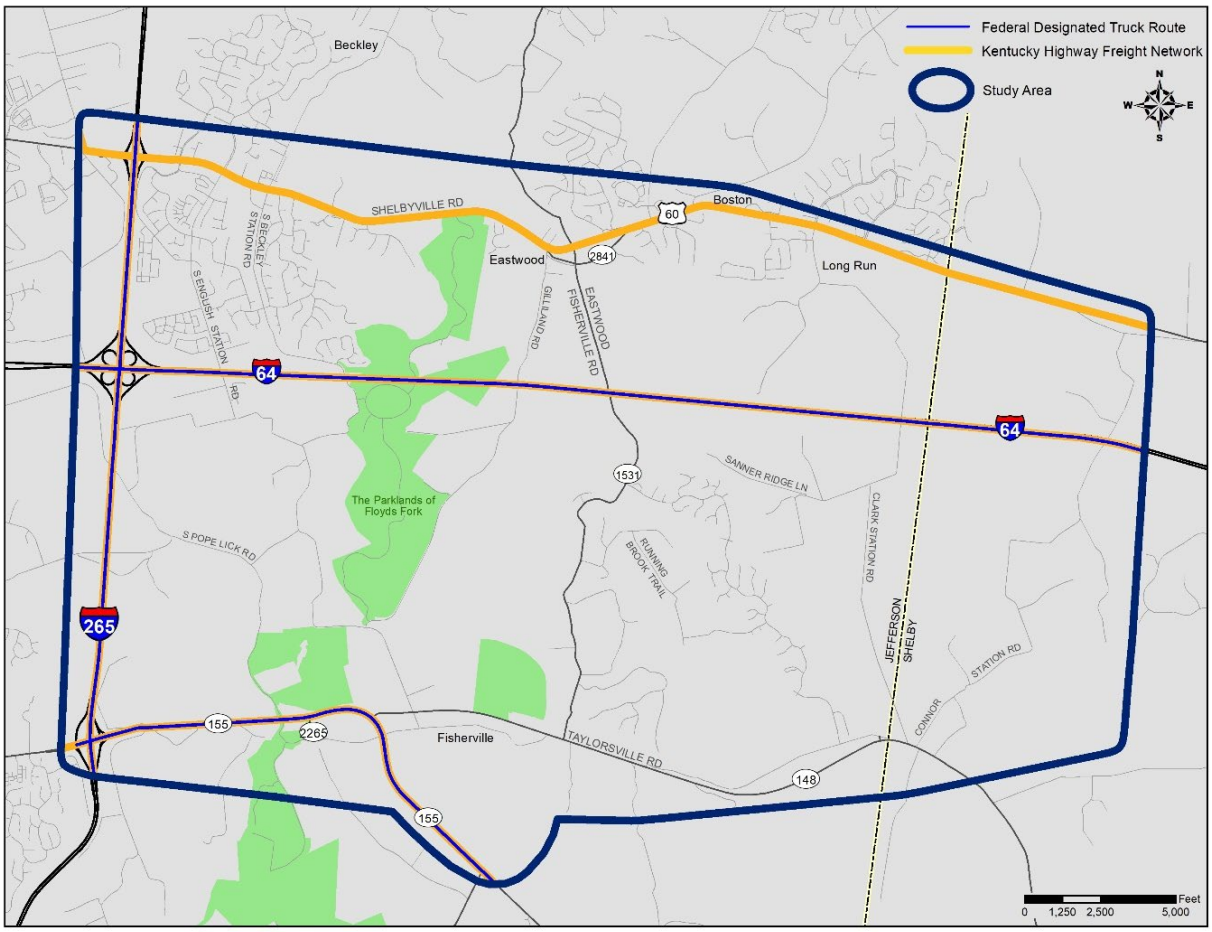


Figure 11: Truck Routes

3.2 Roadway Geometric Characteristics

KYTC's HIS database was queried to obtain geometric characteristics for study routes.

Number of Lanes and Lane Widths. **Figure 12** illustrates the number of lanes and lane widths for study routes. Many routes have between two and four lanes, with interstates carrying six or more. Lane widths vary by route but generally the highest mobility routes (i.e., wider lanes) tend to run east-west along edges of the study area with narrower collectors and local streets providing north-south connections.

KYTC's current Highway Design Manual (HDM)[12] recommends different lane widths based on functional classification, design speed, and traffic volume. For example, 9-foot lanes are common practice for low volume rural local roads whereas collectors and arterials begin at 10-foot lanes.

[12] Online at https://transportation.ky.gov/Highway-Design/Pages/default.aspx

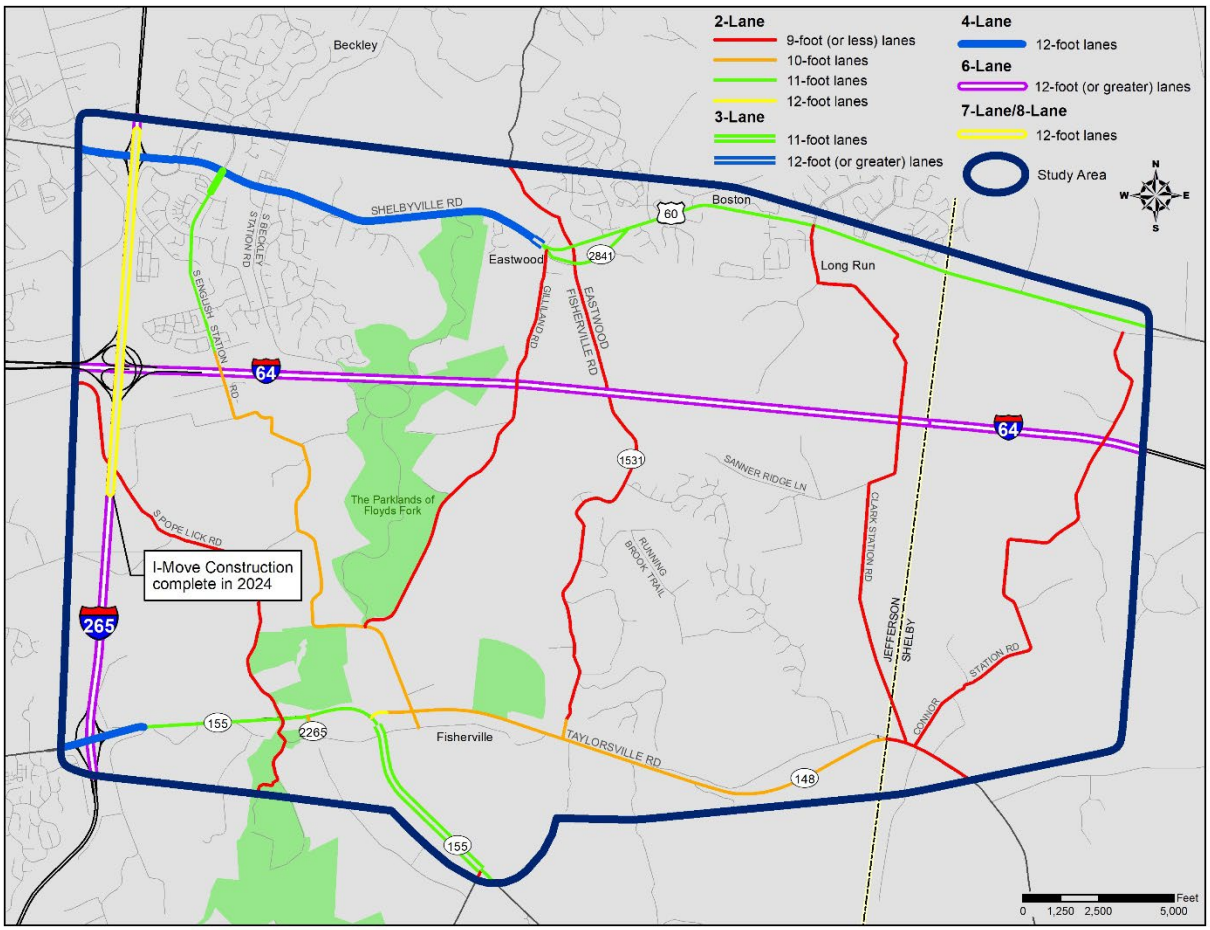


Figure 12: Number of Lanes and Lane Widths

Shoulder Types and Widths. Roadway shoulder widths are shown on **Figure 13**. Most rural study routes have shoulders roughly one foot wide or less, including curb and gutter sections.

The HDM recommends different shoulder widths based on functional classification and traffic volume. For example, 2-foot usable shoulders are common practice for low volume rural local roads whereas rural collectors and arterials carrying 2,000+ vehicles per day (vpd) begin at 6- and 8-foot shoulders respectively.

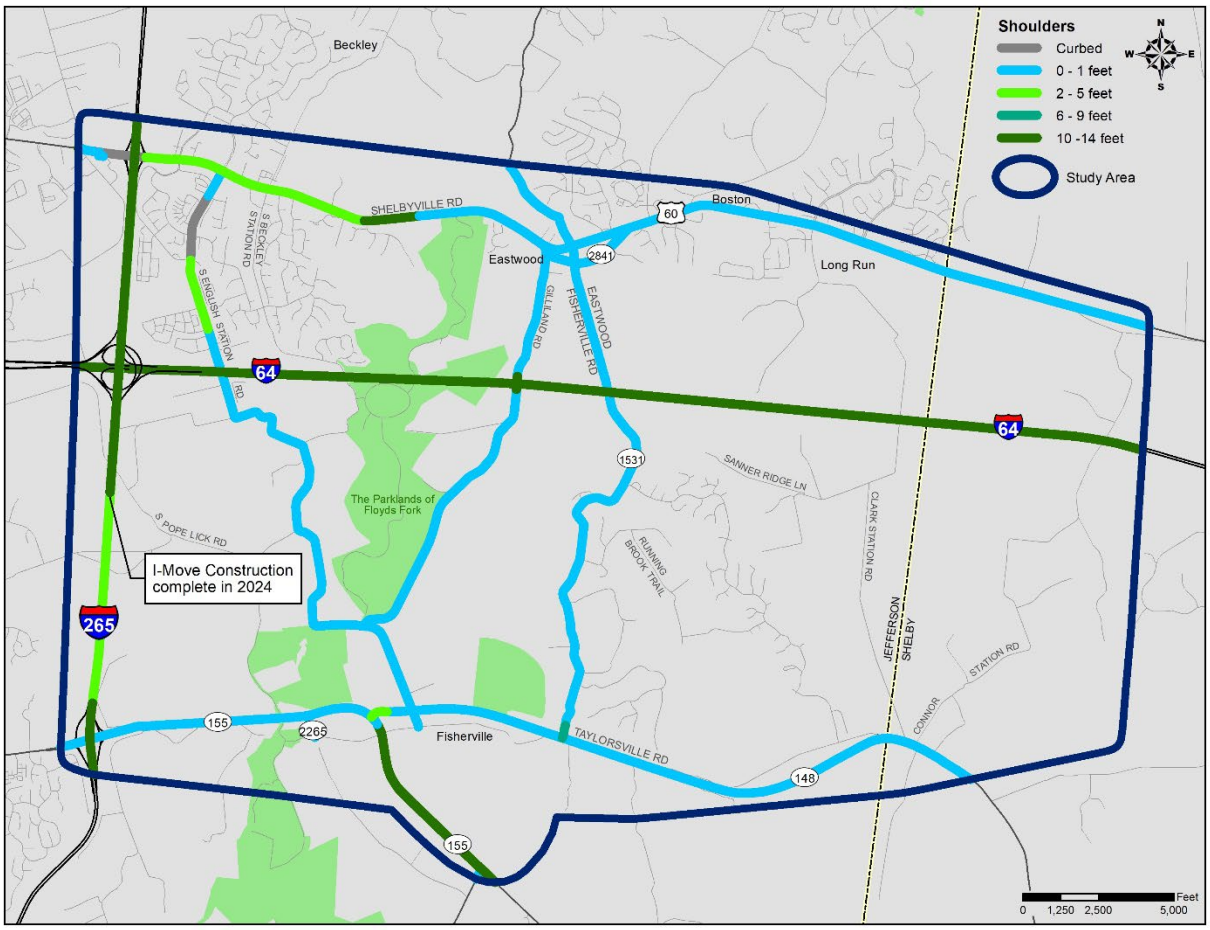


Figure 13: Shoulder Widths

Vertical and Horizontal Curves. KYTC HIS vertical grade and horizontal curve data were collected and compared to HDM recommendations for maximum vertical grades and minimum horizontal curves.

HIS assigns grade levels for vertical slopes based on steepness: rated from A (flattest) to F (steepest, 8.5% or greater). Varying by functional class, terrain types, and speed limits, the HDM recommends maximum vertical grades ranging from 6% to 12% for local routes in rolling terrain, 6% to 10% for collectors, and 4% to 8% for arterials.

HIS categorizes horizontal curves based on degree of curvature: ranked from A (most sweeping) to F (sharpest, 28 degrees or greater). The HDM bases recommended minimum radius based on design speed, superelevation, and traffic volume.

Figure 14 shows the steepest grades and sharpest curves within the study area.

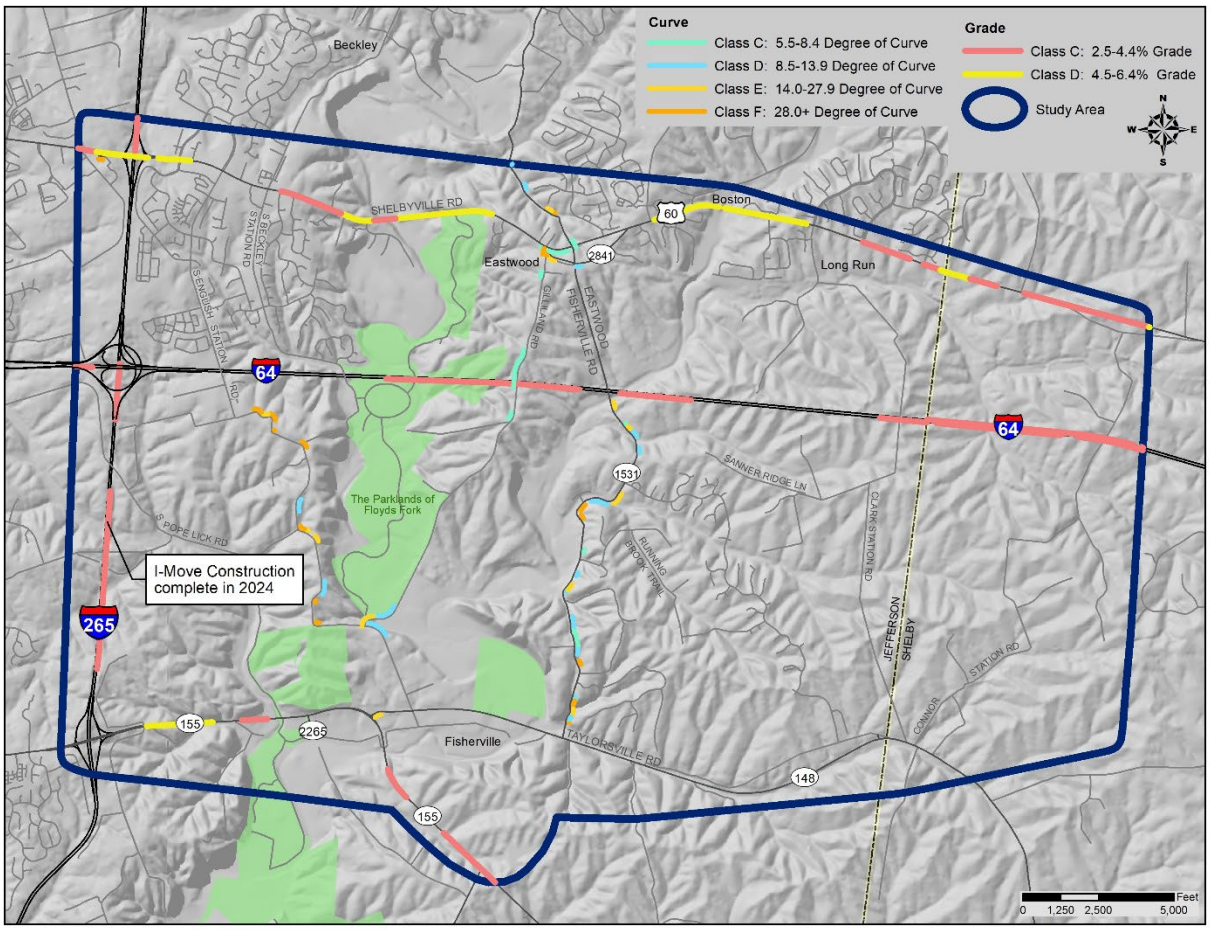


Figure 14: Horizontal and Vertical Alignment Elements

- The sharpest horizontal curves are shown as orange Class F lines in **Figure 14**. HIS notes 15 Class F horizontal curves within the study area, six of which are located along KY 1531 (Eastwood-Fisherville Road), seven on South English Station Road (CR-1002J), and one on KY 2841 (Eastwood Cutoff Road).

- There are ten Class E horizontal curves, five of which are located along KY 1531, three on South English Station Road, one at the KY 155/KY 148 intersection, and one along KY 2841.

- Class C and D grades lie along US 60 and KY 155; vertical data is not defined for lower mobility connections. The interstate system also shows grade class C segments.

- While alignment information limited beyond the state-maintained system, field reconnaissance identifies numerous steep hills and sharp curves along local north/south connectors such as KY 1531, Gilliland Road (CR-1010J), Clark Station Road (CR-1004J), and Conner Station Road (CR-1233).

Speed Limits. Speed limits influence the character and function of roadway segments. As shown in **Figure 15**, state-maintained study routes have speed limits ranging from 35 to 70 miles per hour (mph). Local routes show speed limits ranging from 25 to 55 mph. This illustrates the same trend as the functional classification map: the highest mobility routes tend to run east-west bordering the study area with lower mobility collectors and local streets providing north-south connections.

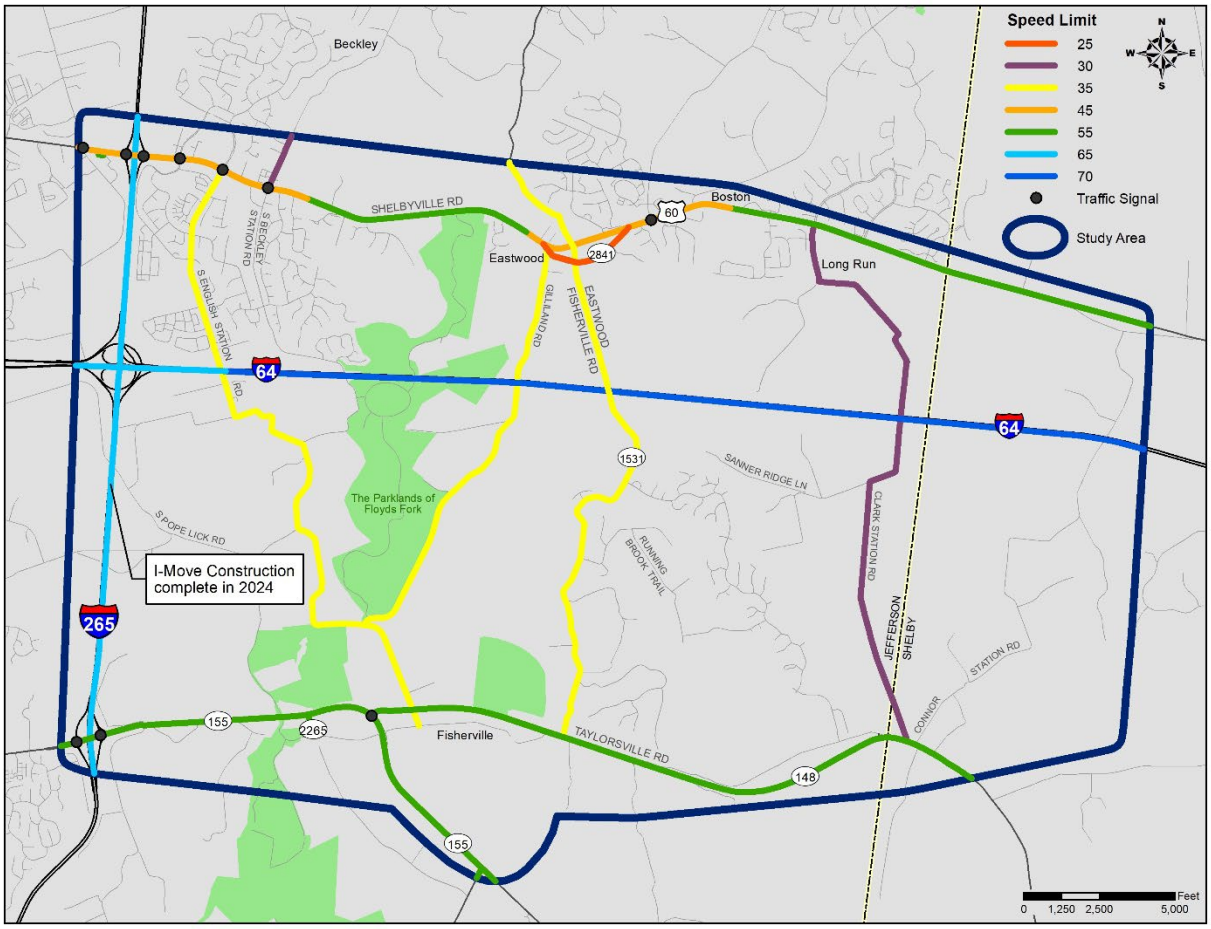


Figure 15: Study Route Speed Limits

Beyond posted speed limits, analysts also recorded real-time travel speed data during both the AM and PM peak hours, with results shown in **Figure 16** and **Figure 17** respectively. Data shows slowdowns due to peak period congestion—particularly along US 60 near I-265 and through Eastwood—as well as lower travel speeds associated with the steep and curvy north-south rural routes.

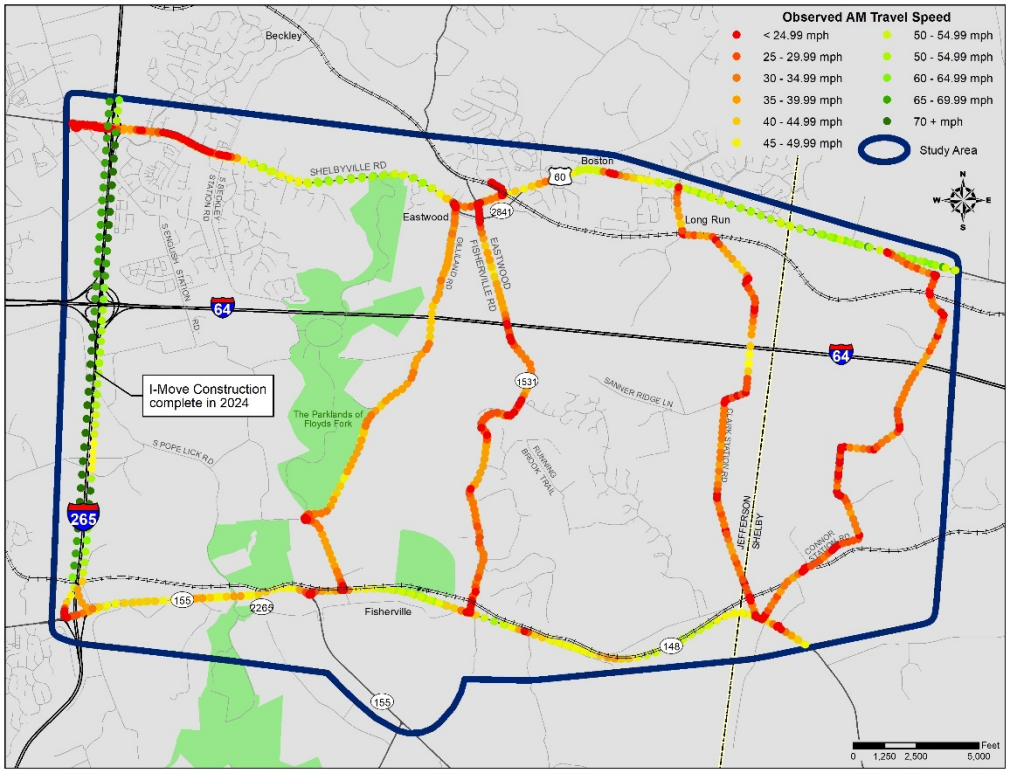


Figure 16: AM Peak Travel Times

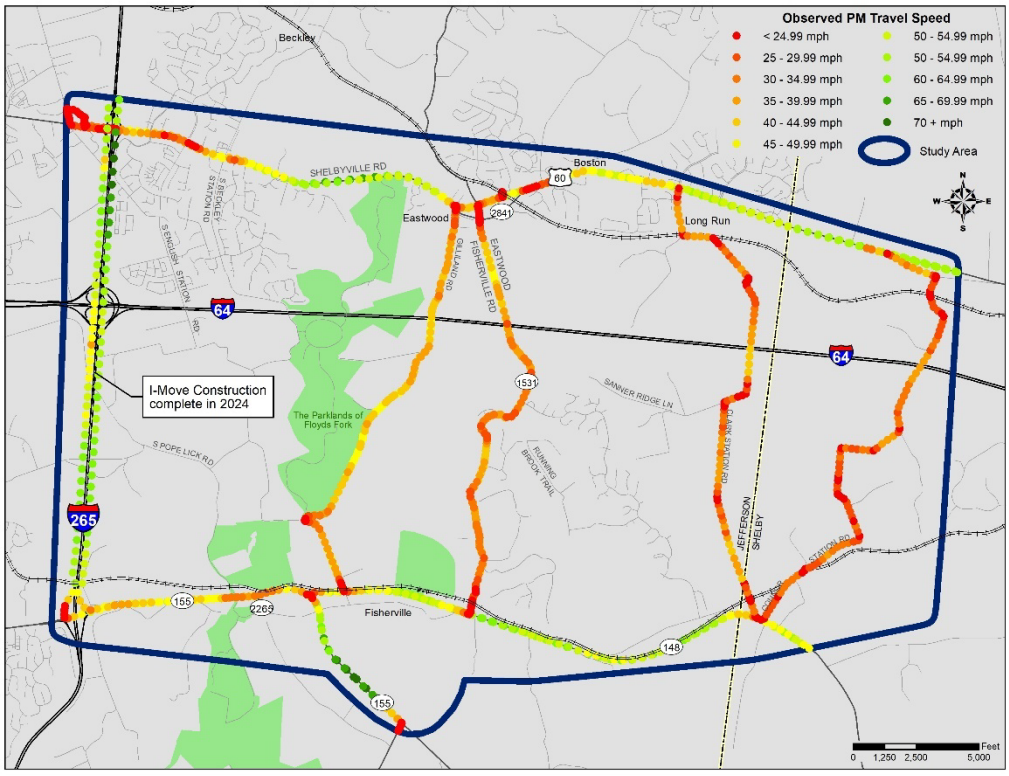


Figure 17: PM Peak Travel Times

3.3 Bridges

Figure 18 shows 37 bridges identified within the study area. Of these bridges, National Bridge Inventory (NBI) inspections listed four in poor condition, 27 in fair condition, and six in good condition.

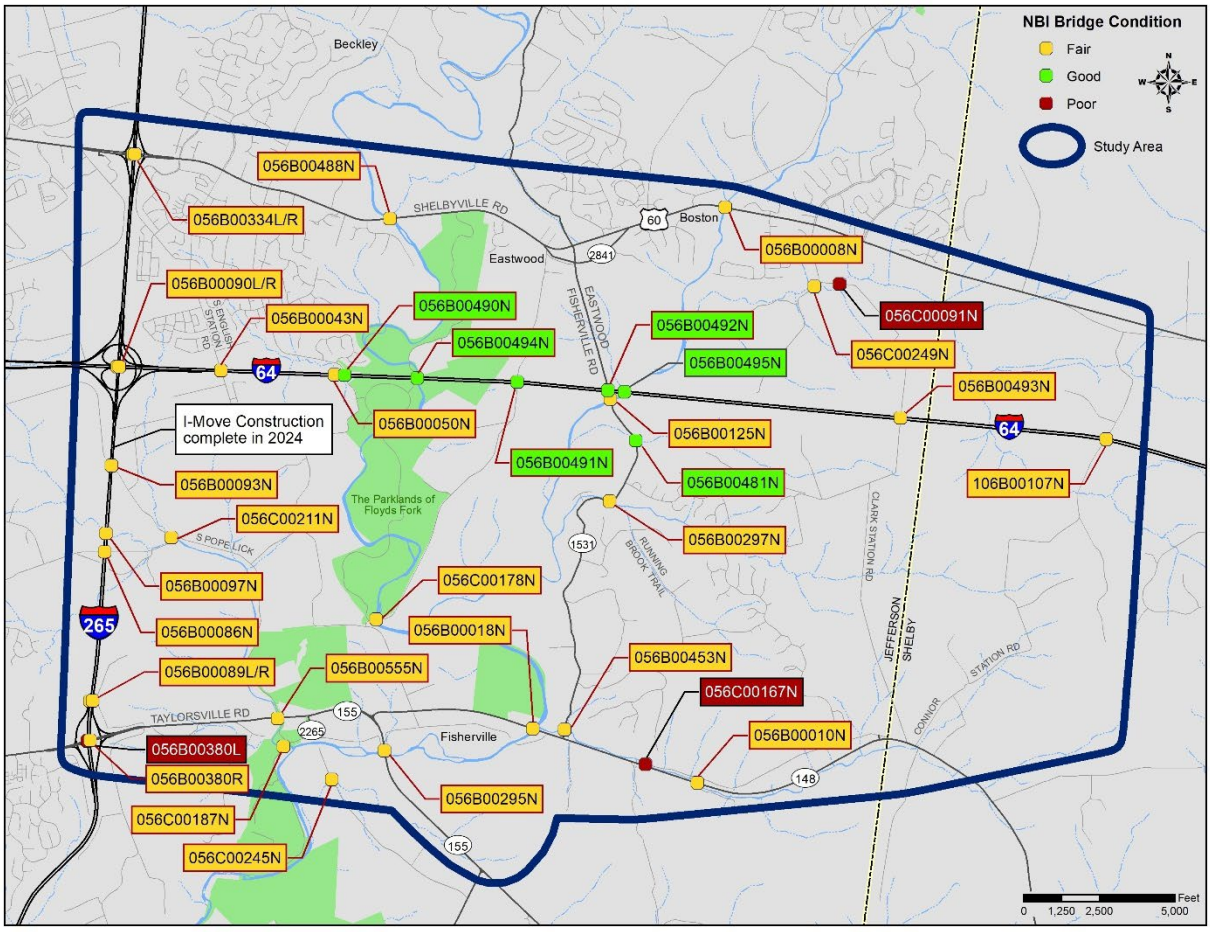


Figure 18: Existing Bridges

Of the three bridges in poor condition, all are also considered structurally deficient:[13]

- Bridge No. 056C00091N carrying Clark Station Road (CR-1004J) over South Long Run Creek was built in 1930 with $1 million for repairs in the 2024 Highway Plan (Item No. 5-10007) with construction awarded in July 2024.
- Bridge No. 056C00167N carrying Old Clark Station Road (CS-1004J) over Brush Run Creek was built in 1980 with $350,000 for repairs in the 2024 Highway Plan (Item No. 5-10022)

[13] A structurally deficient rating indicates repairs are warranted; in some cases, structures have been weight posted to reduce allowable loads.

- Bridge No. 056B00380L carrying I-265 southbound over KY 155 was built in 1987. The 2024 Highway Plan includes funding to clean and repaint I-265 bridges and for major I-265 widening to continue south from KY 155 to US 31E.

Three overpasses in the study area currently provide north-south connections across I-64: 056B00043N (South English Station Road), 056B00491N (Gilliland Road), and 056B00493N (Clark Station Road). In the other six mapped crossings in **Figure 18**, I-64 bridges over a local road connection or creek below.

Detailed information about each bridge in the study area can be found within **Table 6**.

Table 6: 2023 Existing Bridge Conditions

BRIDGE	CONDITION	LENGTH (ft)	WIDTH (ft)	BUILT	CARRIES	INTERSECTS	SD/FO	VERTICAL
056B0034L	Fair	205	55	1984	I-265	US 60	-	16.00
056B00334R	Fair	205	55	1984	I-265	US 60	-	16.00
056B00488N	Fair	353	85	2007	US 60	River	-	-
056B00008N	Fair	110	29	1931	US 60	River	-	-
056C00091N	Poor	56	19	1930	CR-1004J	Stream	SD	-
056C00249N	Fair	78	30	2004	CS-1019J	Stream	-	-
056B00493N	Fair	259	53	2010	CR-1004J	I-64	-	17.08
106B00107N	Fair	142	130	2011	I-64	CR-1233	-	17.83
056B00495N	Good	281	130	2010	I-64	River	-	-
056B00125N	Fair	135	28	1940	KY 1531	River	-	-
056B00492N	Good	160	130	2010	I-64	KY 1531	-	17.16
056B00491N	Good	260	53	2010	I-64	CR-1009J	-	19.91
056B00490N	Good	161	130	2010	I-64	CR-1008J	-	16.66
056B00494N	Good	308	130	2010	I-64	PR-1020J, River	-	23.50
056B00050N	Fair	23	232	1960	I-64	Stream	-	-
056B00090L	Fair	275	122	1961	I-265	I-64	-	24.00
056B00090R	Fair	275	122	1961	I-265	I-64	-	24.00
056B00481N	Good	24	24	2004	KY 1531	Stream	-	-
056B00297N	Fair	75	28	1980	KY 1531	River	-	-
056C00211N	Fair	69	32	1997	CR-1006H	Stream	-	-
056B00093N	Fair	275	34	1969	CR-1003J	I-265	-	15.91
056B00097N	Fair	38	120	1969	I-265	Stream	-	-
056B00086N	Fair	185	34	1969	CR-1006H	I-265	-	16.16
056B00380L	Poor	235	40	1987	I-265	KY 155	SD	17.00
056B00380R	Fair	235	43	1987	I-265	KY 155	-	18.00
056C00187N	Fair	42	28	1993	CS-1009J	Stream	-	-
056C00245N	Fair	26	34	2003	CS-1005J	Stream	-	-
056B00295N	Fair	356	60	1981	KY 155	Stream, Old Taylorsville	-	16.50
056B00555N	Fair	140	87	2024	KY 155	River	-	-
056B00018N	Fair	301	35	1957	KY 148	River	-	-
056C00178N	Fair	42	28	1993	CR-1009J	Stream	-	-
056B00453N	Fair	46	32	1996	KY 1531	Stream	-	-
056C00167N	Poor	40	25	1980	CS-1004J	Stream	SD	-
056B00089L	Fair	159	59	1969	I-265	Railroad	-	24.25

BRIDGE	CONDITION	LENGTH (ft)	WIDTH (ft)	BUILT	CARRIES	INTERSECTS	SD/FO	VERTICAL
056B00089R	Fair	159	59	1969	I-265	Railroad	-	24.25
056B00043N	Fair	255	32	1960	CR-1002J	I-64	-	15.90
056B00010N	Fair	44	14	1939	KY 148	River	-	-

SD = structurally deficient; FO = functionally obsolete

3.4 Pedestrian and Bicycle Accommodations

KYTC adopted a Complete Streets Policy in September 2022, committing to partnering with other agencies to:

- Identify opportunities to promote and provide safe, convenient access and travel for all users of the transportation network while reducing crash rates and the severity of crashes.
- Improve mobility and accessibility for all individuals.
- Support mode shift to non-motorized transportation.
- Ensure early coordination to identify potential actions/strategies.

KIPDA adopted a Complete Streets Policy in August 2022, making these considerations part of the metropolitan planning organization's (MPO's) planning process and a selection criterion for MPO funding. Louisville Metro first adopted a Complete Streets Policy in 2008; subsequent updates contain stronger language and spurred the creation of the city's 2020 design manual[14] and the Complete Streets Coalition.

Consideration of the needs of all modal users is critical throughout the planning and project development process. Within the study area, the Parklands forms an important spine for pedestrian and bicycle networks.

The study area has approximately 2.3 miles of sidewalks for pedestrians, primarily located along US 60. Further, the Parklands at Floyd's Fork contains over 80 miles of dedicated bike and pedestrian routes. **Figure 19** depicts the existing pedestrian and bicycle facilities within the study area; several of the projects shown in **Figure 4** will extend the network.

Strava heat maps (**Figure 20**) provide one estimate to quantify recreational roadway users. The data is limited to individuals using the app, with lighter colors showing higher usage for cyclists (blue) and pedestrians (orange).

[14] Online at https://louisvilleky.gov/public-works/document/complete-streets-design-manual

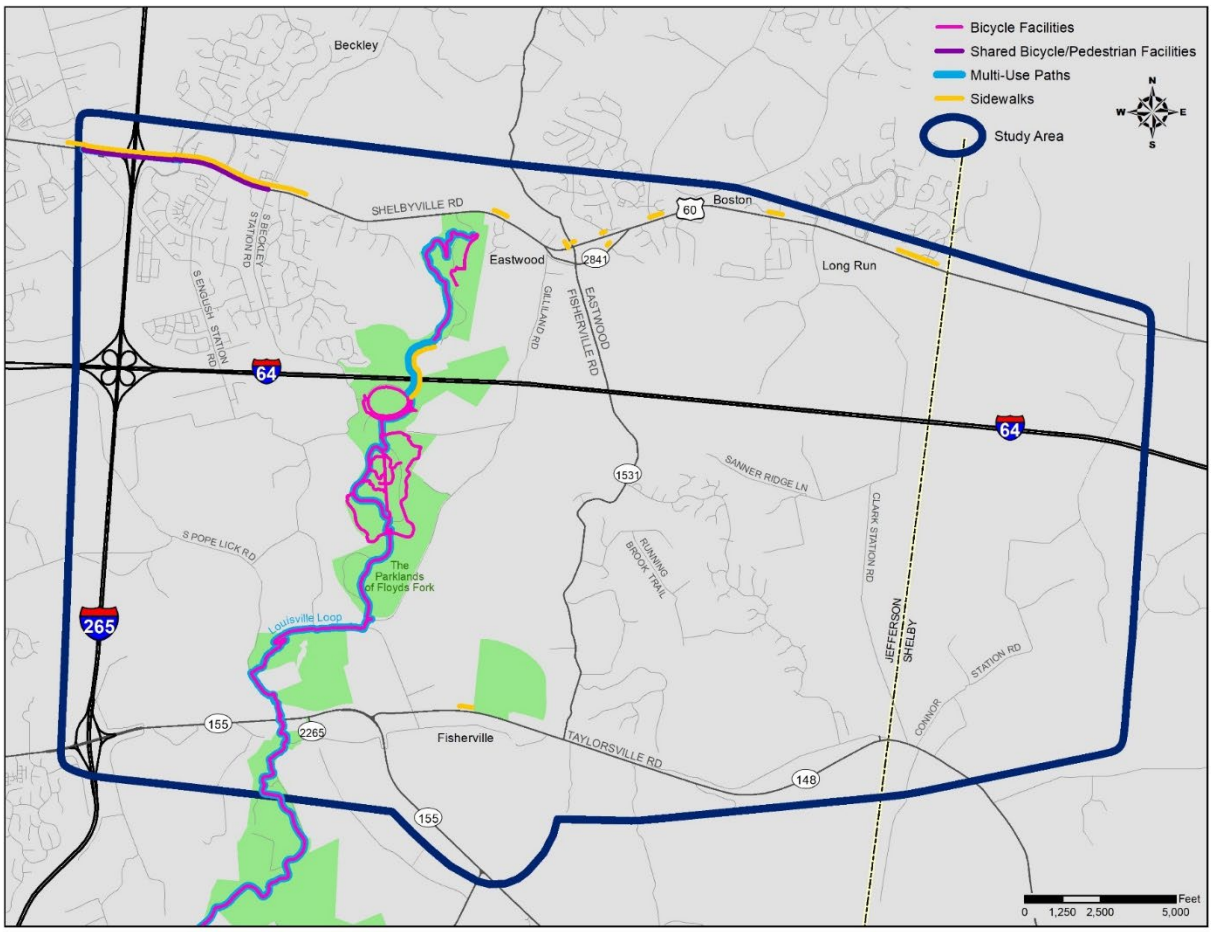
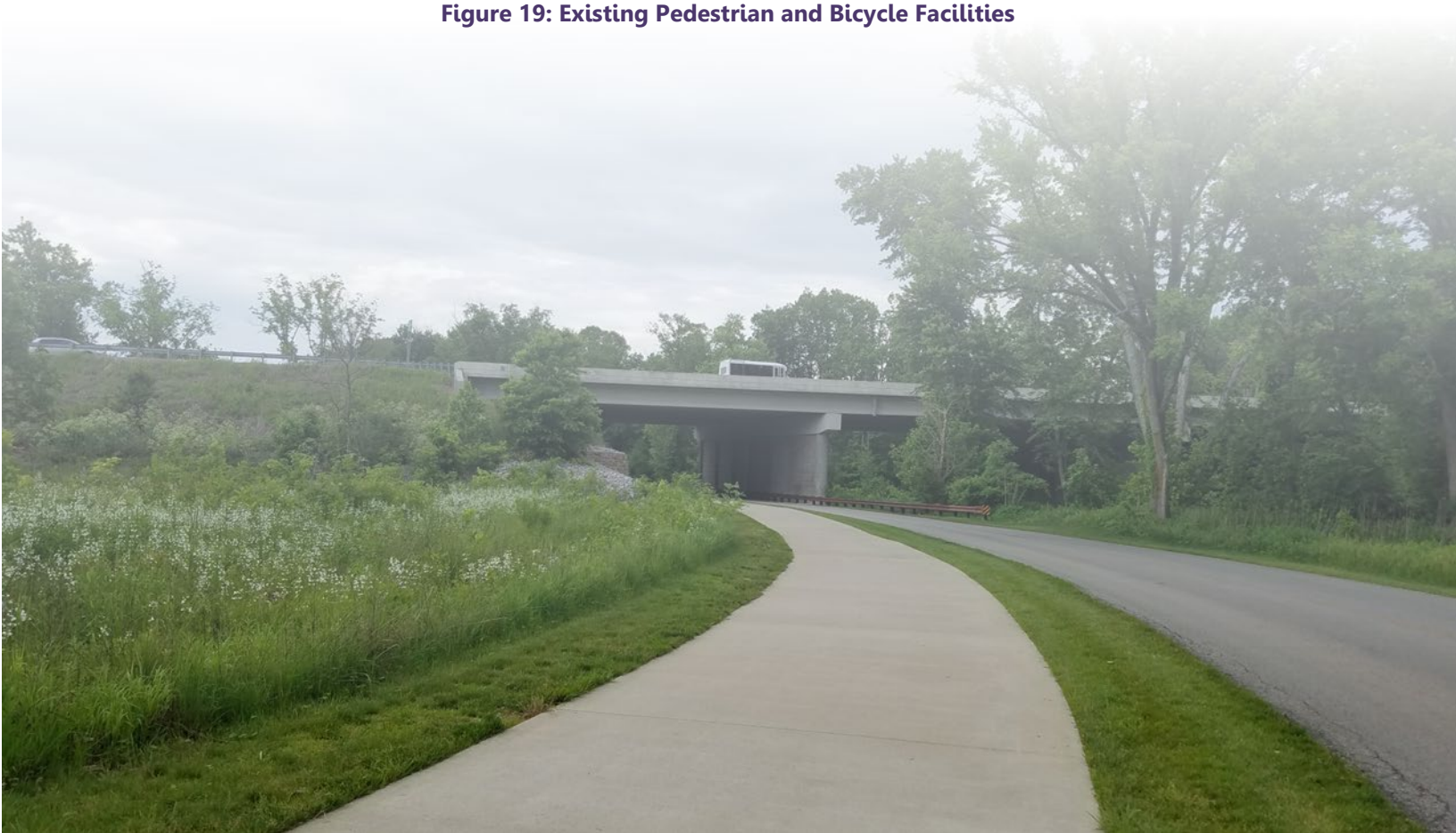


Figure 19: Existing Pedestrian and Bicycle Facilities



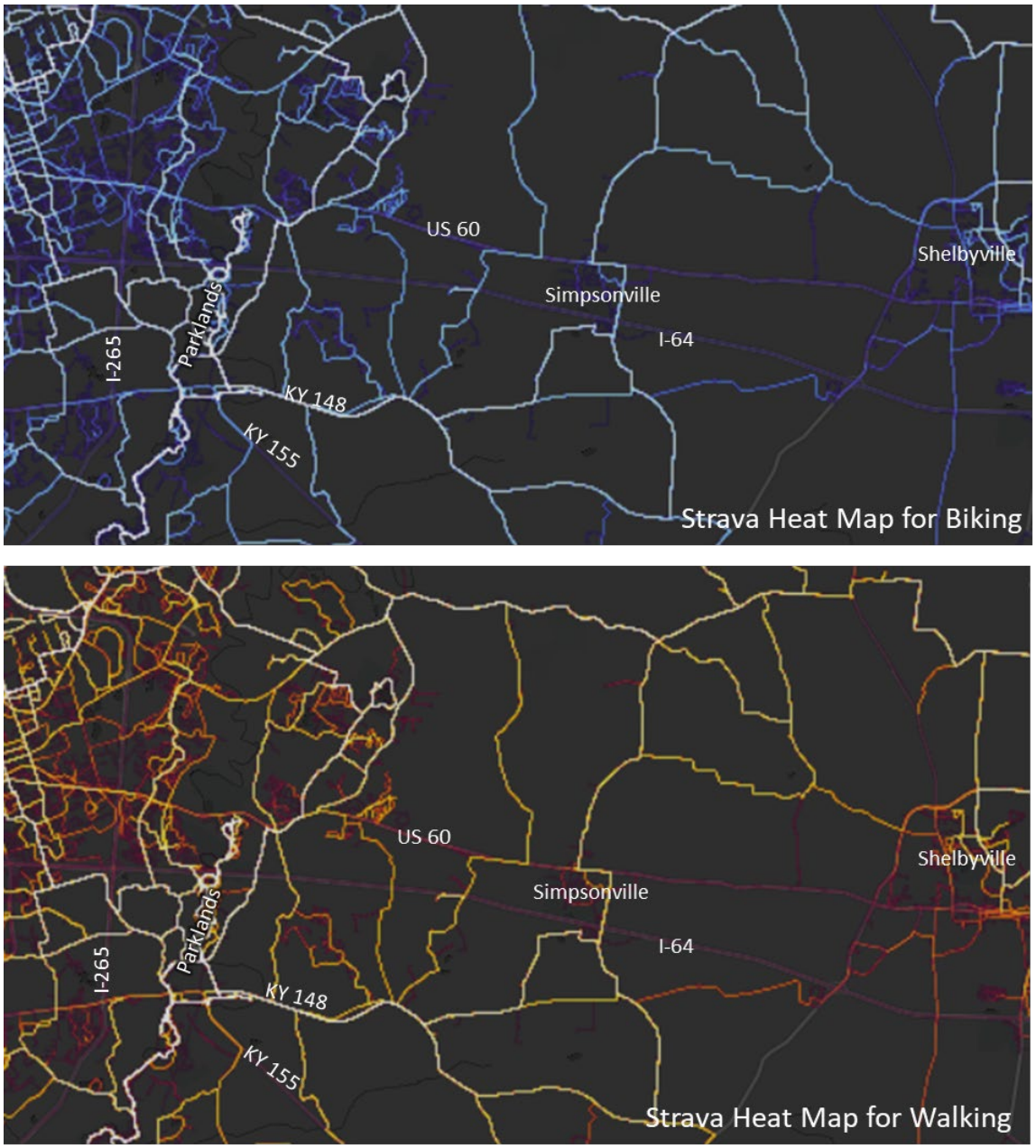


Figure 20: Strava Heat Maps for Cyclists (Top) and Pedestrians (Bottom)

3.5 Transit

The Transit Authority of River City (TARC) provides public transit services for the metro Louisville area. The only stops within the study area are along US 60 west of I-265, served by the Shelbyville Road route (Route #31) that runs daily with 45-minute headways during the PM peak hour. However, in July 2024, as a measure to cut operating costs, this route was identified by TARC as one of many that will have a reduction in weekday service.

Federated Transportation Services provides Medicaid transportation services for qualified individuals, serving Jefferson, Shelby, Spencer, and other counties.

3.6 Railroad

Two rail lines run east-west through the study area.

- The RJ Corman Railroad is a full-service railroad holding company for 19 short line railroads across the southeastern region of the US. Their Central KY Line is leased from CSX and runs roughly along the northern border of the study area, crossing under US 60 at Eastwood. The Federal Railroad Administration's (FRA) crossing inventory database estimates four trains per day travel the tracks.
- The Norfolk Southern (NS) runs just north of the KY 155/KY 148 corridor at the southern boundary of the study area. FRA estimates 11 trains per day travel the tracks.

Both rail lines and their highway crossings are shown in **Figure 21** with additional information in **Table 7**. In the map, grade separated crossings are purple with at-grade in yellow.

Table 7: Study Area Railroad Crossings

ID	Crosses	Crashes	Type
346670A	Private gravel driveway	-	At grade, signed
346671G	US 60, Rockcrest, Eastwood Cutoff	-	Tunnel
346673V	Clark Station Road	-	At grade, flashers
346674C	Private farm access drive	-	At grade, signed
735544E	I-265	-	Hwy bridges over rail
735546T	Harrods Old Trace	-	Hwy bridges over rail
735547A	Pope Lick Road, Lou Loop	-	Rail trestle over road
735548G	English Station Road	3 since 1978	At grade, gate arms
735549N	Gated farm access drive Rolleigh Peterson Educational Forest	-	At grade, signed
735560N	Private gravel driveway	2 in 2000	At grade, stop bars
735561V	KY 1531	-	Rail bridges over road
735563J	Private driveway	-	At grade, signed
735564R	Old Clark Station Road	4 since 1977	At grade, flashers
735565X	Old Clark Station Road	-	At grade, flashers
735566E	Old Clark Station Road	1 (1978)	At grade, flashers
735568T	Conner Station Road	-	At grade, flashers

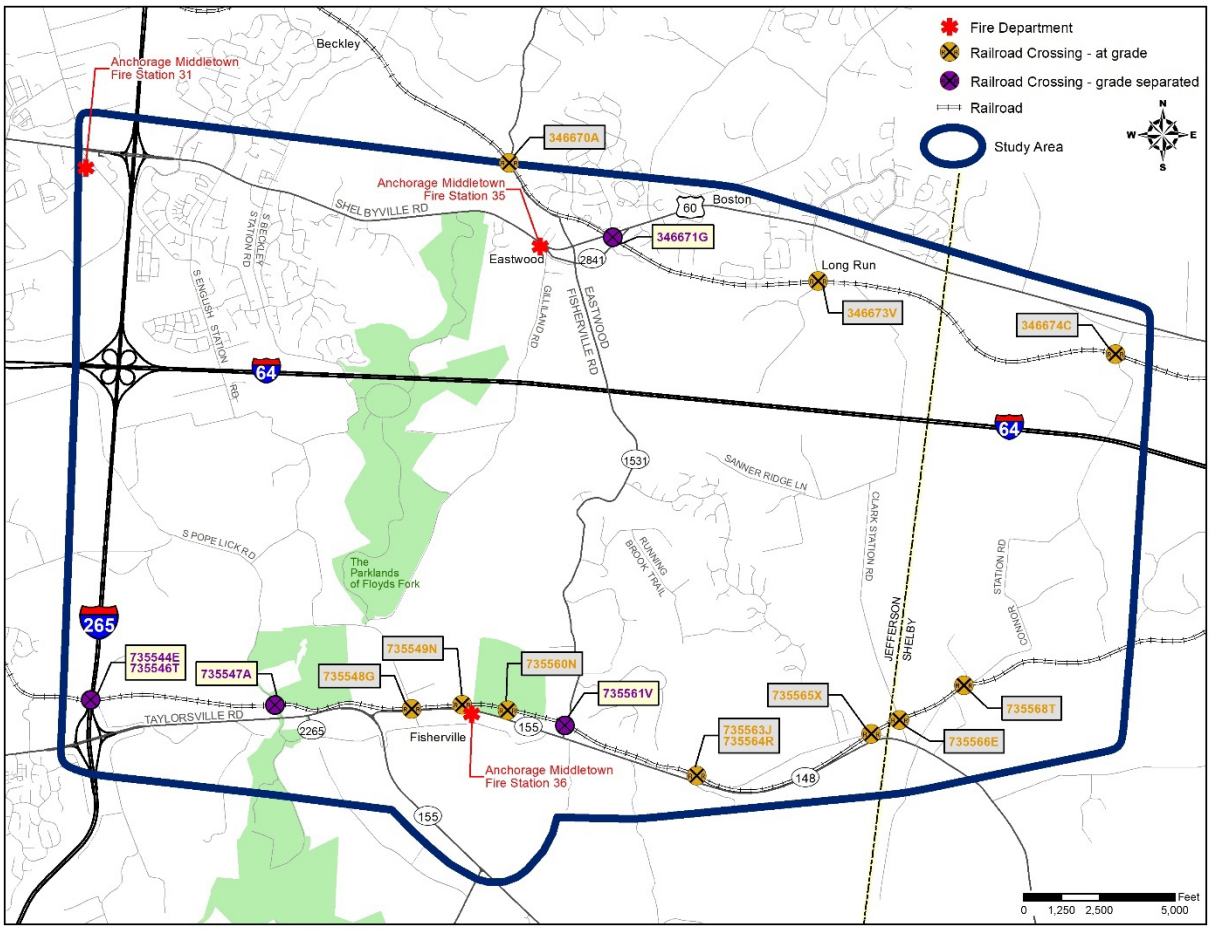


Figure 21: Existing Railroad Crossings and Emergency Facilities

While most crossings are at-grade with warning flashers or gate arms on relatively low-volume rural highways, three are somewhat unique:

Figure 22: Three Railroad Crossings in Study Area

- 346671G is a 1,000-foot tunnel, carrying the RJ Corman line beneath US 60, Rockcrest Way, and Eastwood Cutoff Road.

- 735547A is a trestle, carrying the NS tracks over South Pope Lick Road and the Louisville Loop. Local legends associate the Pope Lick Monster or Goat Man with the structure; thrill seekers trying to cross the trestle have resulted in several fatalities over the years.
- 735561V is a low-clearance, one-lane passage for KY 1531 beneath the NS line.

3.7 2023 Traffic Volumes and Operations

KYTC provided historic traffic volumes for study area roadways, including average daily traffic (ADT), truck percentages, hourly factors, and peak hour directional distributions as available. Most traffic volumes were collected from 2018 to 2022. Traffic counts were compiled from a variety of sources—turning movement counts, StreetLight third-party estimates, other KYTC projects—then normalized to account for varying collection periods. **Figure 24** presents the segment ADT volumes throughout the study area. Additional information is presented in the *Traffic Forecast Report* and oversize figures in **Appendix A**.

3.7.1 Traffic Operations

Traffic operations analyses included two commonly applied highway performance indicators used to describe quality of facility performance: Level of Service (LOS) and volume-to-capacity (v/c) ratios. Computations were performed in concurrence with the *Highway Capacity Manual* (HCM) 7th edition procedures for study route segments.

Level of Service. LOS is a qualitative measure describing traffic conditions based on measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. LOS typically represents a driver's perspective of traffic conditions based on perceived congestion. As illustrated in **Figure 23**, LOS A is associated with free flow conditions, high freedom to maneuver, and little or no delay. Conditions at or near capacity typically are associated with LOS E. At LOS F, traffic conditions are oversaturated and beyond capacity, with low travel speeds, little or no freedom to maneuver, and lengthy delays.

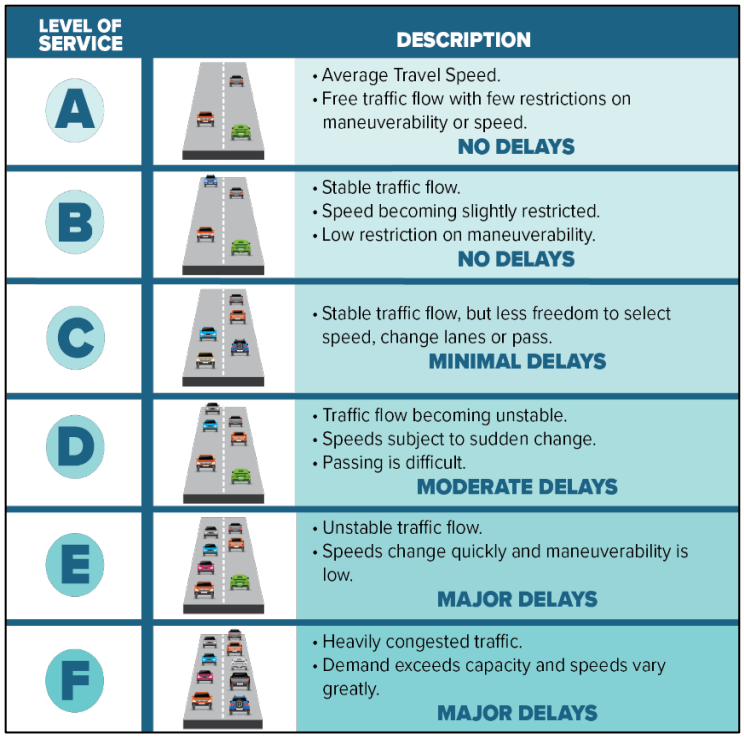


Figure 23: Level of Service (LOS)

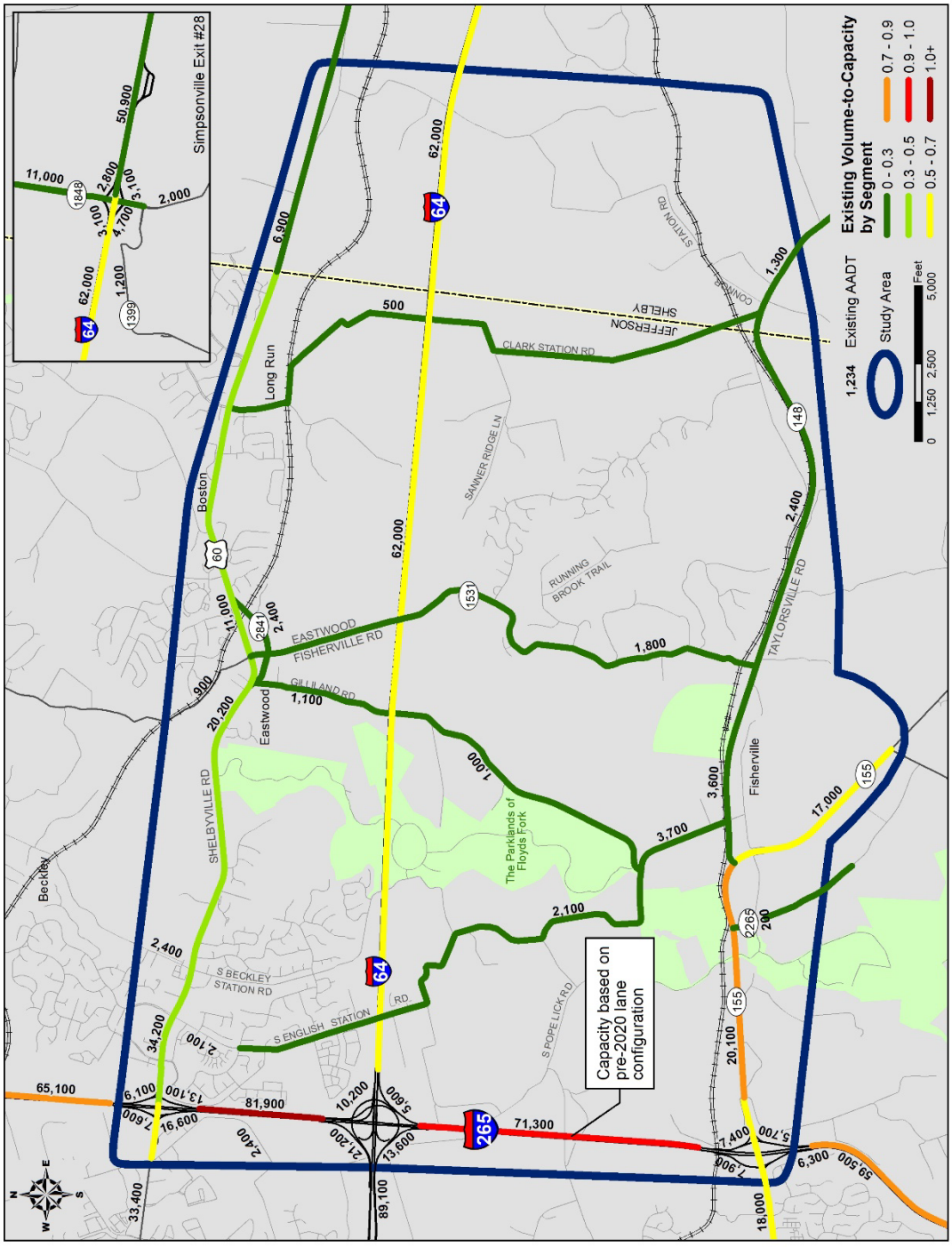


Figure 24: 2023 Existing ADT and v/c

Although LOS C or better is desirable in urban areas, LOS D is generally acceptable. Existing LOS was determined for the highest traffic hour based on design hourly volume (DHV) calculations, applying K-factors and d-factors (i.e. hourly and directional adjustments) to ADT counts to approximate.

Volume-to-Capacity. V/c ratios compare the traffic volume on a facility to its theoretical capacity over a specific duration, one hour in this instance. A v/c ratio greater than 1.0 indicates a route has exceeded its theoretical capacity and additional lanes may be justified. As v/c is measured over an hour period by segment, a roadway or intersection could be congested during brief periods but show a relatively low v/c averaged over a longer duration.

Analyses indicated most roadway segments within the study area operate at acceptable LOS and v/c based on segment-level analysis for derived DHVs. The 2023 ADT, LOS, and v/c are summarized in **Table 8**. Only one segment operates at LOS E: KY 155 between I-265 and KY 148. All v/c ratios for study routes are less than 0.75. However, for busy urban corridors, capacity at intersections provides a more representative measure of overall operations than a segment-wide average.

Table 8: 2023 Highway Segment ADT, LOS, and v/c

ROUTE	COUNTY	BMP	EMP	ADT	DHV	LOS	v/c
US 60	Jefferson	11.70	12.02	33,400	3,300	D	0.64
	Jefferson	12.02	12.89	34,200	1,600	C	0.45
	Jefferson	12.89	14.72	20,200	1,200	B	0.34
	Jefferson	14.72	17.38	11,000	690	D	0.43
	Shelby	0.00	3.62	6,900	470	C	0.30
I-64	Jefferson/ Shelby	19.20	23.97	62,000	3,000	B	0.54
KY 148	Jefferson	0.00	1.24	3,600	200	A	0.12
	Jefferson	1.24	3.39	2,400	140	A	0.12
	Shelby	0.00	2.42	1,300	80	A	0.05
KY 155	Jefferson	3.03	4.28	17,000	990	C	0.70
	Jefferson	4.28	5.71	20,100	1,100	E	0.71
	Jefferson	5.71	6.06	20,100	1,100	A	0.30
	Jefferson	6.06	6.69	10,300	960	A	0.40
CR-1002J S English Station	Jefferson	0.11	0.74	2,100	240	B	0.15
	Jefferson	0.74	4.04	2,100	300	B	0.19
KY 1531	Jefferson	5.62	9.12	1,800	100	A	0.06
CR-1004J Clark Station	Jefferson	0.00	3.46	500	20	A	0.01
KY 2841 Eastwood Cutoff	Jefferson	0.00	0.64	2,400	160	B	0.10
CR-1009J Echo Trail	Jefferson	0.00	1.66	1,000	110	A	0.07
CR-1010J Gilliland Road	Jefferson	0.00	1.11	1,100	110	A	0.07
KY 2265 Hatmaker Trail	Jefferson	0.00	0.15	200	30	A	0.01
CS-1005J Old Routt Road	Jefferson	0.00	0.62	200	10	A	0.01
KY 1848	Shelby	4.80	5.40	11,000	580	A	0.16

For intersections, LOS is also measured on the same A-F scale, but with different methodologies based on traffic control. At signals, all movements experience delay so an overall average for the entire intersection can be calculated, in addition to LOS for each approach and each turning movement. At all-way stop controlled intersections, calculations are similar but the thresholds between each letter grade are lower than at signals. For one- or two-way stop control intersections, LOS is only calculated for approaches that have to stop as free-flow thru moves on the major street experience no delay.

Key operational metrics at the 22 study intersections are presented in **Table 9**, based on available turning movement counts and current signal timing plans. Corresponding turning movement volumes are shown in maps in **Appendix A**. As shown, a few operate at LOS E/F during one or both peak periods. Even where operations are at LOS D or better for the overall signal, several minor street movements exhibit poor LOS—especially along the busier sections of US 60 near I-265. Poor LOS but no movements approaching a v/c of 1.0 suggests there is excessive delay for a relatively low-volume move.

Table 9: 2023 Intersection LOS and v/c

INTERSECTION	CONTROL	AM LOS	AM v/c >0.9	PM LOS	PM v/c >0.9
I-265 SB Ramp at US 60	Signal	C	-	C	-
I-265 NB Ramp at US 60	Signal	C	-	D	EBL
US 60 at English Station Way/Beckley Woods	Signal	C	SBR	C	NBL
US 60 at English Station Road/Lake Forest Pkwy	Signal	F	WBT, WBR NBL, SBT	D	EBT, NBL
US 60 at Beckley Station Road	Signal	C	SBR	B	-
US 60 at KY 2841 (West)	1-way Stop	F	All NB	F	All NB
KY 2841 at Gilliland Road	1-way Stop	A	-	A	-
KY 2841 at KY 1531	2-way Stop	A	-	B	-
US 60 at KY 1531	2-way Stop	F	-	F	NB & SB
US 60 at KY 2841 (East)	1-way stop	B	-	D	-
US 60 at Flat Rock Road	Signal	C	WBT, SBR	B	WBT, SBR
US 60 at Clark Station Rd./Locust Creek Blvd.					
NB Approach	2-way Stop	C	-	E	-
SB Approach		B	-	C	-
I-265 SB Ramps at KY 155	Signal	B	-	B	-
I-265 NB Ramps at KY 155	Signal	D	NBL	B	NBL
KY 155 at S Pope Lick Road					
NB Approach	2-way Stop	F	-	F	-
SB Approach		E	-	F	All SB
KY 155 at KY 148	Signal	B	-	D	WBL

INTERSECTION	CONTROL	AM LOS	AM v/c >0.9	PM LOS	PM v/c >0.9
KY 148 at S English Station Road					
NB Approach	2-way Stop	D	-	E	-
SB Approach		B	-	B	-
KY 148 at KY 1531	1-way Stop	B	-	B	-
KY 148 at Clark Station Road	1-way Stop	B	-	A	-
KY 155 at KY 1531	1-way Stop	F	EBL	F	EBL
I-64 WB Ramps at KY 1848	Signal	B	-	B	-
I-64 EB Ramps at KY 1848	Signal	B	-	C	-

3.8 Crash History

Historical crash data were evaluated for study area roadways for a five-year period during 2018-2022. During the analysis period, 1,856 total crashes were reported on study area roadways. Individual crash records are summarized in **Appendix B**.

Figure 25 shows the breakdown of crashes by year, with a significant reduction beginning in 2020. Between the COVID pandemic and construction on the I-Move project beginning in 2020, traffic and crash patterns were likely atypical during this period.

Crashes by Route. Approximately 85% of all study area crashes occurred along the three highest-volume study routes: US 60 (578 crashes over 7.0 miles), I-64 (339 crashes over 6.6 miles), and I-265 (654 crashes over 4.3 miles). Weighted by length and traffic volumes, the highest crash rates occur on KY 155 and US 60 at their interchange with I-265. The distribution of crashes between all study routes in the area is shown visually in **Figure 26** and **Figure 27**.

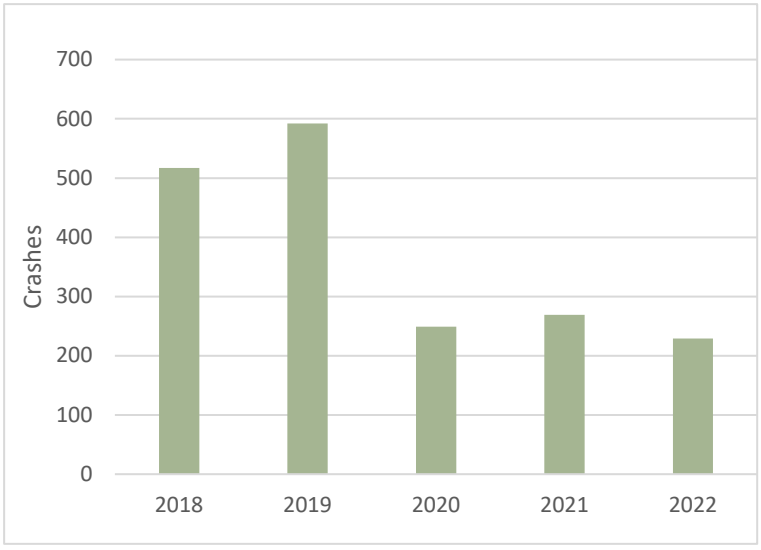


Figure 25: Crashes by Year

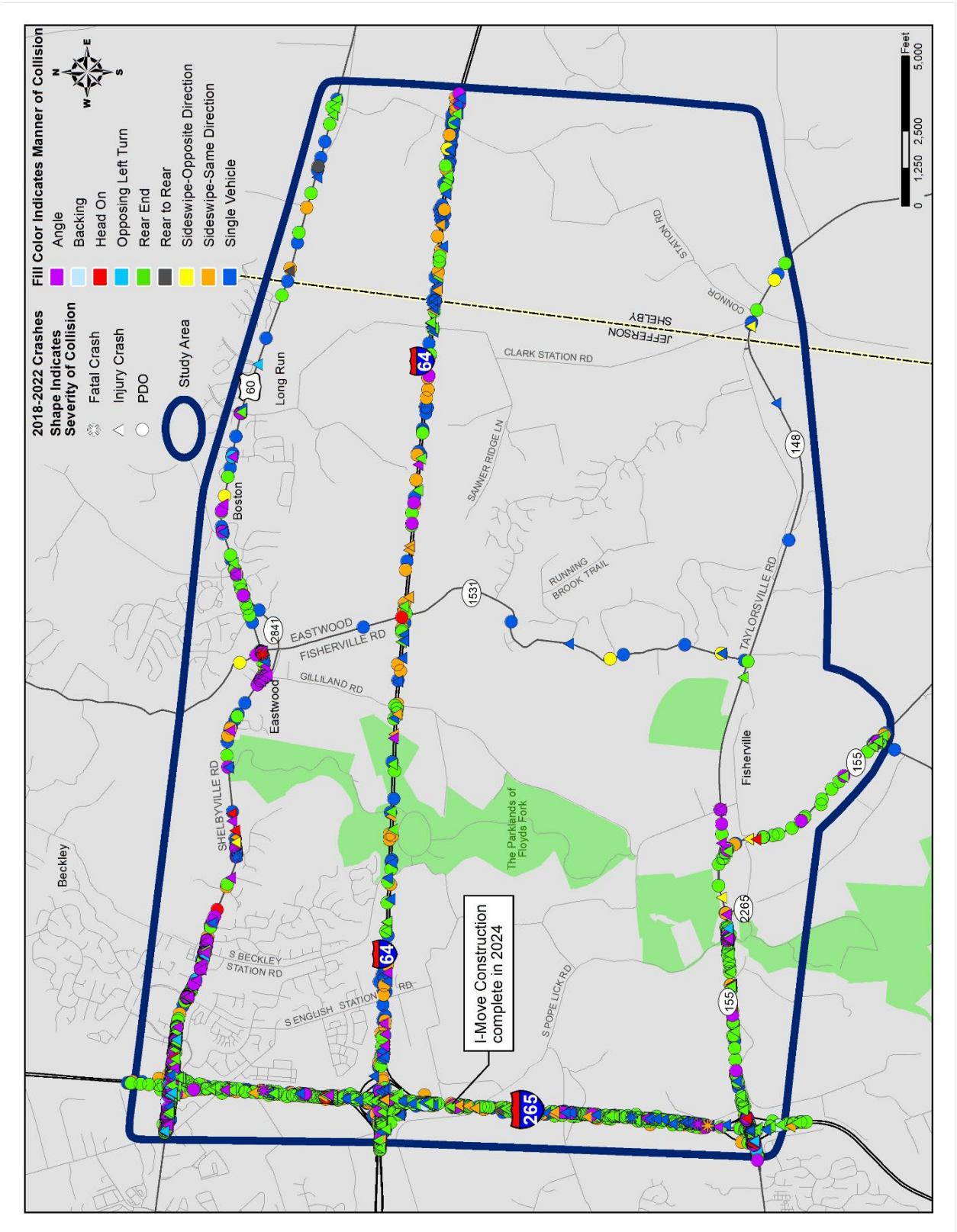


Figure 26: Crash Data (2018-2022)

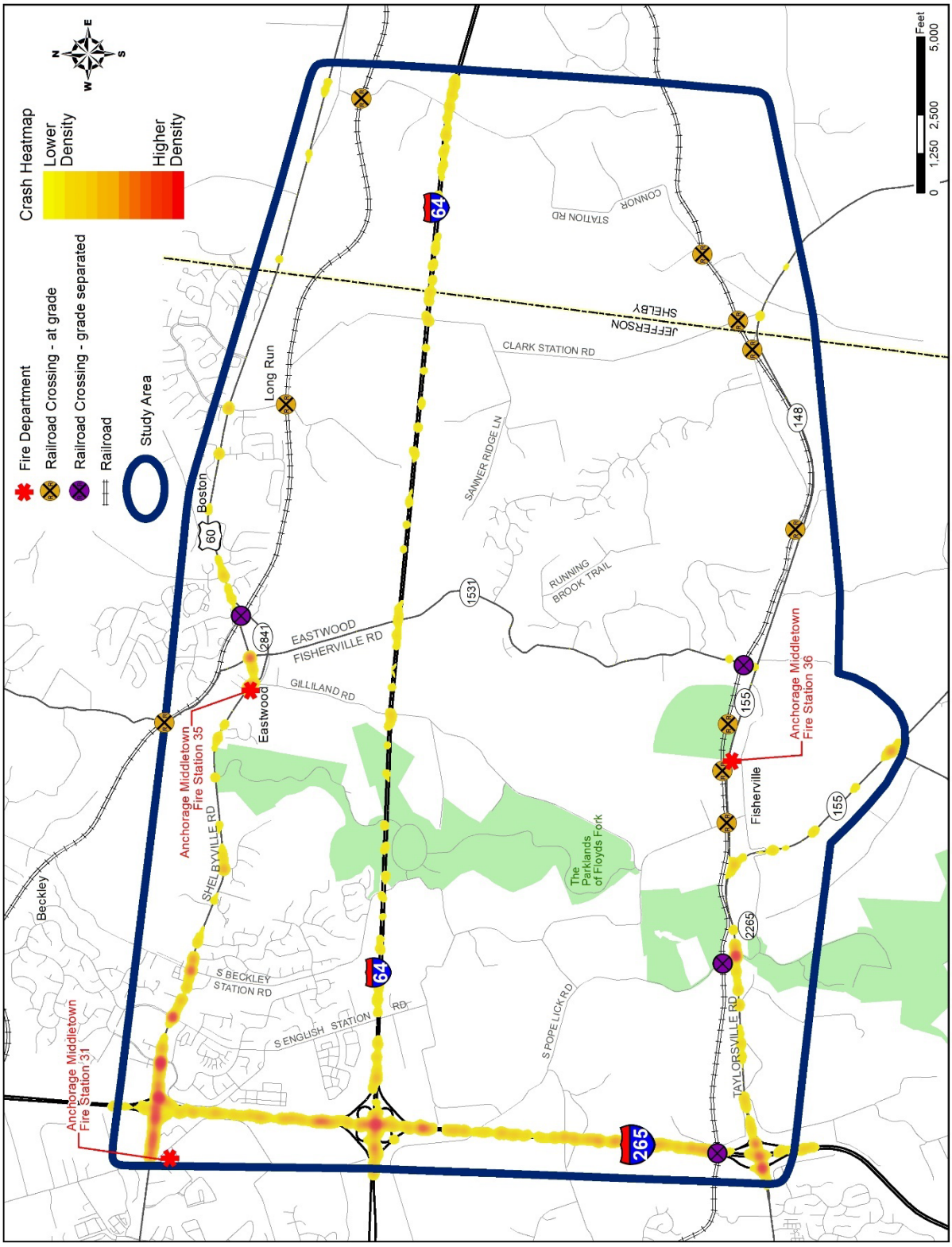


Figure 27: Heat Map of Crash Data (2018-2022)

Crashes by Severity. As shown in **Figure 28**, of 1,856 reported crashes, six (<1%) were fatalities, 354 (19%) resulted in injuries, and 1,486 (81%) involved property damage only (PDO). Injury crashes can be further divided by severity: severe (2%), minor (9%), and possible injury (8%).

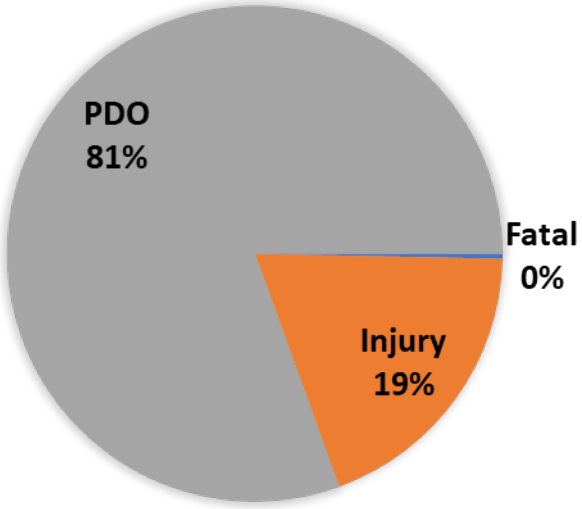


Figure 28: Crashes by Severity

The six fatal crashes include:

- Single vehicle collision with barrier on I-265 northbound near KY 155, June 2018
- Nighttime pedestrian strike along US 60 near Bircham Road, July 2018
- Single vehicle collision with guardrail on I-265 northbound, November 2019
- Roadway departure from I-265 northbound, January 2021
- Single vehicle collision with guardrail on I-265 northbound, April 2021
- Head-on collision on US 60 near Johnson Road, October 2021

Crashes by Type. **Figure 29** summarizes crash type trends for all study routes combined, showing predominant crash types as rear end collisions (48%), followed by single vehicle collisions (18%), and sideswipe-same direction (16%).

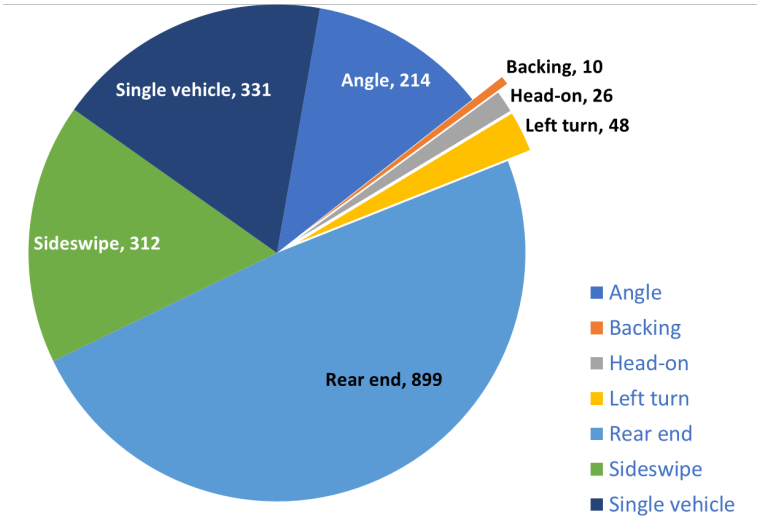


Figure 29: Crashes by Type

Other focus crash types were also noted:

- 495 crashes represent roadway departures, which tend to be more severe than other crash types. Roadway departures are one of the emphasis areas identified by KYTC's Office of Highway Safety.[15] These crash types were concentrated along I-265 (under construction for much of the analysis period), and along I-64 in Shelby County.
- 427 crashes occurred after dark, with or without streetlights. These were concentrated along I-265, US 60 near its interchange, and I-64 near the eastern study area limit.
- 144 crashes involved commercial vehicles.
- 33 crashes were alcohol-related.
- 27 crashes involved deer.
- 3 crashes represent vulnerable roadway users—pedestrians in this case—another emphasis area for the Office of Highway Safety. Two occurred along US 60 with the third on KY 1531 at the intersection with Eastwood Cutoff Road.

3.8.1 Statistical Crash Analyses

Level of Service of Safety (LOSS) is a refined statistical methodology in the Highway Safety Manual and is used to evaluate safety needs. It replaces the former critical rate factor analyses. LOSS categories 1 and 2 represent sites with fewer than anticipated crashes, while categories 3 and 4 represent sites with more than anticipated crashes. Because LOSS 4 sites experience such elevated crash rates, there is a higher probability that safety countermeasures at these locations will result in larger improvements.

Figure 30 shows segments and intersections with a LOSS 3-4, i.e., sites with greater crash rates than mathematically predicted. This considers "KAB" (fatal and suspected serious injury, shown as orange and red) and non-severe "CO" injury/PDO (shown as yellow or pink) crash trends separately. As shown, segments of I-265 and KY 155/KY 148 demonstrate higher crash rates than predicted by mathematical models. However, most of US 60 in the Jefferson County portion of the study area does not, despite the high number of reported crashes.

[15] Online at https://transportation.ky.gov/HighwaySafety/Pages/default.aspx

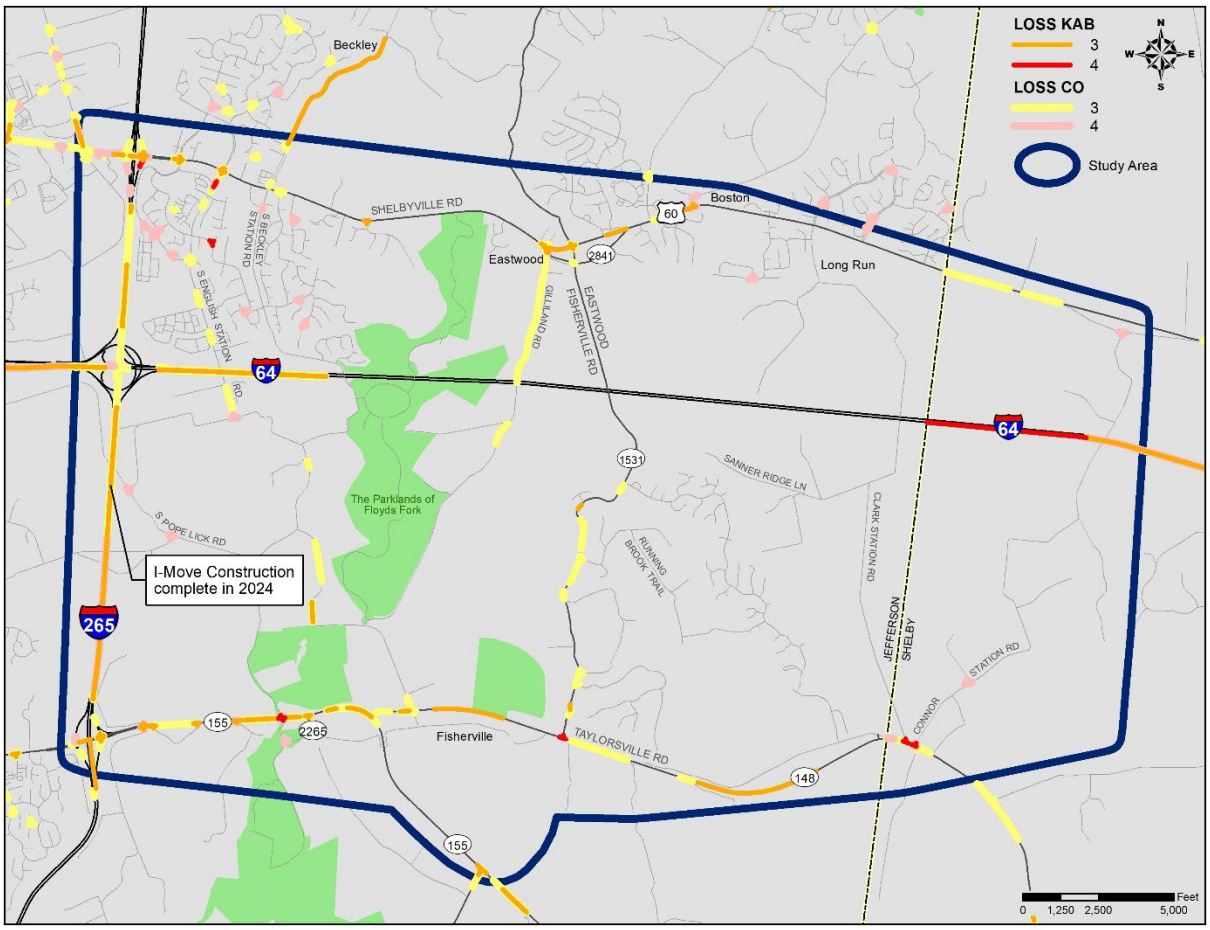


Figure 30: LOSS Ratings for Study Routes

4.0 ENVIRONMENTAL RESOURCES

An environmental overview was conducted to identify resources and potential issues for consideration during the development of transportation improvement concepts. As a high-level planning overview for a large study area, the environmental overview documents general, county-wide issues rather than site-specific issues. Natural and human environmental resources identified from readily available databases are shown in **Figure 31** on the following page and summarized in the following sections. The intent is to identify potential environmental issues that merit investigation during any future project development activities rather than to quantify detailed impacts.

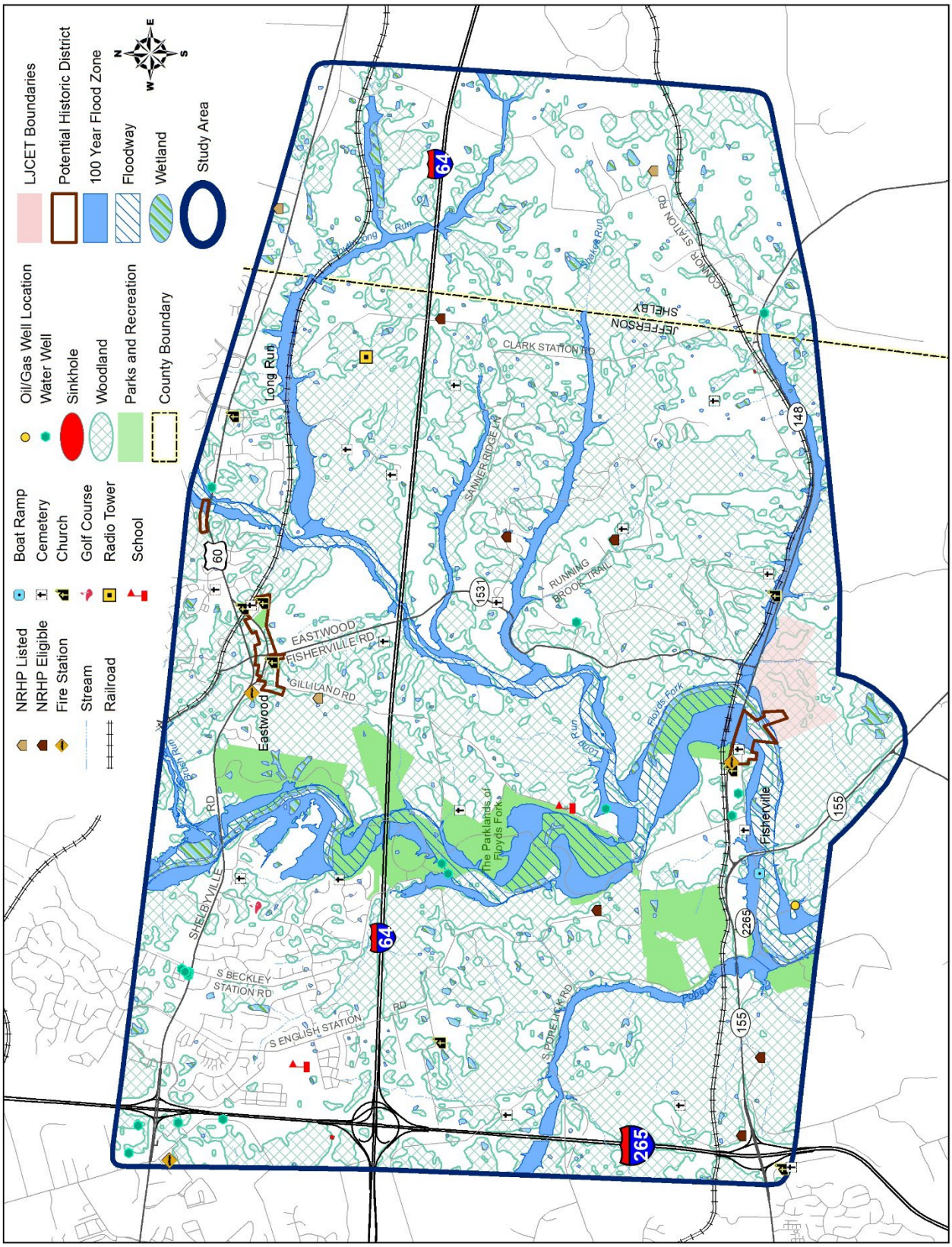


Figure 31: Environmental Overview Map

4.1 Natural Environment

"Natural environment" typically refers to all living and non-living things found to occur in nature such as streams, wetlands, protected species, farmlands, geotechnical resources, and more.

Water Resources. The largest stream in the study area is Floyds Fork, stretching along 62 miles between Henry and Bullitt counties. It is the largest watershed in Jefferson County and one of the least environmentally compromised. The creek is a key feature within the Parklands of Floyds Fork and provides recreational space for paddling and fishing, plus a scenic backdrop for other outdoor activities. The 2019 *South Floyd's Fork Vision* (**Section 2.3**) describes the importance of the resource for the area:

> "Floyds Fork watershed is a natural treasure.
>
> The area is defined by rich natural resources, rural landscapes, open spaces, a robust tree canopy, agricultural lands, stream health, parks and recreational areas, dark skies, wildlife habitat, healthy ecosystems, scenic roads, and parkways. Protecting, preserving, and enhancing these natural, cultural and historic resources while providing sustainable, low-impact and mixed-use developments will reduce environmental impacts.
>
> The preservation of Floyds Fork as a healthy living creek is paramount."

Other named tributaries in the study area include Long Run, Shakes Run, Brush Run, and Pope Lick. Floodplains and floodways surround these larger streams: 1,212 acres of floodplains and 670 acres of floodways. There are also several smaller unnamed streams and scattered ponds within the study area boundaries.

Many streams are associated with wetland habitats as well, totaling 263 acres within the study area. Small ponds, either agricultural or aesthetic, comprise the majority of study area wetlands.

No federally designated Wild or Scenic Rivers or Outstanding State Resource Waters exist in the study area.

Impacts to streams and wetlands require permit coordination with the US Army Corps of Engineers (USACE), US Coast Guards, and/or Kentucky Division of Water, depending on the use, classification, and quality of the water resource and potential disturbance.

Protected Species. Two bat species within the study area are on the federal list of Endangered Species, summarized in **Table 10.** The Tricolored bat, Salamander mussel, and Monarch butterfly are also proposed for protection. No designated critical habitat lies within the study area.

Table 10: Federally Protected Species

Name	Scientific Name	Status
Gray bat	*Myotis grisescens*	Endangered
Indiana bat	*Myotis sodalis*	Endangered
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered
Salamander Mussel	*Simsonaias ambigua*	Proposed Endangered
Monarch Butterfly	*Danaus plexippus*	Candidate

Projects that occur within an area of known bat habitat (i.e., near caves, forested parcels, or stream corridors) will require project-specific evaluation to assess appropriate minimization/mitigation measures. Coordination with the US Fish and Wildlife Service Kentucky Field Office will be necessary to determine the need for future project-specific surveys.

Geotechnical. The study area lies on the outer edge of the Outer Bluegrass physiographic region, which is underlain by limestone, dolomite, siltstone, shale, mudstone, gravel, sand, silt, and clay. KY Geological Survey (KGS) mapping shows Drakes Formation and Alluvium are the primary geologic units. While Drakes Formation is classified as non-karst, alluvial deposits along stream corridors are prone to karst features. There are numerous sinkholes in the vicinity. Faults and landslides should not be a concern per KGS correspondence from KYTC's 2008 planning effort. At that time, KYTC's Geotechnical Branch noted that cut slopes may need to be flatter than normal but normal fill slopes will likely be stable. "The Branch does not anticipate any design or

construction problems associated with the project." The 2023 Geotechnical Overview from KYTC is included as **Appendix C**.

Farmland Soils. The Natural Resource Conservation Service (NRCS) soil survey shows 25% of the study area soils as prime farmlands. If drained or otherwise protected from flooding, an additional 3% meets the criteria for prime farmland. Additionally, nearly 19% of the soils represent farmlands of statewide importance. The remaining 53% are not prime farmland soils. The geographic distribution of these designations in shown in **Figure 32**. An agricultural district exists east of KY 1531 and south of KY 2841 (Eastwood Cutoff Road) but no other protected agricultural easements were identified in the vicinity of the study area. Kentucky's Division of Conservation administers the Agricultural District Program; enrolled lands cannot be annexed, cannot be condemned without mitigation, are taxed at the agricultural rate, are eligible for deferred assessment costs when water lines are extended, and receive extra points when applying for state Cost Share or to the Purchase of Agricultural Conservation Easements (PACE) Program.

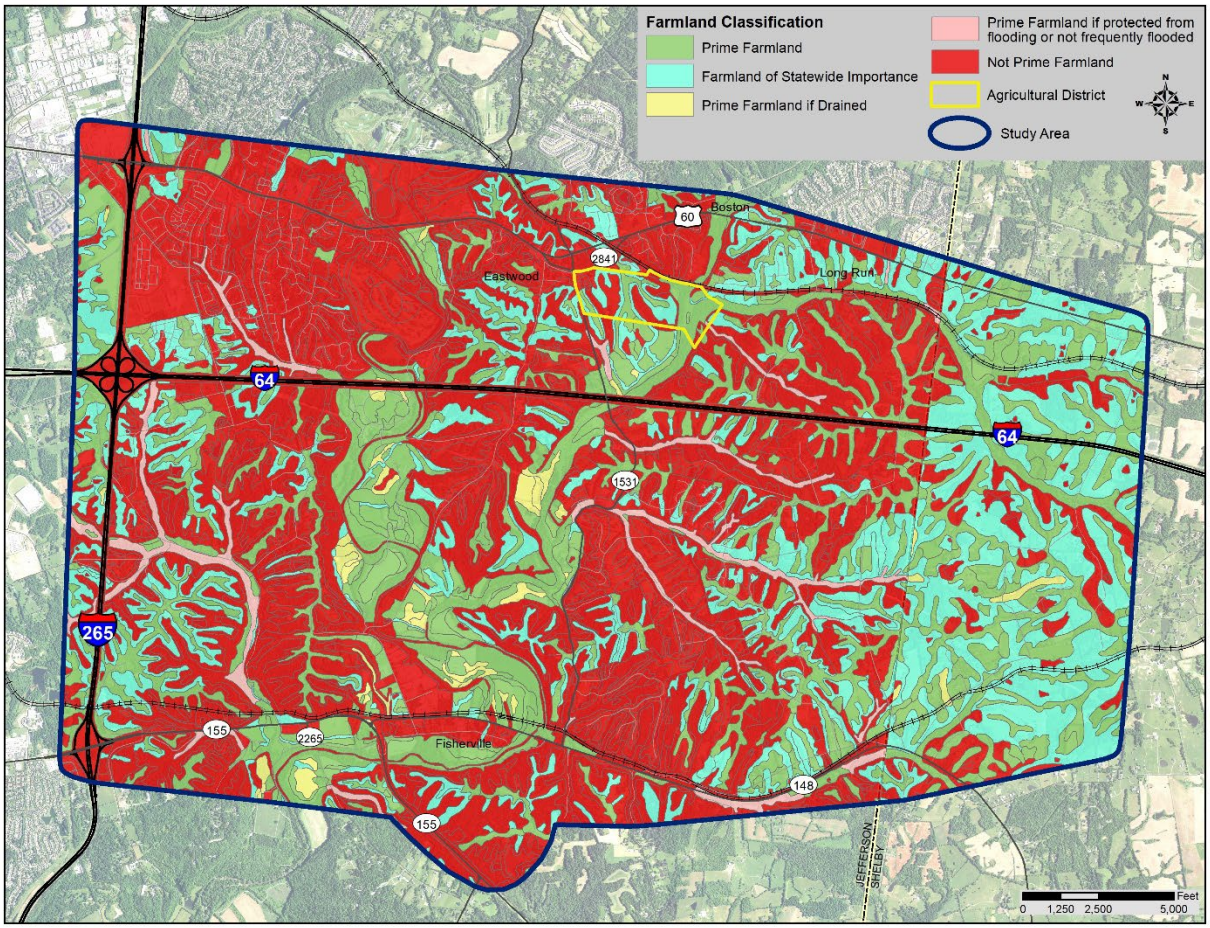


Figure 32: NRCS Farmland Soil Classification

4.2 Human Environment

The human environment is often defined as the built environment—the communities in which we live. Such resources potentially impacted by roadway projects are discussed in the following sections. Four main neighborhoods cover the study area (**Figure 33**).

- Jeffersontown is a large home rule-class city in the western and southwestern portion of the study area. A major suburb of Louisville, it is the second largest city in Jefferson County. It has a small-town neighborhood shopping district in the historic Gaslight Square, a few large shopping centers, a commercial corridor along Hurstbourne Parkway, and Bluegrass Commerce Park—the largest in the state, home to about 850 businesses.

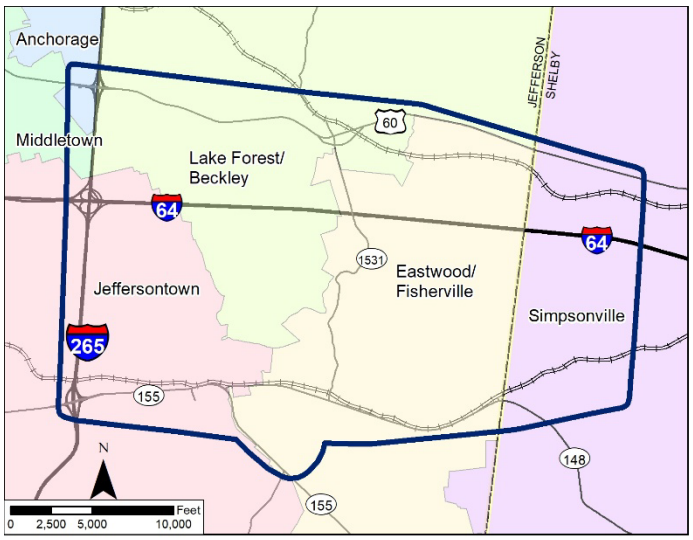


Figure 33: Study Area Neighborhoods

- Lake Forest/Beckley are highly sought-after neighborhoods in the northern portion of the study area. Lake Forest is the largest subdivision in Beckley; it spans over 2,000 acres with nearly 1,800 stately homes. The neighborhood is known for its well-manicured, meandering streets and amenities, including an 18-hole golf course, pools, walking trails, tennis courts, and playgrounds.

- Eastwood is a small, rural residential community about two miles from the county line. This small, historic village provides neighborhood serving retail, office, multi-family, and institutional areas. Area residents are considering incorporation as this study was prepared, potentially creating a home-rule class city for the area roughly bounded by I-265, KY 155/KY 148, the Shelby County line, and Old Henry Road.

- Fisherville is a more expansive rural residential area that has recently seen an uptick in residential development. The area is characterized by large lots on rolling hills, but with a small-town feel. It has an area neighborhood association which includes 14 homeowner associations/subdivisions, whose main goal is to preserve the rural character and natural assets of the area.

- Simpsonville in Shelby County is in the eastern portion of the study area. It is primarily a rural residential area with a quaint downtown offering a few local businesses. This small

town is surrounded by many of the world's premier horse farms and is primarily agrarian. Near its interchange, retail developments and a future mixed use development (currently under construction) attract additional visitors.

4.2.1 Land Use

As presented in **Figure 5** (page 10), the majority of study area land uses are single family residential, surrounded by commercial and scattered industrial areas along US 60 and KY 155/KY 148.

In Jefferson County, Metro's Office of Planning and Design Services is responsible for administering the policies, programs, and regulations that guide development. Louisville has a tiered zoning approach as outlined below and in **Figure 34**. Each tier has different infrastructure development requirements to consider. Tiers within the study area are shown in **Figure 35**.

- **Zoning districts** regulate permitted land uses, density, and intensity of developments.

  The Land Development Code (LDC) is applicable to all incorporated and unincorporated areas of Jefferson County.[16] Within the study area, Middletown has independent zoning authority and has a few ordinances that amend the greater Louisville LDC.

- **Form districts** then govern the "form" of development such as building height, setback, and design elements. Most of the study area is currently a Neighborhood Form District, except for Eastwood which is considered a Village Center at the heart of it, surrounded by a Village Form District.

  Per *Plan 2040*, neighborhood streets "should be designed to support physical activity for all users and invite human interaction. Streets are connected and easily accessible to each other, using design elements such as short blocks or bike/walkways in the middle of long blocks to connect with other streets. Examples of design elements that encourage this interaction include narrow street widths, street trees, sidewalks, shaded seating/gathering areas and bus stops. Placement of utilities should permit the planting of shade trees along both sides of the

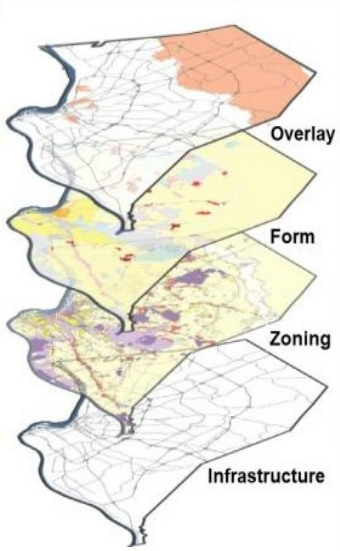


Figure 34. Louisville Tiered Zoning Approach

[16] Online at https://louisvilleky.gov/government/planning-design/land-development-code

streets." Village Form Districts and Village Centers should be designed to encourage pedestrian, bicycle, and transit use.

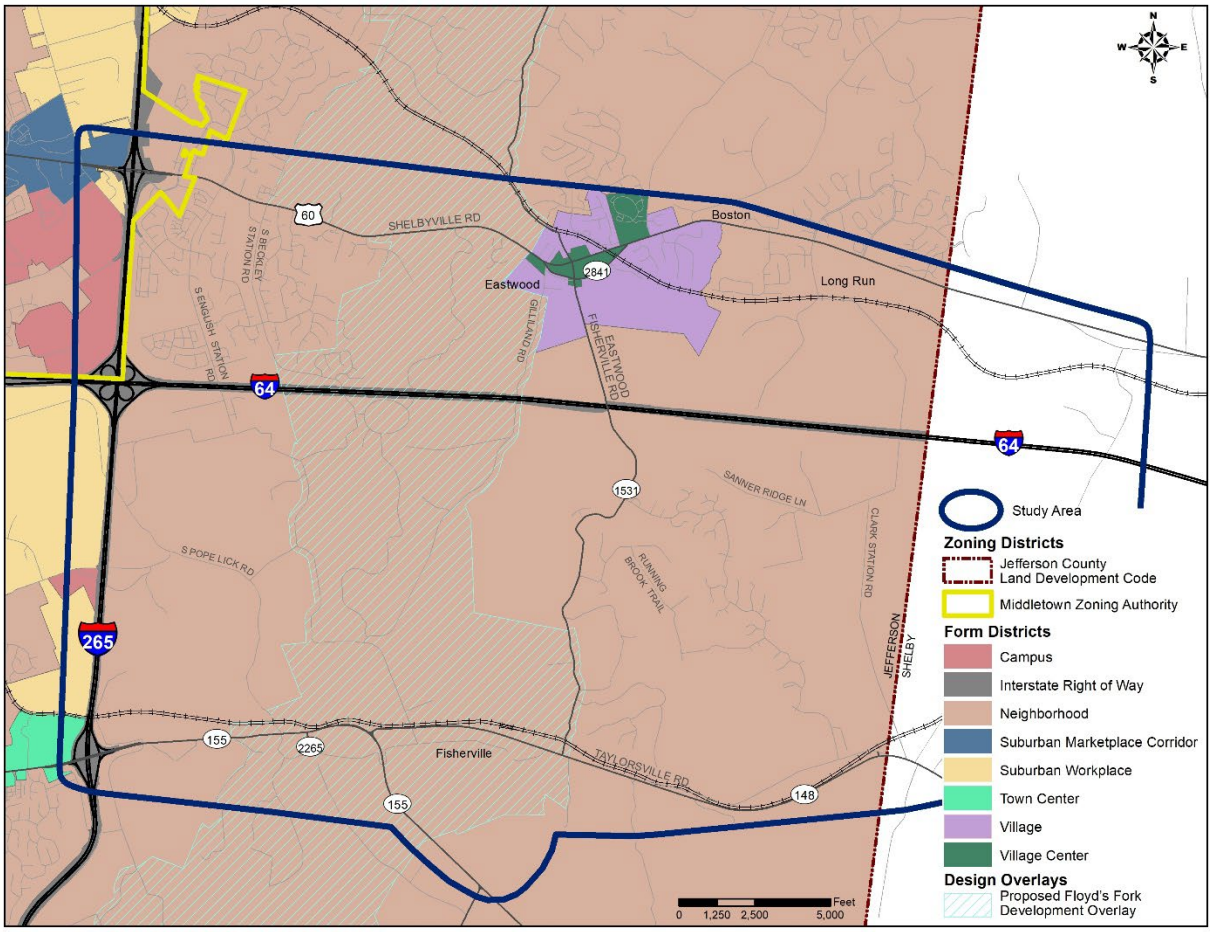


Figure 35. Jefferson County Zoning Tiers

There is also a proposed Conservation Form District that would intersect the study area.[17] While it is considered to be a pending LDC amendment, it has not yet been reviewed by the Planning Commission and a proposed location has not yet been identified.[18] The *South Floyds Fork Vision* includes the Conservation Form District, and suggestions for expanding Eastwood Village and Village Center Form Districts, proposed a Town Center, a Village, and Village Center.

- **Design Overlay** and Historic district requirements apply a finer standard to building and site design to preserve and protect established character. There is a proposed Floyd's Fork

[17] Online at https://louisvilleky.gov/government/planning-design/conservation-form-district
[18] Online at https://louisvilleky.gov/government/planning-design/proposed-land-development-code-amendments

Development Review Overlay (DRO) District overlapping the study area[19] intended to protect the waterways, natural environment, and high-quality visual character.

Beyond land use guidelines, some properties have additional protections—easements, deed restrictions, federal laws, etc. **Figure 36** presents these different protective layers side-by-side in one overview map.

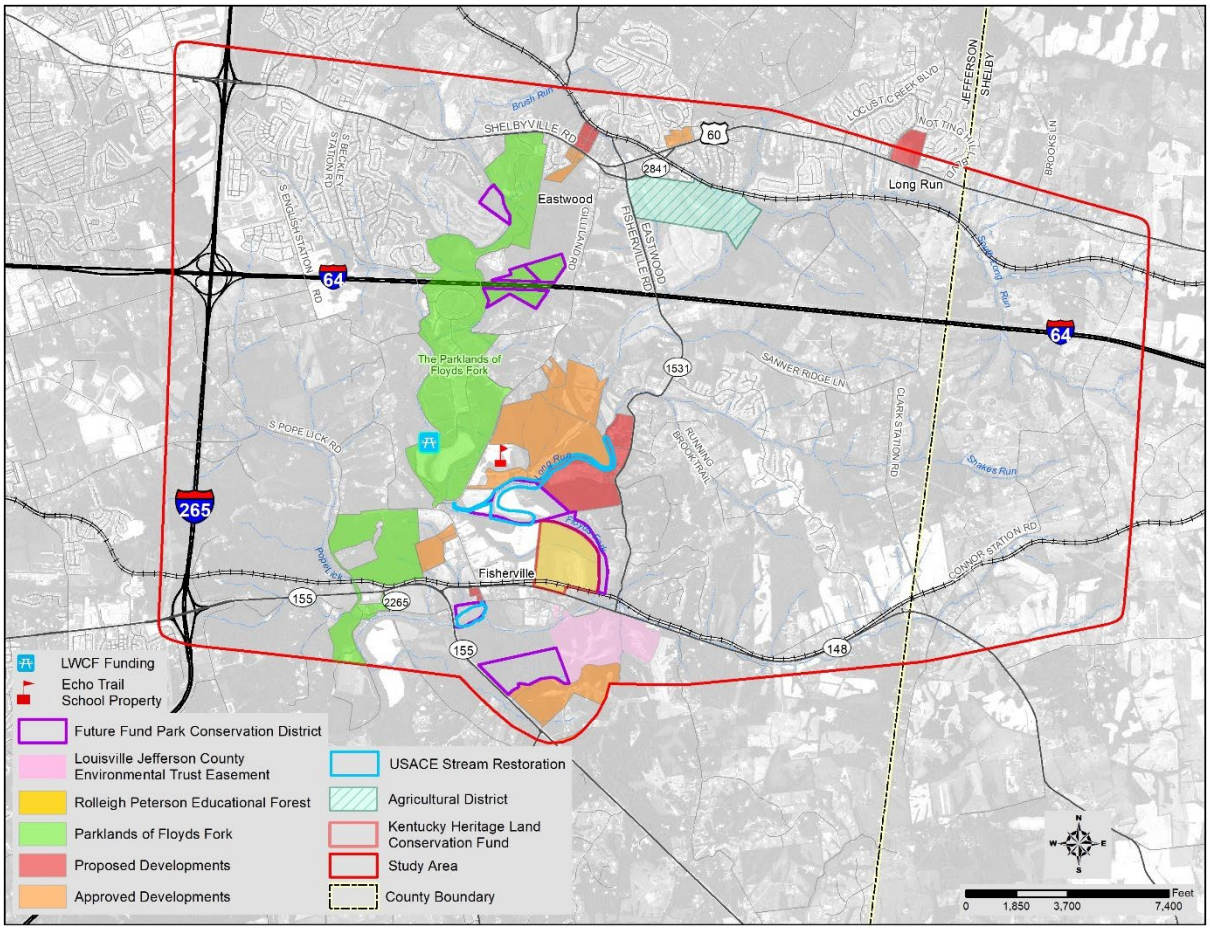


Figure 36: Protected Lands

- The Parklands of Floyds Fork (green fill) is protected by Section 4(f) of the *US Department of Transportation Act of 1966*, which protects public parks, recreation areas, wildlife refuges, and historic sites from conversion to transportation uses if a prudent and feasible avoidance alternative exists.

- Future Fund Conservation Districts (purple outline) represent properties in which Future Fund has a financial interest, a private non-profit organization started in the 1990s to protect areas within the Floyds Fork watershed. While many of these properties are part

[19] Online at https://louisvilleky.gov/government/planning-design/floyds-fork-dro

of the Parklands, other holdings are fee purchases with no associated easements passed on should they be sold. These were purchased with a conservation intent but no formal mechanism protects them.

- Properties developed with Land and Water Conservation Funds (LWCF) are protected by Section 6(f) regulations. Picnic areas on the western side of the park (blue icon) were developed via LWCF.
- The Rolleigh Peterson Educational Forest (yellow fill), locally known as the Walnut Grove, is protected in perpetuity by a KY Heritage Land Conservation Fund easement.
- Louisville Jefferson County Environmental Trust[20] (LJCET, pink fill) permanently protects two properties south of KY 148 with conservation easements: Little Dove Farm and Blackbird Bend Farm.
- One agricultural district (crosshatched) is enrolled in the Agricultural District Program administered by the KY Energy and Environment Cabinet. Participation in the program is voluntary and changes over time. Enrolled land cannot be annexed and cannot be condemned without mitigation; it is intended to prevent conversion to nonagricultural use.
- Further, proposed and approved developments (red and orange fill, respectively) denote the location of future developments—primarily subdivisions, but with a few smaller commercial uses as well. Along US 60 near Eastwood, a grocery store and storage unit complex represent new commercial developments. There are several other tracts of land that have been acquired by land development and investment organizations throughout the study area but have yet to officially file any proposed developments. Because these are speculation developments, they are not mapped. The three largest scale approved future subdivisions in the study area (mapped above) are:
    - Long Run Creek Properties' Echo Trail Residential, 732 single family homes approved in three phases, east of the new middle school;
    - Eastwood Fisherville Residential, 432 lots proposed, between Long Run Creek and KY 1531; and
    - Covington at the Park, 624 single family lots approved with access from KY 155.

4.2.2 Community Resources

Numerous community resources are located within the study area, shown in **Figure 31** above.

[20] Online at https://louisvilleky.gov/government/advanced-planning/louisvillejefferson-county-environmental-trust

Parks and Recreation. The Parklands of Floyds Fork are the premier recreational resource for the region, but a few smaller resources are also in the study area.

- Eastwood Recreational Center is a small local facility off Eastwood Cutoff Road. There is an indoor meeting space and ball field.
- Fisherville Paddling Access provides a parking lot and paved approach for canoes and kayaks to access Floyds Fork from Old Taylorsville Road, just south of the KY 148/KY 155 intersection.

Midland Trail Golf Club and Vahalla Gold Club also lie within the study area; as private recreational resources, they are not protected by Section 4(f).

Fire Stations. Fire stations serving the study area are located in the Eastwood, Fisherville, and Middletown communities (see **Figure 31**). With every moment critical in emergency responses, mobility limitations—congestion, circuitous rural routing, delay at at-grade rail crossings, etc.—are an important consideration when developing Build options.

Schools. There are two schools in the study area:

- Echo Trail Middle School (2604 Echo Trail), opened to its first students in the 2023-24 school year and will serve 6th through 8th grades.
- Christian Academy of Louisville (700 South English Station Road), serving 1,900 students from preschool through 12th grade.

Jefferson County students living in the study area are served by one of 13 public JCPS elementary schools, the new Echo Trail Middle School, one of two public high schools—Eastern or Jeffersontown—or the private school system. For Shelby County residents, public schools are located in Simpsonville and Shelbyville.

Health Care. No hospitals, emergency care facilities, or other health care facilities are located within the study area. Area residents rely on hospitals to the north and west for medical needs.

Churches and Cemeteries. There are eight churches and 18 known cemeteries in the study area limits. Additional unmarked burial grounds may exist, particularly as small family plots are common in more rural areas.

Hazardous Materials. Due to the large size of the study area, a detailed government database search was not conducted. Instead, readily available records from the US Environmental Protection Agency (USEPA) were compiled to illustrate the range of monitored sites within the study area. As shown in **Figure 37**, these sites include: Underground Storage Tanks (USTs) and hazardous waste

sites like Resource Conservation/Recovery Act (RCRA) that report all facilities that generate, transport, treat, store, or dispose of hazardous materials**.**

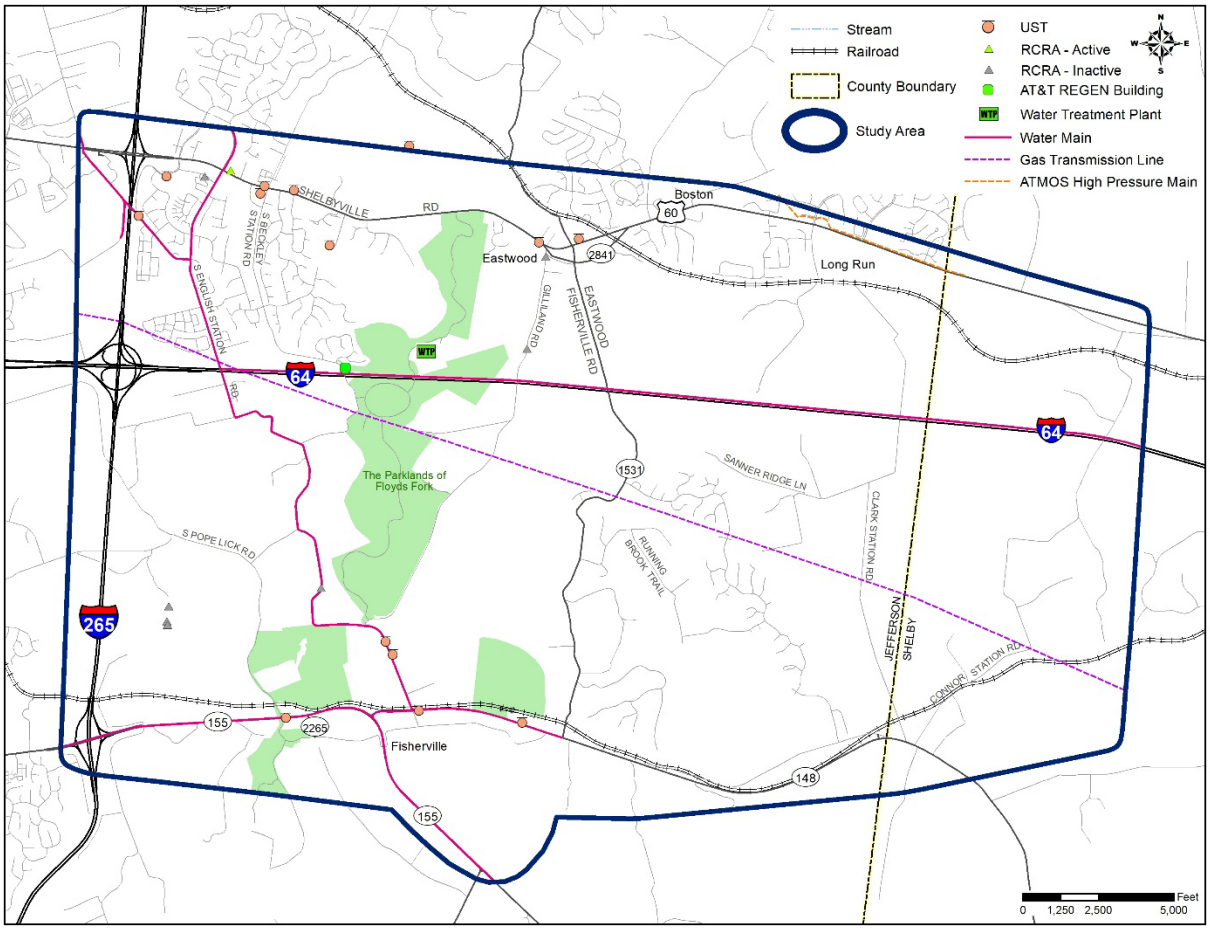


Figure 37: Utility, Hazmat, and UST Locations

4.2.3 Historic Resources

Historic resources are always an important consideration in planning highway corridors. Section 4(f) also covers historic properties, defined as properties listed in or eligible for listing on the National Register of Historic Places (NRHP). The *National Historic Preservation Act* requires federal agencies to take into account the effect of an undertaking upon historic properties. This involves making a "reasonable and good faith effort" to identify and evaluate historic properties, to document the effects upon these properties, and to determine measures to mitigate any adverse effects.

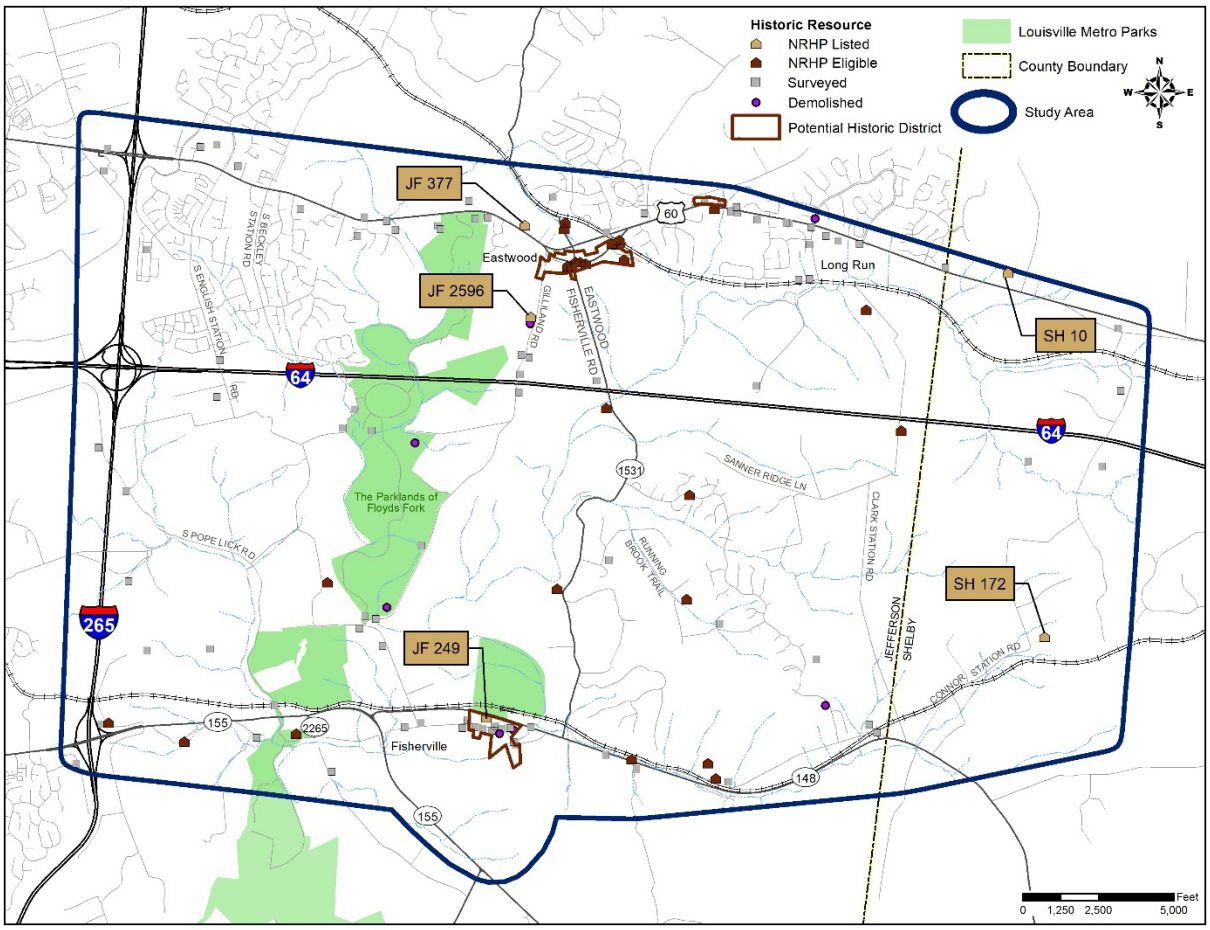


Figure 38: Potential NRHP Historic Resources

Numerous historic districts and properties are located within the study area, which has been extensively surveyed. KY Heritage Council records show 148 surveyed properties within the study area. Of these, most have an "undetermined" status but five are NRHP listed (**Table 11**), 24 are NRHP-eligible (**Table 12**), and 20 are part of potentially eligible groups/districts. Seven previously surveyed properties have since been demolished and one other formerly listed site has been removed from the NRHP.

Table 11: NRHP Listed Resources

 JF-2596 Eastwood Colored School 610 Gilliland Rd	 JF-377 Candlewood/Robert Hord House 15903 Shelbyville Rd	 JF-249 Fisher House 15103 Old Taylorsville Rd
 SH-172 Scearce-Roush House 2460 Conner Station Rd		 SH-10 Sturgeon Gregg House Shelbyville Rd

Table 12: NRHP-Eligible Resources

ID	Name	Location
JF 679	Doll Tavern/Richland/Ragland Farm	14305 Old Taylorsville Road
JF 703	James Wiseheart Farm	3814 Old Clark Station Road
JF 704	Burden-Wiseheart Farm	3900 Old Clark Station Road
JF 706	Fisherville Church Of Christ	16001 Highway 148
JF 708	William Nicholson House	17000 Running Brook Trail
JF 710	Eastwood Christian Church	16410 Eastwood Cut-Off Road
JF 711	Eastwood Methodist Church	16320 Eastwood Cut Off Road
JF 712	Barg House	16319 Eastwood Cut Off Road
JF 713	Eastwood School	16314 Eastwood Cut Off Road
JF 714	Site Of Floyd's Defeat (Battle Marker)	Near 16218 Eastwood Cut Off Road
JF 715	Aaron's Garage/Store/Post Office	16207 Eastwood Cut Off Road
JF 716	Cardinal Realty Building	16201 Eastwood Cut Off Road
JF 717	Wayne Thompson House	16126 Eastwood Cut Off Road
JF 718	First Baptist Church	16122 Eastwood Cut Off Road
JF 719	Long Run/Boston Store	16918 Shelbyville Road
JF 721	Long Run Railroad Station	716 Clark Station Road
JF 727	Kurz House	115 Johnson Road
JF 728	Davenport House	211 Johnson Road

ID	Name	Location
JF 739	Frederick-Sturgeon Farm	1100 Eastwood-Fisherville Road
JF 770	Owen Burdon Farm	Shakes Run
JF 968	House	14020 Old Taylorsville Road
JF 970	Farmhouse	2612 English Station Road
JF 1329	Bryant House	1401 Clarks Station Road
JF 1739	House	Harrods Old Trace

Two potentially eligible districts were identified as part of KYTC's 2008 study, neither of which has been formally surveyed to date:

- The potential Fisherville district is located in the southwest portion of the study area, along Old Taylorsville Road, and consists of residential dwellings and commercial sites.
- The potential Eastwood district is located in the northwest portion of the study area, south of US 60, along Eastwood Cutoff Road. It consists of residential dwellings, churches, and commercial sites. Modern infill since the 2008 analysis is likely to reduce the original proposed footprint shown on **Figure 38**.

If any proposed improvements involve additional right-of-way from within a listed or eligible NRHP site, Section 4(f) requirements must be considered during future project development phases. Consultation with the KY Heritage Council and local consulting parties would also be required in accordance with Section 106 of the *National Historic Preservation Act*.

4.2.4 Demographic Trends

Included as **Appendix D**, an assessment of demographic trends identified potential sensitive population concentrations. This socioeconomic study reviewed 2021 Census estimates to identify potential environmental justice (EJ) concentrations of low-income and minorities, as well as the sensitive populations of elderly, disabled, or limited English proficiency (LEP) persons per Title VI of the Civil Rights Act.

Summarized in **Table 13** and **Figure 39** (page 55), the analysis concluded that several tracts and block groups show elevated concentrations of older (age 65+) residents. Three areas have concentrations of low-income or minority populations: two inside I-265 and the section of Shelby County between I-64 and US 60. This block group in Shelby County exceeds the county reference threshold for all five analysis populations. Red text in the table highlights concentrations greater than the countywide average.

Table 13: Summary of Demographic Trends

Geography	Population	% Minority	% Below Poverty	% Age 65+	% Disability	LEP %
Kentucky	4,494,141	16.36%	16.27%	16.35%	17.40%	1.39%
Jefferson County	**780,449**	**34.08%**	**13.74%**	**16.16%**	**13.90%**	**3.05%**
CT 103.16	6,792	16.84%	9.68%	15.36%	9.01%	0.81%
BG 1	3,637	17.40%	1.63%	15.84%		0.79%
BG 2	721	16.92%	5.41%	**36.06%**		2.81%
CT 103.21	5,068	21.35%	2.58%	**17.48%**	7.10%	0.00%
BG 1	2,199	21.87%	5.09%	**24.97%**		0.00%
BG 2	2,869	20.95%	0.66%	11.75%		0.00%
CT 103.22	2,921	14.38%	2.05%	14.17%	8.08%	0.00%
BG 1	708	9.32%	2.40%	**21.47%**		0.00%
BG 2	2,213	16.00%	1.94%	11.84%		0.00%
CT 104.06	6,271	18.67%	8.21%	14.10%	8.33%	0.45%
BG 4	1,762	30.65%	**25.48%**	**18.44%**		1.15%
CT 104.07	3,943	16.71%	5.08%	13.44%	6.24%	0.00%
BG 1	1,419	10.36%	4.97%	**25.72%**		0.00%
BG 2	2,524	20.29%	5.14%	6.54%		0.00%
CT 111.16	3,834	18.23%	4.33%	**19.98%**	**18.60%**	0.00%
BG 2	1,113	24.26%	4.40%	**38.54%**		0.00%
BG 3	1,585	5.05%	4.48%	10.79%		0.00%
CT 115.20	4,634	16.72%	1.84%	15.73%	6.67%	2.32%
BG 2	2,074	15.04%	1.69%	12.05%		0.00%
CT 116.04	2,308	1.26%	0.66%	**22.36%**	13.21%	0.00%
BG 1	1,190	0.00%	0.60%	**17.56%**		0.00%
CT 116.05	7,551	14.09%	3.31%	**19.90%**	4.88%	0.26%
BG 1	1,117	8.15%	5.69%	**38.32%**		0.00%
BG 2	1,967	10.07%	1.22%	12.46%		0.00%
BG 3	2,820	10.25%	5.82%	**17.16%**		0.59%
BG 4	1,647	29.51%	0.00%	**21.01%**		0.00%
CT 116.06	1,578	9.76%	8.24%	**19.39%**	10.08%	0.00%
BG 1	1,578	9.76%	8.24%	**19.39%**		0.00%
Shelby County	**47,523**	**20.72%**	**9.39%**	**15.98%**	**13.07%**	**2.59%**
CT 405.01	3,062	11.46%	2.35%	15.64%	9.34%	1.21%
BG 1	2,112	11.74%	1.33%	13.30%		1.47%
BG 2	950	10.84%	4.63%	**20.84%**		0.61%
CT 405.03	3,825	**22.88%**	**12.47%**	13.28%	**15.76%**	**4.13%**
BG 2	1,286	**28.93%**	**28.93%**	**22.08%**		**2.61%**
BG 3	1,554	14.29%	1.87%	6.89%		0.00%

None of the study area represents "Justice40"[21] tracts, a federal initiative to address decades of underinvestment in disadvantaged communities. The methodology to define disadvantaged communities considers several categories: income, housing trends, exposure to pollution, health metrics, population growth, fire/flood risk, and more.

[21] Online at https://www.transportation.gov/equity-Justice40

Additional EJ analyses may be required as part of future project development phases, especially if improvements in any of the block groups with above average EJ populations require additional right-of-way or residential relocations.

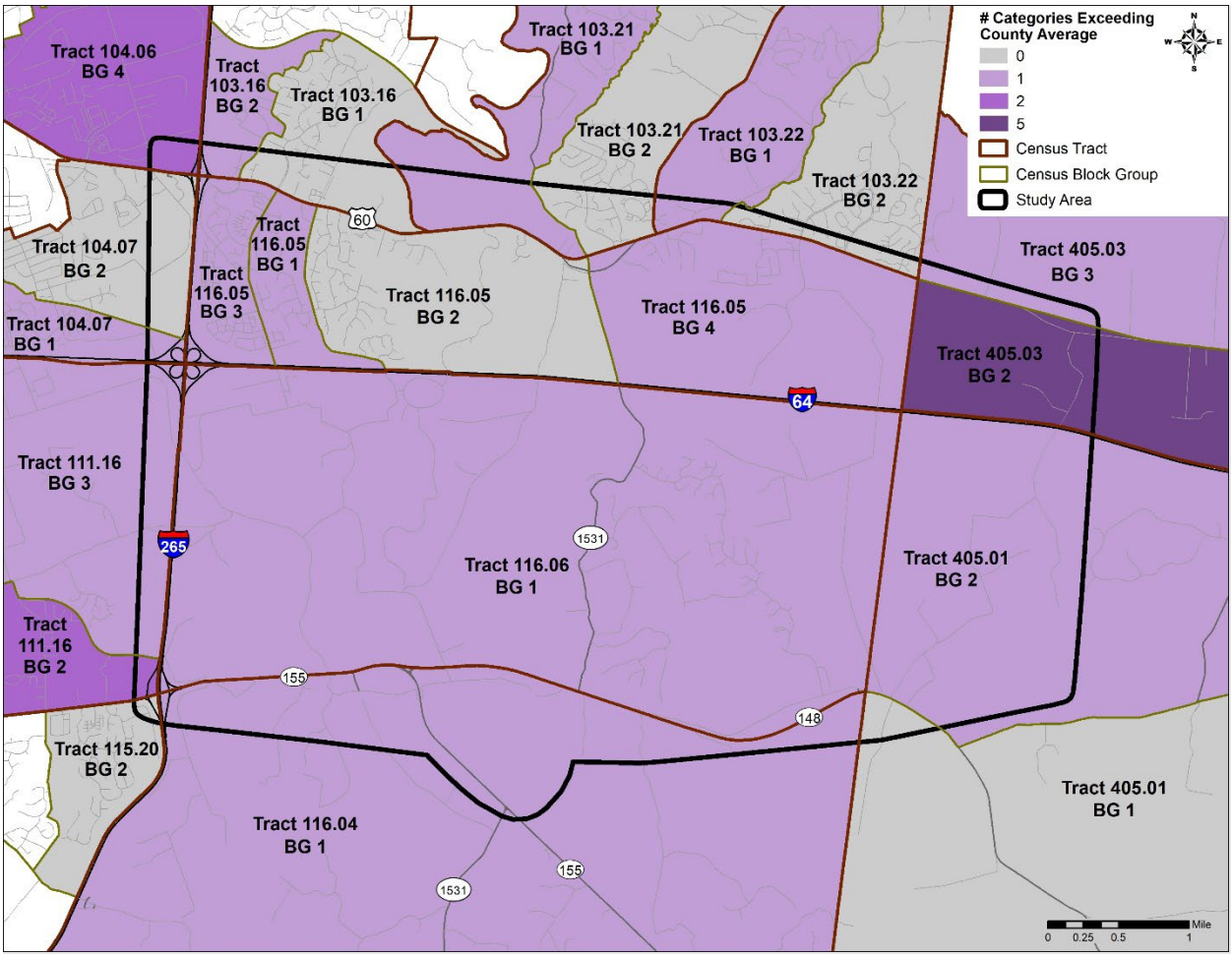


Figure 39: Reference Geographies for EJ Analyses

Air Quality Considerations. The USEPA monitors National Ambient Air Quality Standards for all six criteria pollutants: ozone, lead, nitrogen dioxide, sulfur dioxide, carbon monoxide, and particulate matter. Jefferson County is currently in non-attainment for 8-hour ozone.

To demonstrate air quality conformity, federally funded transportation capacity projects recommended for further development should be modeled and included in KYTC's *Statewide Transportation Improvement Program* (STIP) to ensure conformity requirements are satisfied. A project that adds capacity would likely need to consider mobile source air toxics and greenhouse gas emissions.

Noise Considerations. Federally funded transportation projects typically require consideration of noise impacts. Noise sensitive receptors in the vicinity of improvements include residential areas,

parks, cemeteries, hospitals, churches, schools, etc. Some commercial properties with exterior uses are also considered noise sensitive. Specific traffic noise impact analyses may be required as part of future project development activities if projects are identified that add capacity or shift traffic closer to sensitive receptors.

5.0 INITIAL COORDINATION EFFORTS

With the scope and scale of the proposed project to transform transportation patterns in eastern Jefferson County, community engagement was a critical component of the planning process. A Community Advisory Group (CAG) was formed to liaise with the community and to provide local insights to decision makers. Local Elected Officials (LEO), the public, and Resources Agency coordination points also informed the study process. The project team—including KYTC District 5 and Central Office personnel from various disciplines, KIPDA staff, and consultant personnel—met at key milestones throughout the study process.

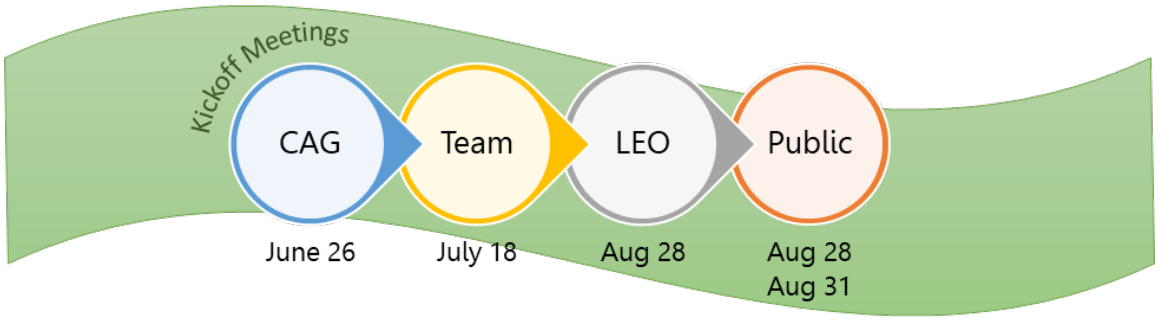
5.1 Community Advisory Group

The CAG is comprised of 18 invited members, selected to act as a link between KYTC and the community at-large to provide meaningful discussions, viewpoints, or feedback on this potential major transportation project. Their mission is to assist the project team in making recommendations on project decisions in the planning study. The CAG met at four key milestones throughout the study process to advance these goals.

Figure 40: CAG Membership

5.2 Kickoff Meetings

In summer 2023, the project team kicked off the study with a series of community events. Summaries of each are arranged chronologically in **Appendix E**. At each, the project team provided an overview of the study, described ongoing transportation projects nearby, reviewed existing study area conditions, and sought feedback on transportation needs.



5.2.1 First Round of Public Input

In late August, a set of two public meetings were held on both sides of the study area to introduce the study and collect insights on area needs. Meetings corresponded to the website launch—connect64.com—and a public survey, promoted via area newspapers, social media, roadside message boards, and other notices.

Monday, August 28, 2023	Thursday, August 31, 2023
Open House from 6-8 PM	Open House from 6-8 PM
St. Michael's Catholic School (Cafeteria)	Highview Baptist Church (Lobby)

Consistent with Title VI guidelines, engagement opportunities were crafted to ensure equal opportunity and non-discrimination. Materials were provided in English and Spanish. Both online and in-person options promoted flexibility and inclusion, with multiple venues to serve dispersed populations throughout the large study area. Advertisements included contact information to make special arrangements as needed to accommodate individual needs.

Over the 5-week public comment period, 276 survey responses were collected. Of these, 73% of participants live and/or work in the study area with 83% traveling through the study area daily. One question asked individuals to rank their top priorities within the study area; the exercise was

repeated for both the public and CAG members. Average scores are shown in **Figure 41**; as shown, promoting safety and reducing congestion were the top-rated priorities by both groups.

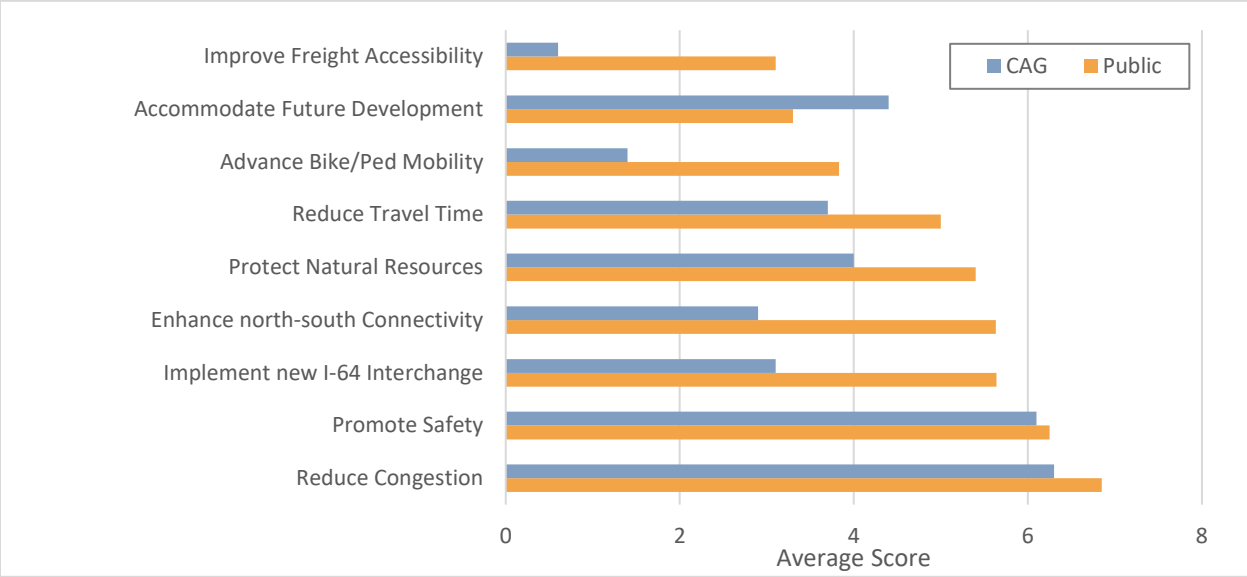


Figure 41: What are your Top Priorities within the Study Area?

A similar question asked, "if a new route or interchange were constructed, what concerns do you have?" The most common concerns raised were:

- Protect natural resources (61% of responses)
- Potential future congestion (60%)
- Preserving the rural character (60%)

Separate questions asked if a new north-south connector or a new I-64 interchange were needed. In both cases, about 60% of survey responses were in support of a new facility while about 40% were opposed. **Table 14** summarizes common themes provided as to why or why not a new interchange/connector is needed.

Table 14: Why is a New Interchange/Connector Needed or Not?

Why New Facility is Needed	Why New Facility is Not Needed
Accessibility / Save Time / More Direct Route	Preserve Rural Area (Quiet, Low Light, No More Development)
Relieve Congestion / Reduce Emissions from Idling	Surface Streets Can't Handle Induced Demand
Improve Safety on Existing Roads	Protect Environment (Floyds Fork & Farmlands) / Increase Pollution
Alternate Route when Crash on I-64	Invest in Existing Infrastructure / Transportation Alternatives
Emergency Response Access to Crashes & Homes	Other Ongoing Improvements Will Relieve Congestion
Improve Freight Accessibility	Cost / Long-term Maintenance
	Too Many Access Points to Interstate Reduce Effectiveness

Additional survey questions asked individuals to balance how a new north-south connector should feel, in terms of design speed, modal priority, and access control. As summarized in **Table 15**, any new route should manage travel speeds and prioritize cars over other modal users, with an even balance between property access and vehicular throughput.

Table 15: How should a new Connector feel?

How should connector **speed** feel?		
33%	**52%**	15%
Low speed Boulevard	Medium speed Collector	Higher speed Arterial
How should connector **modal priority** feel?		
18%	32%	**50%**
Bike/ped first	Shared	Cars first
How should connector **access** feel?		
36%	**56%**	8%
Mobility focus	Balanced	Access focus

Most survey respondents also felt a new connector should balance responsiveness to existing issues and future growth, with a skew towards addressing existing needs first.

A final survey prompt encouraged individuals to sketch the best location for a new interchange and north-south connector. As shown in **Figure 42**, 130 participants provided input, with the densest clusters of concepts in two general areas:

- Between Gilliland Road/Echo Trail and KY 1532 (Eastwood-Fisherville Road)
- Near Clarks Station Road & Jefferson/Shelby County Line

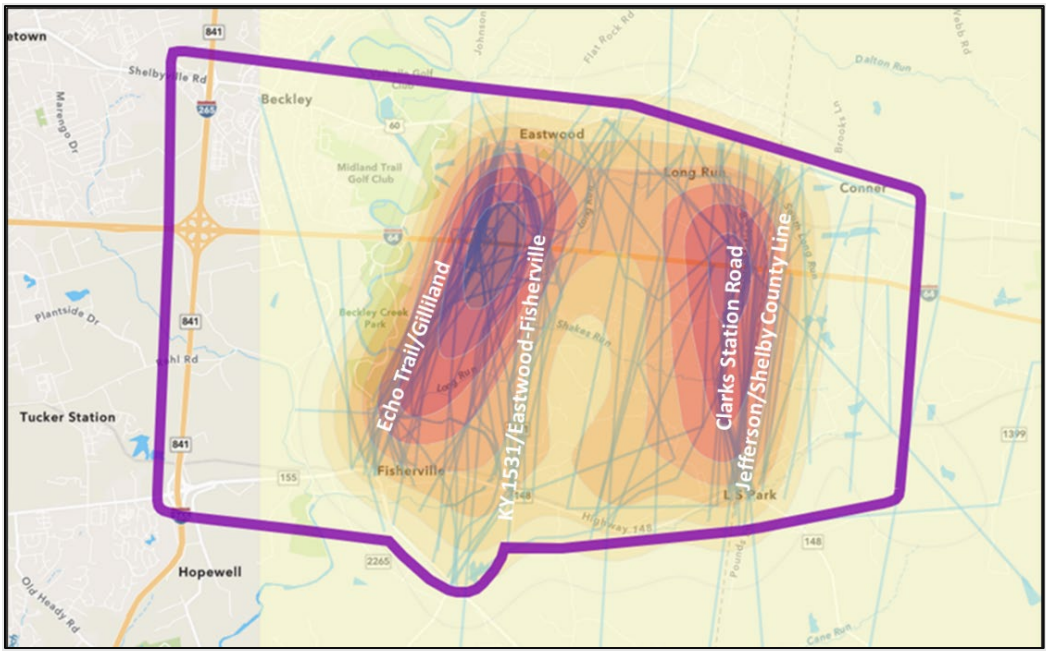


Figure 42: Where should a new North-South Route be?

6.0 2045 NO-BUILD TRAFFIC FORECAST AND OPERATIONS

A range of year 2045 scenarios were coded into a project-specific travel demand model to test model sensitivity and forecast future traffic patterns. The project-specific hybrid model blends elements from both KIPDA's regional model and KYTC's statewide network. It should be noted that the travel demand model focuses on regionally important highways; it does not account for every surface street and driveway connection. Therefore, outputs represent generalizations, particularly where underlying geographic areas are relatively large. The travel demand model is the best tool available to forecast long-term, large-scale regional changes in traffic patterns such as would result from the proposed 5-80000 interchange and connector.

To ensure model assumptions reflect reasonable, up-to-date development expectations, the project team compiled information from numerous sources to define socioeconomic growth assumptions:

- Population and employment forecasts from both KYTC's statewide travel demand model and KIPDA's regional model were compared, applying more detailed growth patterns from KIPDA's model where coverage overlapped.
- County-wide population projections from the Kentucky State Data Center informed high-level future trends from an independent source.
- Conversations with Planning & Zoning officials in Jefferson, Shelby, and Spencer counties identified major investments and development plans.
- Discussions about growth patterns and plans occurred at the first two CAG meetings, incorporating local knowledge from key stakeholders most familiar with the area.

Additional information on forecasting is documented in **Appendix A**.

Figure 43 and **Figure 44** compare model growth assumptions near the study area, incorporating input from each of these sources. Darker shading represents more intense growth between the 2021 base year and 2045 planning horizon. Within the study area, population is projected to increase from 27,400 in 2021 to 43,500 in 2045. Considering the study area plus a ten-mile buffer, population is projected to grow 26% over the same period. The most intense residential growth within the study area is expected to occur in the area bounded by I-64, the county line, KY 148, and Floyds Fork.

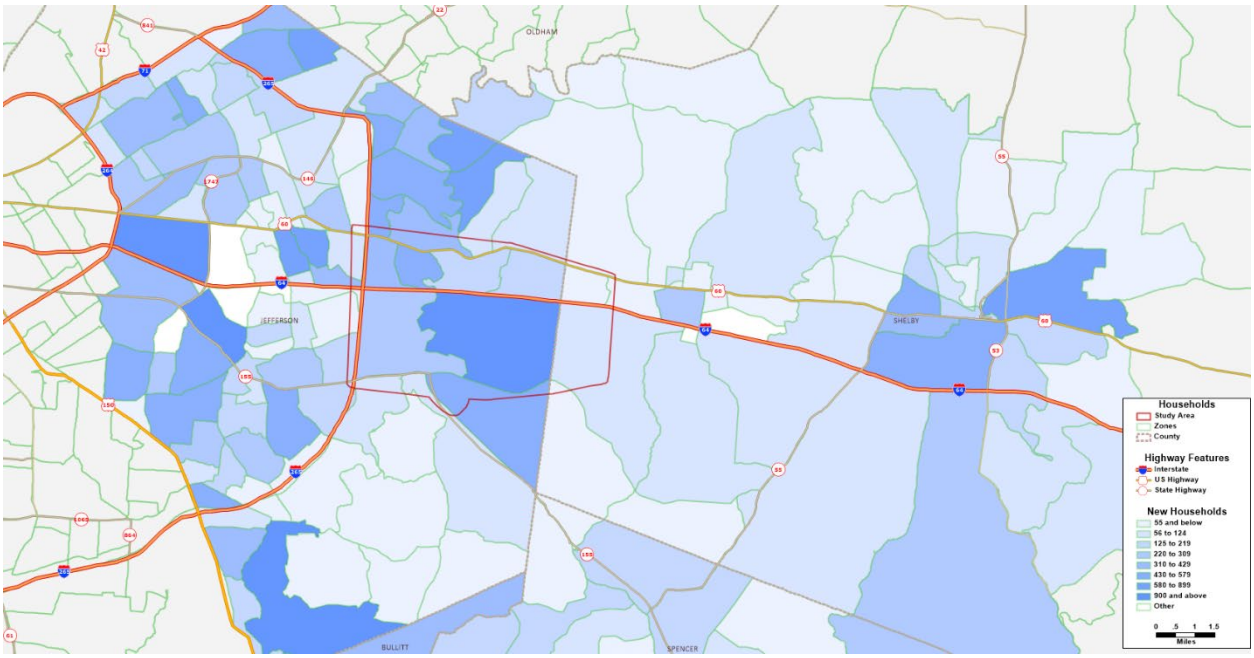


Figure 43: Model Household Growth Forecasts

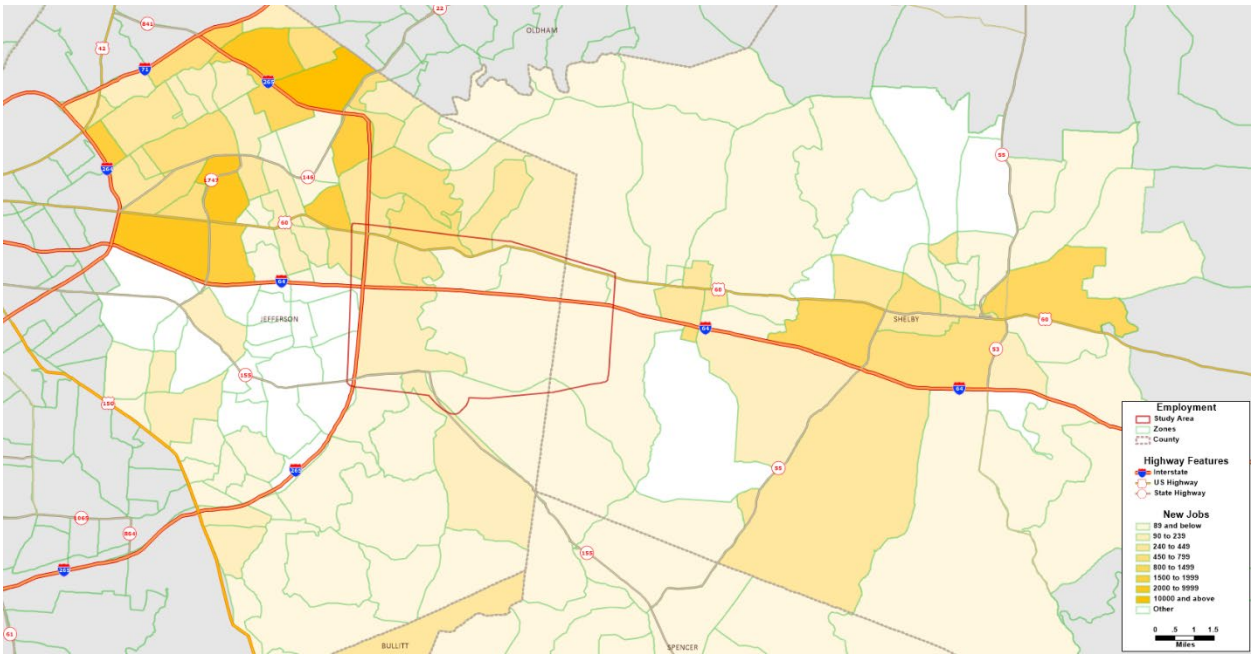


Figure 44: Model Employment Growth Forecasts

6.1 2045 No-Build Traffic

With 6,000 new homes and 4,500 new jobs projected within the study area by 2045, traffic volumes are expected to increase over 2023 levels with or without a new interchange/connector. **Figure 45** shows 2045 No-Build projections alongside the increase in v/c compared to existing levels (**Figure 24**). In some cases, projected traffic increases are substantial—like +12,000 vpd on KY 1531 (Eastwood Fisherville Road) and +14,500 vpd on US 60 outside I-265—and current roadways

may not be able to support anticipated volumes, even accounting for planned capacity additions as part of separate KYTC projects (**Figure 4**).

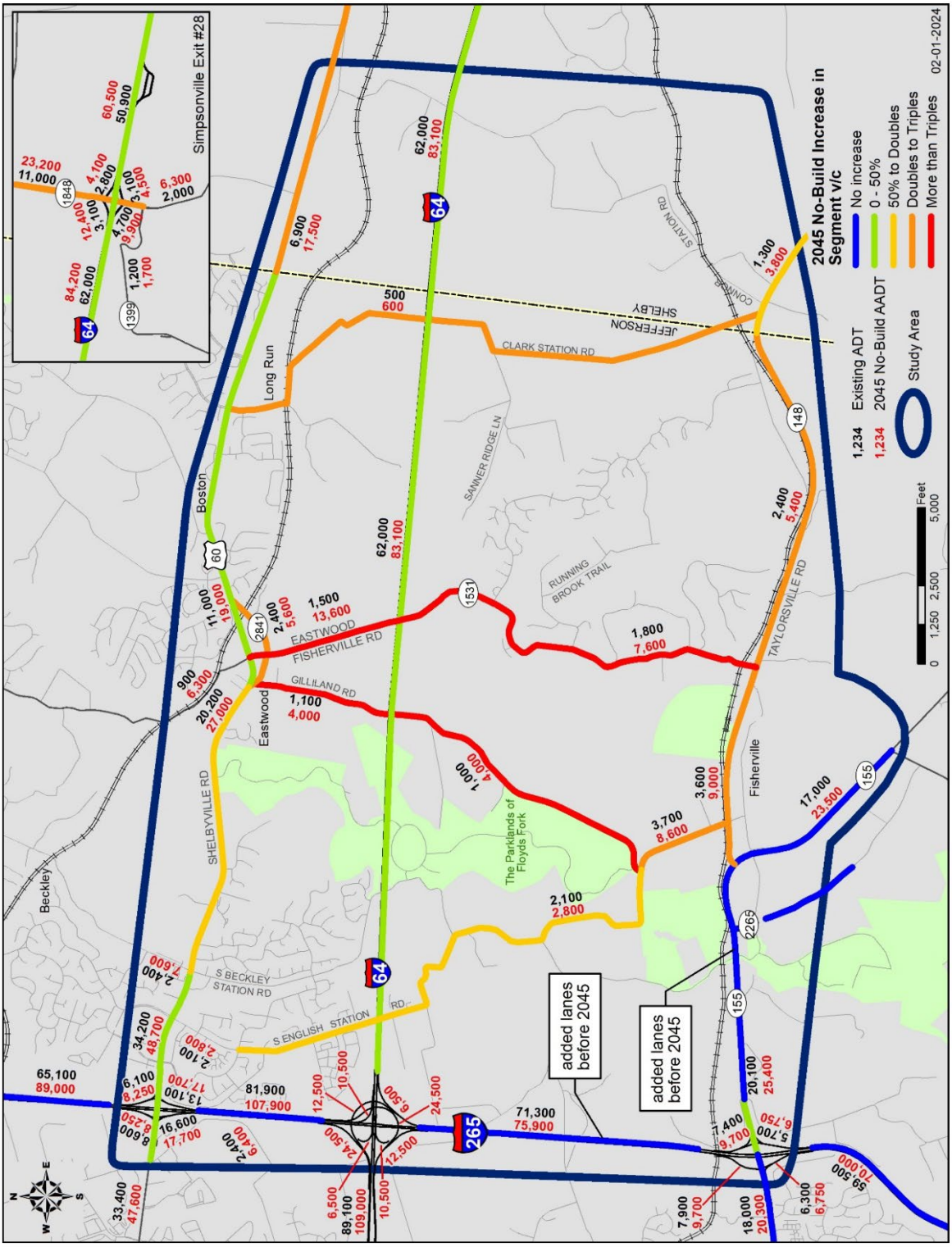


Figure 45: 2045 No-Build Traffic and Change in v/c

6.2 2045 No-Build Operations

Traffic operations associated with highway segments in the No-Build scenario are presented in **Table 16**. Calculations include additional travel lanes along I-265 and KY 155, assumed to be constructed prior to 2045 as part of separate KYTC projects.

Table 16: 2045 No-Build Segment LOS and v/c

ROUTE	COUNTY	BMP	EMP	No-Build ADT	LOS	v/c
US 60	Jefferson	11.70	12.02	47,600	E	0.92
	Jefferson	12.02	12.89	48,700	D	0.64
	Jefferson	12.89	14.72	27,000	C	0.57
	Jefferson	14.72	17.38	19,000	E	0.75
	Shelby	0.00	3.62	17,500	E	0.75
I-64	Jefferson/ Shelby	19.20	23.97	83,100	C	0.74
KY 148	Jefferson	0.00	1.24	9,000	C	0.32
	Jefferson	1.24	3.39	5,400	B	0.21
	Shelby	0.00	2.42	3,800	A	0.15
KY 155	Jefferson	3.03	4.28	20,300	B	0.37
	Jefferson	4.28	5.71	25,400	B	0.38
	Jefferson	5.71	6.06	25,400	B	0.38
	Jefferson	6.06	6.69	23,500	B	0.30
CR-1002J S English Station	Jefferson	0.11	0.74	8,600	D	0.35
	Jefferson	0.74	4.04	2,800	D	0.33
KY 1531	Jefferson	5.62	8.20	7,600	C	0.26
	Jefferson	8.20	9.12	13,600	E	0.47
CR-1004J Clark Station	Jefferson	0.00	3.46	600	A	0.02
KY 2841 Eastwood Cutoff	Jefferson	0.00	0.64	5,600	A	0.23
CR-1009J Echo Trail	Jefferson	0.00	1.66	4,000	C	0.29
CR-1010J Gilliland Road	Jefferson	0.00	1.11	4,000	C	0.22
KY 2265 Hatmaker Trail	Jefferson	0.00	0.15	210	A	0.02
CS-1005J Old Routt Road	Jefferson	0.00	0.62	100	A	0.01
KY 1848	Shelby	4.80	5.40	23,200	B	0.33

Intersection operations are summarized in **Table 17**, corresponding to No-Build forecasts shown in **Appendix A** figures. At signals, overall intersection LOS is reported alongside the number of movements with a 0.9+ v/c ratio. For example, US 60 and the southbound I-265 ramps in the PM peak operates at LOS D and one of six possible turn movements is approaching capacity. At stop-

controlled intersections, mainline movements are free-flow so there is no overall intersection LOS measure. However, stop-controlled approaches at or approaching capacity are noted.

Based on expected growth in the area, existing highways will not be sufficient to handle expected traffic during peak travel periods. As shown, substantial expected growth results in degraded performance at most study area intersections. Geometric changes include two committed capacity projects: US 60 widening at Gilliland Road and the western KY 2841 (Eastwood Cutoff) intersection (Item No. 5-8952) and KY 155 widening east of I-265 (Item No. 5-8908).

Table 17: 2045 No-Build Intersection Operations

INTERSECTION	CONTROL	AM LOS	AM v/c >0.9	PM LOS	PM v/c >0.9
I-265 SB Ramp at US 60	Signal	D	0/6	D	1/6
I-265 NB Ramp at US 60	Signal	D	1/6	E	2/6
US 60 at English Station Way/Beckley Woods	Signal	F	3/10	F	6/10
US 60 at English Station Rd/Lake Forest Pkwy	Signal	F	4/11	F	5/11
US 60 at Beckley Station Road	Signal	F	3/10	C	1/10
US 60 at KY 2841 (West)	1-way Stop	-	NB	-	NB
KY 2841 at Gilliland Road	1-way Stop	-	-	-	-
KY 2841 at KY 1531	2-way Stop	-	NB + SB	-	NB + SB
US 60 at KY 1531	2-way Stop	-	NB + SB	-	NB + SB
US 60 at KY 2841 (East)	1-way stop	-	-	-	NB
US 60 at Flat Rock Road	Signal	F	2/5	F	3/5
US 60 at Clark Station Rd/Locust Creek Blvd	2-way Stop	-	NB	-	NB
I-265 SB Ramps at KY 155	Signal	B	0/6	C	0/6
I-265 NB Ramps at KY 155	Signal	D	1/6	B	1/6
KY 155 at S Pope Lick Road	2-way Stop	-	NB + SB	-	NB + SB
KY 155 at KY 148	Signal	D	2/6	F	1/6
KY 148 at S English Station Road	2-way Stop	-	NB + SB	-	NB + SB
KY 148 at KY 1531	1-way Stop	-	SB	-	SB
KY 148 at Clark Station Road	1-way Stop	-	-	-	-
KY 155 at KY 1531	1-way Stop	-	EB	-	EB
I-64 WB Ramps at KY 1848	Signal	B	0/6	B	0/6
I-64 EB Ramps at KY 1848	Signal	B	0/6	C	0/6

Based on projected growth levels, corridor-level widening to extend the five-lane section of US 60 eastward may warrant consideration. Intersection-level improvements—e.g., turn lanes, signalization, timing/phasing adjustments—will also be needed to address capacity concerns.

7.0 CONCEPT DEVELOPMENT: TIER 1

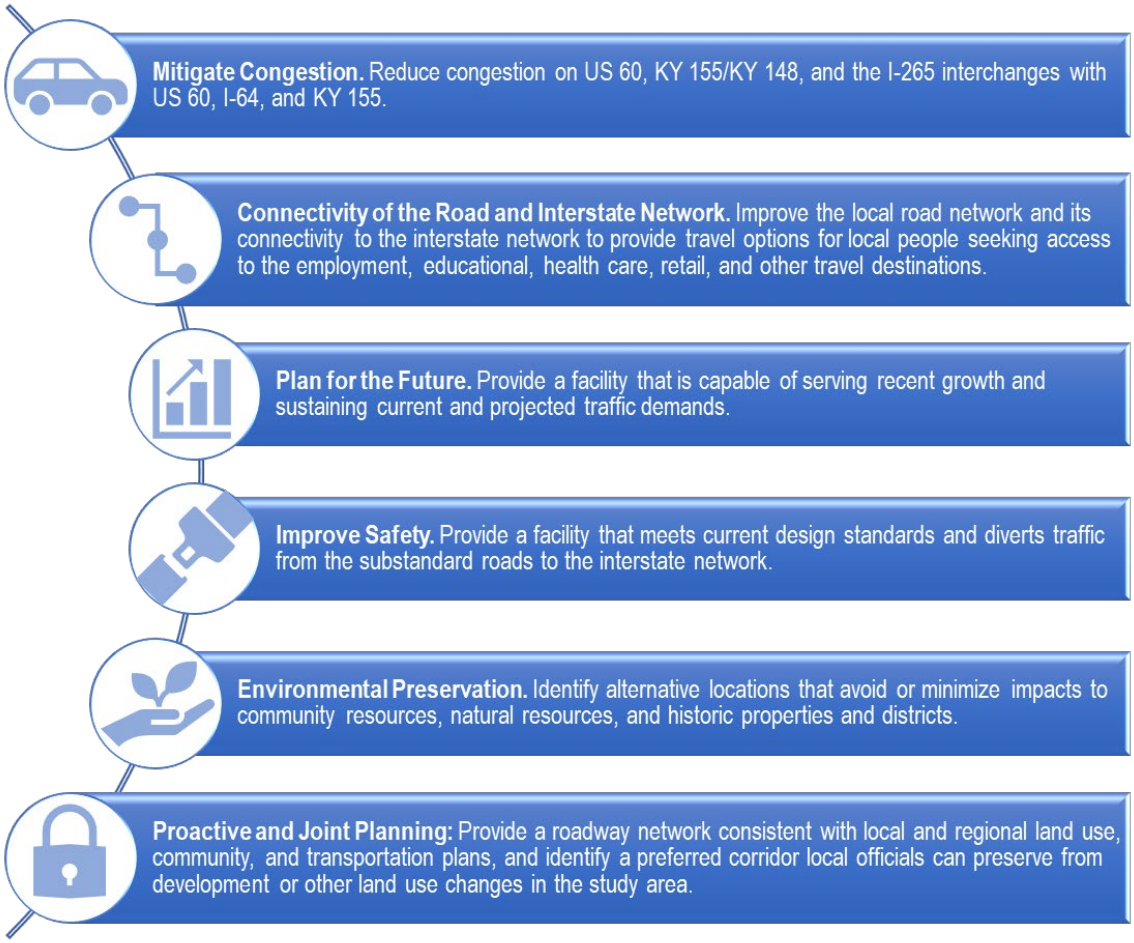
The 5-80000 concept development process occurred in two tiers, starting with broad planning-level corridors then advancing a subset of the most competitive options for more detailed analysis.

7.1 Study Goals & Objectives

Before defining Build concepts, analysts defined the study's main goals and objectives. These goals and objectives are intended to inform a future project's purpose and need statement.

Two primary goals drive the study: 1) to reduce congestion on the existing roadway network and 2) to improve connectivity to I-64 within the nine-mile stretch between I-265 and KY 1848.

Beyond the primary study goals, conversations with the CAG and public survey responses identified several other screening metrics important to consider when evaluating Build options. Combined with the primary goals above, these cover all six of the project goals from the 2008 study:



7.2 Tier 1 Concepts

Tier 1 corridors were developed based on existing highway connections, expected growth patterns, terrain, environmental constraints, public suggestions, past planning efforts, and other engineering considerations. In addition to considering a new I-64 interchange along a nine-mile gap in access, this study evaluates potential routes connecting US 60 to the north to KY 155/KY 148 to the south. For Tier 1, each concept is assumed to have a 45-mph design speed, two lanes—increasing to a five-lane typical for any concepts north of I-64 and west of Eastwood—and a shared use path on one side.

During Fall 2023, ten Tier 1 concepts were developed, at logical termini as shown in **Figure 46**, which can be grouped into West (Concepts 1-5) and East (Concepts 6-10) geographic areas.

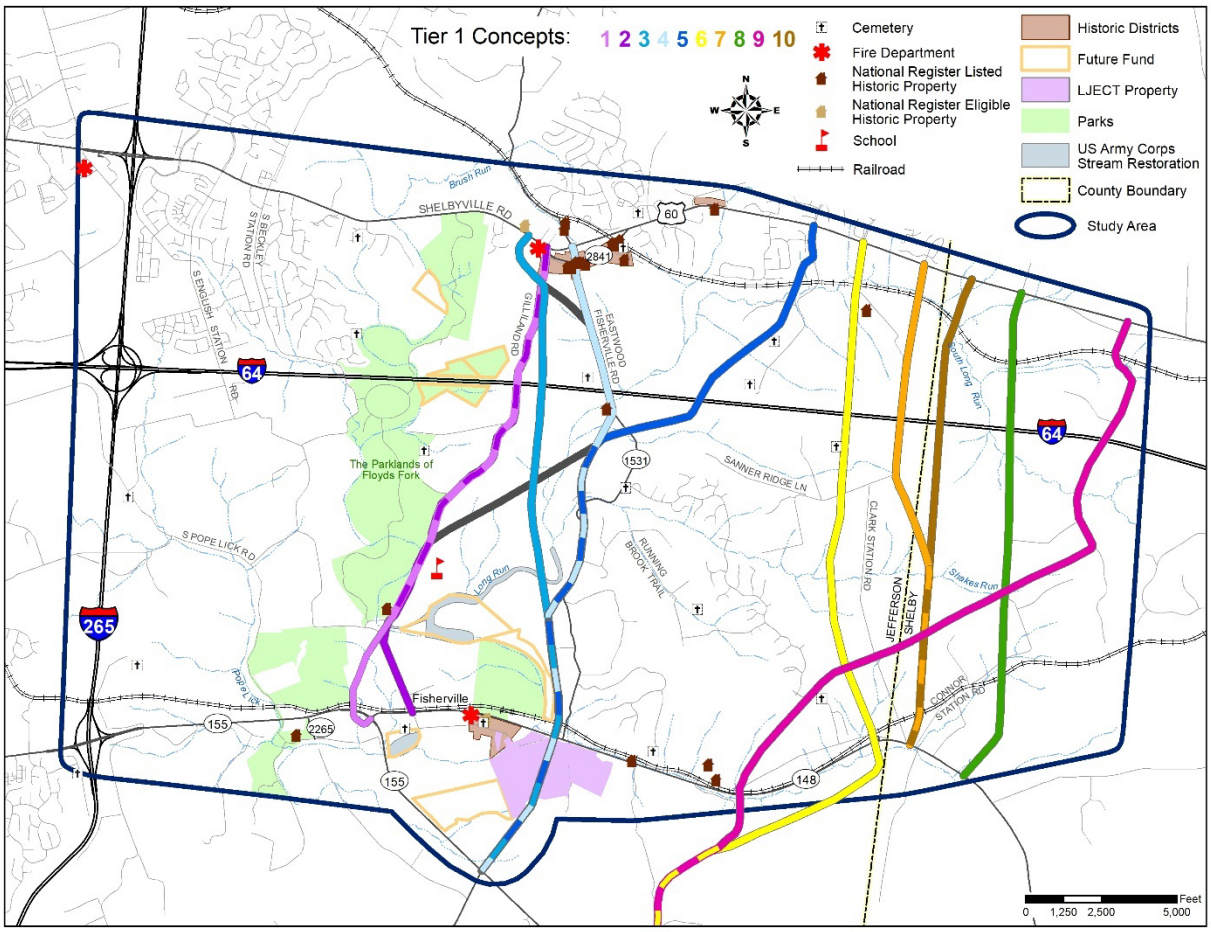


Figure 46: Range of Tier 1 Concepts

Concepts were developed based on the following criteria:

- Minimize impacts to high density subdivisions, existing parks, existing and planned developments, and other environmental issues (e.g., historic districts, streams, and floodplains).
- Utilize existing roadways when practical.
- Grade considerations at railroad crossings, either at-grade intersections or grade-separated with a structure.
- Connect to US 60 on the north and to KY 148 or KY 155 on the south—near existing intersections, when practical.
- Input received from the public (**Figure 42**) regarding proposed locations for the interchange. Heat maps generated from public suggestions showed a clear division of eastern and western concepts, avoiding subdivisions within the center part of the study area.

Segments of each can also be divided and combined to form new hybrid combinations or to adjust endpoints. Each Tier 1 concept was screened against study goals and objectives and other engineering considerations like length, earthwork, utility impacts, etc. Shading in **Table 18** highlights the best (green) and worst (orange) performers in each category.

Table 18: Tier 1 Screening Matrix

	West Concepts					East Concepts				
	1	2	3	4	5	6	7	8	9	10
Primary Goals										
More Connectivity	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reduces Congestion	Most	Most	Most	Most	Some	Some	Some	Least	Least	Some
Secondary Objectives										
Improves safety	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reduces emergency response times	Best	Some	Best	Best	Some	Some	Some	Some	Some	Some
Coordinates with planned growth	Some	Some	Best	Best	Best	Best	Some	Some	Some	Some
Minimizes impacts	Worst	Some	Some	Worst	Worst	Some	Best	Best	Best	Best
Engineering Considerations										
Concept Length (mi)	3.5	3.2	4.2	4.2	5.2	5.8	3.1	3.1	6.0	3.0
I-64 Traffic Impacts	Med	Med	Med	Med	Low	High	Med	High	Low	Med
Earthwork	Med	Low	High	High	High	High	Low	Med	Med	Med
Construction Costs (millions)	$130	$110	$175	$160	$145	$110	$55	$75	$95	$70
Utility Impacts	High	High	Low	Med	Med	Med	Low	Low	High	Low

7.3 Project Team Meeting

The project team met November 17, 2023, to review the community input and 2045 traffic, culminating in a discussion of the Tier 1 Build concepts. Group discussion covered future I-64 widening, potential impacts to environmental and community resources, and weighing traffic benefits against costs. Based on the information presented, the team agreed to advance a selection of the most competitive concepts that represent a range of different geographic settings within the study area for more detailed Tier 2 analyses.

- Of the farthest west options, Concept 2 should advance over Concept 1 as Concept 2 has fewer impacts and lower costs. At the northern end, it should shift west of Eastwood, similar to Concept 3, to minimize impacts to the community and historic district. Widening between the new Echo Trail Middle School and park property could be a challenge. Long-term, the assumed at-grade NS railroad crossing may need reconsideration.
- Of the mid-west options, a hybrid combination of Concepts 3-4 should advance, tying to US 60 west of Eastwood. The southern link to Routt Road should remain as shown. Other than earthwork and costs, Concept 3 performed best in most of the screening criteria considered. Concept 5 was dismissed as it adds length without improving its performance: it has fewer traffic benefits but greater costs and impacts than Concepts 3-4.
- Of the eastern options, any connection south of KY 148 can be dismissed due to length/cost and proximity of the KY 55 corridor serving a similar purpose. A hybrid combination of Concepts 6, 7, and 10 (ending at KY 148) should be advanced, identifying a competitive alignment in this swath to minimize impacts.
- Further east, Concepts 8 and 9 were eliminated as they would have the least benefit to traffic, particularly south of I-64, which is a core element of the project's purpose.

Following the project team meeting, an interim CAG meeting was held February 2, 2024, to update advisory group members on the Tier 1 screening.

8.0 CONCEPT DEVELOPMENT: TIER 2

More detailed options were developed for three Tier 2 corridors (**Figure 47**). Tier 2 concepts still represent a high-level corridor overview with broad assumptions rather than an alignment-level design. If any Build concept advances, preliminary design investigations would consider multiple

Tier 2 concepts represent high-level corridors with broad assumptions rather than an alignment-level design. Each considers a general area to explore, rather than specific lane or intersection configurations.

alignments within a single corridor-level concept to define specific footprints, turn lane lengths, optimal traffic control devices, etc.

The westernmost Build option, **Concept A** generally follows an improved Gilliland Road/Echo Trail. It ties to US 60 west of Eastwood and creates a partial interchange with KY 155/KY 148 to overpass the NS railroad line.

The central Build option, **Concept B** generally follows an improved KY 1531 (Eastwood-Fisherville Road). It ties to US 60 west of Eastwood, crosses above the NS railroad line at KY 148, then ends at KY 155 opposite KY 1531 (Routt Road).

The easternmost Build option, **Concept C** generally follows Clark Station Road near the Jefferson/Shelby county line, bridging over both rail lines.

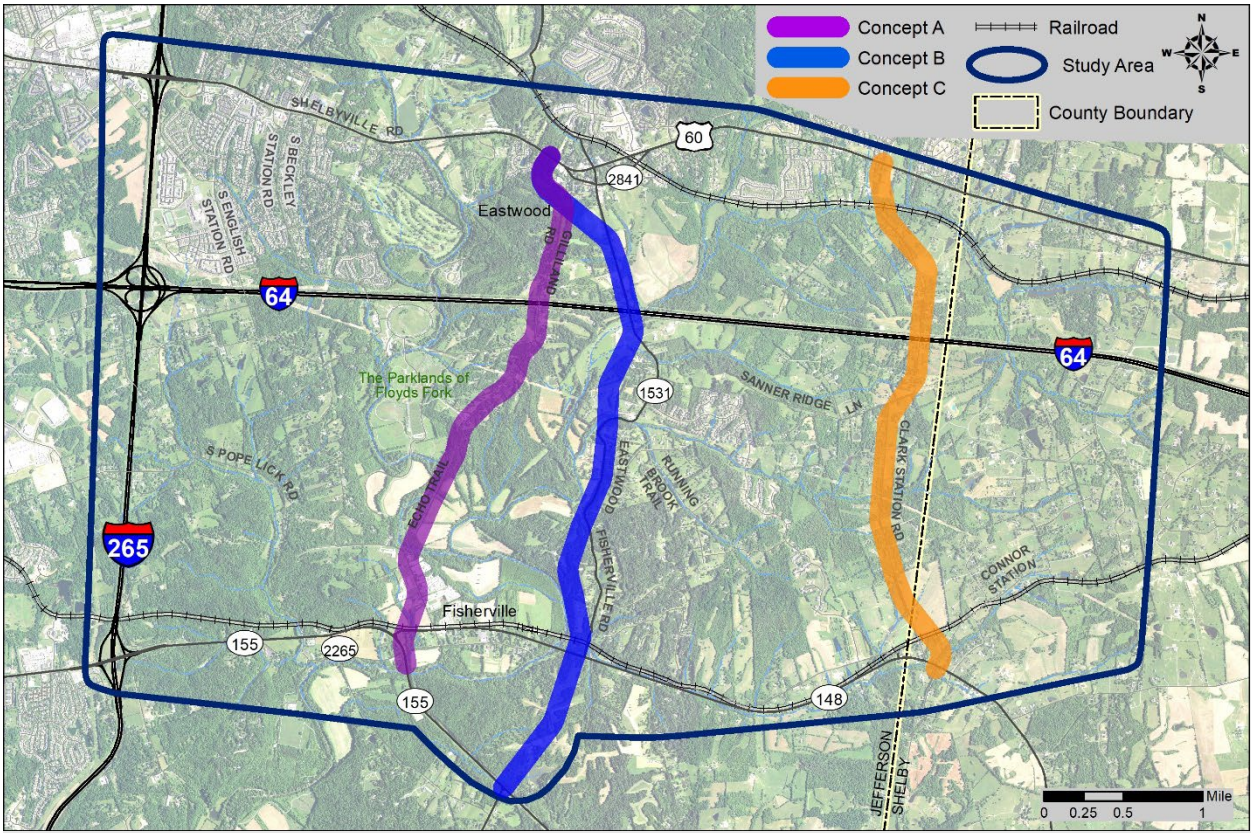


Figure 47: Range of Tier 2 Concepts

8.1 Concept A

Concept A is 3.6 miles long. It has five lanes north of I-64, two lanes south, and three lanes near the school. Each section includes a shared-use path for the entire length. On the north, it connects to US 60 west of Eastwood to avoid impacts to the historic community. The new intersection would

need a traffic signal and turn lanes to efficiently handle anticipated traffic. **Figure 48** presents one example of how the new US 60 connection could look.

Figure 48: Potential Concept A Northern Terminus

Figure 49: Gilliland Road Overpass

A new interchange would provide access to I-64, via the existing Gilliland Road overpass, which provides 50 feet of horizontal clearance curb to curb.

Most of the traffic using the new interchange would travel to/from Louisville via I-64. Forecasts show 26,700 vpd on the new corridor north of I-64 and 13,500 vpd south of I-64.

Towards the south end, the corridor joins with existing South English Station Road to improve access to the industrial park. Traffic increases to 18,100 vpd for this stretch.

To get enough height to pass above the railroad tracks, the new connector creates a partial interchange with KY 155 and KY 148. Thru traffic along KY 155 would continue free flow on ramps. All other movements would pass through a new signalized intersection. **Figure 50** is one example of how this concept might look. Of the three Build options considered, **Concept A** is closest to the Parklands but requires the least earthwork as it follows existing roadways for most of its length.

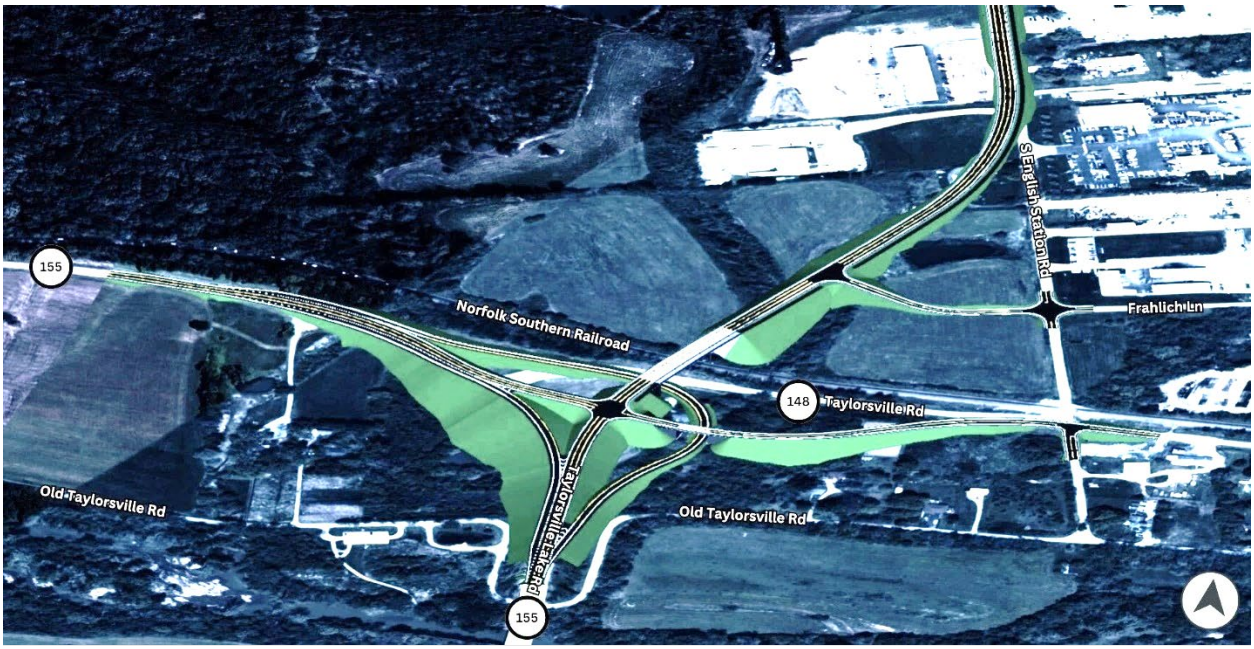


Figure 50: Potential Concept A Southern Terminus

8.2 Concept B

Concept B is 4.4 miles long. It has five lanes north of KY 148 and two lanes south, including a shared-use path for the entire length. On the north, it connects to US 60 west of Eastwood to avoid impacts to the historic community, similar to the rendering in **Figure 48**. The new intersection would need a traffic signal and turn lanes to efficiently handle anticipated traffic.

Figure 51: I-64 over KY 1531

A new interchange would provide access to I-64, reusing the existing KY 1531 underpass. The current structure (**Figure 51**) provides 82 feet of horizontal clearance between piers and 17+ feet of vertical clearance over KY 1531.

Most of the interchange traffic would travel to/from Louisville. Forecasts show 28,600 vpd north of I-64, 30,200 vpd south, and 11,400 vpd south of KY 148.

South of the interstate, the corridor follows some sections of KY 1531 or jumps to new alignment to improve steep hills and substandard curves. Properties to the east contain neighborhoods and properties to the west represent future subdivisions and conservation easements.

To the south, a long structure spans the railroad and KY 148 with a ramp to tie down to KY 148. **Figure 52** is one example of how this concept might look. The southern end meets KY 155

opposite Routt Road, requiring a new traffic signal. Much of the area south of KY 148 is protected by an LJCET conservation easement. Based on terrain, a new connector over the railroad cannot tie to KY 148 at grade and satisfy HDM guidelines without reconstructing lengthy sections of the NS line or KY 148 to adjust elevations.

Figure 52: Potential Concept B Connection to KY 148

Of the three Build options considered, **Concept B** carries the most traffic because it is closest to existing subdivisions, planned new developments, it would replace KY 1531, and provides the most direct connection south to KY 155 which attracts more Spencer County commuters. It also has the longest and widest footprint and the most impacts (e.g., streams, conservation easements, and neighborhoods).

8.3 Concept C

Concept C is 3.4 miles long. It has two lanes and a shared-use path for its entire length. On the north, it connects to US 60 at the eastern Locust Creek Boulevard intersection, which would likely need a traffic signal and turn lanes to efficiently handle anticipated traffic. **Figure 53** presents one example of how the new US 60 connection might look.

Figure 53: Potential Concept C Northern Terminus

It crosses over the CSX railroad with a new bridge. The county could likely close the existing at-grade Clark Station crossing to improve safety.

A new interchange would provide access to I-64, reusing the existing Clark Station Road overpass. The current bridge provides 50 feet of clearance curb to curb. Forecasts show 16,000 vpd on the connector north of I-64 and 9,100 vpd south.

Figure 54: Clark Station Road Bridge

South of the interstate, the corridor follows existing Clark Station Road, improving some substandard curves. It bridges above the NS railroad and raises a section of KY 148. One option is to create a new link between Old Clark Station and Connor Station roads north of the tracks to eliminate three at-grade railroad crossings. **Figure 55** is one example of how this concept might look.

Concept C has the shortest length, lowest cost, and fewest impacts. Of the three Build options considered, it carries the least traffic. It falls near the midpoint of the 9-mile I-64 interchange gap.

Figure 55: Potential Concept C Southern Terminus

8.4 2045 Build Traffic

The same hybrid travel demand model (See **Chapter 6.0**) was used to simulate the regional transportation network with each of the three Tier 2 Build concepts coded alongside other KYTC capacity-improving projects in the No-Build scenario. Each modeled Build scenario measures traffic volumes projected to use a new interchange and connector, as well as changes in traffic along existing highways. **Table 19** summarizes daily traffic volumes on key highway links; forecasts at each study intersection are presented in **Appendix A**.

Table 19: Daily Traffic for 2045 Scenarios

Segment	No-Build	Concept A	Concept B	Concept C
New Connector, north of I-64	X	26,700	28,600	16,000
New Connector, south of I-64	X	13,500 18,100[1]	30,200 11,400[2]	9,100
US 60, east of I-265	48,700	41,400	40,400	45,300
US 60, near Parklands	27,000	19,700	16,700	23,600
US 60, east of Eastwood	19,000	21,600	21,000	20,000
I-64, east of I-265	84,400	114,000	114,000	95,000
I-64, at Shelby County Line	84,400	81,000	82,000	74,000
KY 155, east of I-265	25,400	21,400	22,800	24,400
KY 155, north of Routt Road	23,500	25,800	19,200	19,700
KY 148, east of Fisherville	5,400	5,600	8,300	6,500
I-265, north of I-64	107,900	99,500	100,400	108,300
I-265, south of I-64	75,900	72,000	71,700	75,300

[1] South of South Pope Lick Road; [2] South of KY 148

As shown, the No-Build option carries higher traffic volumes on US 60 west of Eastwood than any Build scenario. Capacity analyses (discussed below) suggest major widening of US 60 alongside other smaller scale intersections improvements will likely be necessary to provide adequate capacity for future growth—specifically, extending the existing four-lane section east towards the county line. This is beyond the scope of the 5-80000 study, but likely warrants consideration as a separate project as the study area continues to grow and develop.

As with Tier 1 model runs and the 2008 study findings, western Build options carry higher traffic volumes than eastern. However, Concept B is forecasted to carry higher traffic volumes than Concept A, influenced by the availability of adjacent developable lands.

With the projected traffic increases along I-64, both Concepts A and B may require additional thru lanes between I-265 and the new interchange to operate at LOS D or better during peak hours.

The model also shows a new connector without an interchange does not effectively improve regional traffic congestion.

8.4.1 Regional Congestion Metrics

Beyond projected volumes on individual highways, another output from the travel demand model compares cumulative mileage (vehicle-miles traveled or "VMT") and cumulative travel time (vehicle-hours traveled or "VHT") for a five-mile buffer around the study area. Both VMT and VHT are standard system performance measures that help characterize the degree to which a concept might meet the project goals and objectives:

- VMT equates to the total combined mileage of all vehicles traveling within the buffered study area over a 24-hour period.
- VHT equates to the total combined time spent in travel for all vehicles traveling within the buffered study area over a 24-hour period.

Holding VHT constant, an increase in VMT means there are more/longer trips using the network but in the same amount of time as before, suggesting travel speeds increase. Holding VMT constant, an increase in VHT means trips take longer to complete, suggesting travel speeds decrease.

Model VMT and VHT outputs for the Existing, No-Build, and Build scenarios are summarized in **Table 20**. As shown, the number of trips, trip lengths, and durations increase between the Existing and 2045 scenarios, driven by expected growth patterns. Comparing just the 2045 scenarios, any Build concept increases VMT but reduces VHT: despite longer trip lengths, trips are completed in less time, suggesting faster travel speeds and less time spent in congested areas. The western Build concepts (A-B) are more effective reducing regional congestion than Concept C. Savings

shown reflect a 24-hour period, which are compounded as savings accrue day after day and year after year.

Table 20: Regional Congestion Metrics between Scenarios

	VMT	VHT	% VHT Change from No-Build
Base (2021)	5,738,195	179,541	-
No-Build	7,386,489	278,942	-
Concept A	7,416,265	275,298	-1.31%
Concept B	7,416,511	275,397	-1.27%
Concept C	7,412,392	276,645	-0.82%

8.4.2 2045 Build Operations

Intersection-level capacity was calculated for each Build scenario to estimate how changes in traffic flows would impact existing highways and how much capacity is needed for new connectors. It should be noted that Tier 2 concepts represent high-level corridors with broad assumptions rather than alignment-level designs with specific lane or intersection configurations. Intersection-level forecasts were developed to support decision-making but are likely to shift as any future project development efforts refine concepts to define specific connections within the regional highway network. Intersection-level capacity results are summarized in **Table 21** and **Table 22** for the AM and PM peak hours, respectively. Shaded cells represent where the new connectors tie back to the existing highway network.

Table 21: Comparative 2045 Traffic Operations at Study Intersections, AM Peak

INTERSECTION	No-Build			Concept A			Concept B			Concept C		
	CONTROL	LOS	v/c >0.9	CONTROL	LOS	v/c >0.9	CONTROL	LOS	v/c >0.9	CONTROL	LOS	v/c >0.9
I-265 SB Ramp at US 60	Signal	D	0/6	Signal[1]	C	0/6	Signal	C	0/6	Signal	C	0/6
I-265 NB Ramp at US 60	Signal	D	1/6	Signal[1]	D	1/6	Signal	D	3/6	Signal[1]	D	1/6
US 60 at English Station Way/Beckley Woods	Signal	F	3/10	Signal[1]	E	3/10	Signal[1]	E	3/10	Signal[1]	E	4/10
US 60 at English Station Road/Lake Forest Parkway	Signal	F	4/11	Signal[1]	F	3/11	Signal[1]	F	5/11	Signal[1]	F	5/11
US 60 at Beckley Station Road	Signal	F	3/10	Signal[1]	D	2/10	Signal[1]	D	2/10	Signal[1]	E	3/10
US 60 at New Build A/B	N/A			Signal	B	0/6	Signal	B	0/6	N/A		
US 60 at KY 2841 (West)	1-way Stop	-	NB	Signal[2] Signal[2,3]	B B	0/6 0/6	1-way Stop[2,3]	-	-	Signal[2,3]	A	0/6
KY 2841 at Gilliland Road	1-way Stop	-	-	1-way Stop	-	-	1-way Stop	-	-	1-way Stop	-	-
KY 2841 at KY 1531	2-way Stop	-	NB + SB	Roundabout	B	0/4	Roundabout	A	0/4	Roundabout	B	0/4
US 60 at KY 1531	2-way Stop	-	NB + SB	Signal[2] Signal[2,3]	F C	4/8 2/10	Signal[2,3]	B	0/10	2-way Stop[2] Signal[2,3]	F C	NB + SB 1/10
US 60 at KY 2841 (East)	1-way stop	-	-	1-way Stop[3]	-	-	1-way Stop[3]	-	-	1-way Stop[3]	-	-
US 60 at Flat Rock Road	Signal	F	2/5	Signal[1] Signal[1,3]	F D	3/5 1/6	Signal[1,3]	D	1/6	Signal[1,3]	D	1/6
US 60 at Clark Station Road/Locust Creek Boulevard	2-way Stop	-	NB	Signal[2,3] R-cut[2]	A F	0/8 0/8	Signal[2,3] R-cut[2]	A F	0/8 0/8	Signal[3] R-cut[2]	A F	0/8 0/8
US 60 at New Build C	N/A			N/A			N/A			Signal[2]	E	2/9
I-265 SB Ramps at KY 155	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6
I-265 NB Ramps at KY 155	Signal	D	1/6	Signal[1]	C	0/6	Signal	D	1/6	Signal[1]	C	1/6
KY 155 at S Pope Lick Road	2-way Stop	-	NB + SB	R-cut[3]	A	0/8	2-way Stop[2,3] R-cut[3]	- A	NB + SB 0/8	2-way Stop[2,3]	-	NB + SB
KY 155 at KY 148	Signal	D	2/6	Figure 50	D	2/10	Signal[2,3]	A	0/6	Signal[2,3]	B	0/6
KY 148 at S English Station Road	2-way Stop	-	NB + SB				Roundabout	B	0/4	Roundabout	B	0/4
KY 148 at New Build B	N/A			N/A			1-way Stop Roundabout	- A	NB 0/3	N/A		
KY 148 at KY 1531	1-way Stop	-	SB	1-way Stop[2]	-	-	1-way Stop	-	-	Roundabout	A	0/3
KY 148 at Clark Station Road	1-way Stop	-	-	1-way Stop	-	-	1-way Stop	-	-	Figure 55	B	0/6
KY 155 at KY 1531	1-way Stop	-	EB	Signal[2,3]	C	1/6	Signal[2,3]	C	0/10	Signal	A	0/6
I-64 WB Ramps at KY 1848	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6
I-64 EB Ramps at KY 1848	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6
Signals in Study Area	**11**			**15-16**			**14-15**			**14-16**		
LOS E/F Signalized Intersections	**4**			**2-5**			**2-3**			**4-6**		

[1] Optimizes existing signal timing/phasing; [2] Adds turn lanes at intersection; [3] Upgrades to four thru lanes on major street

Table 22: Comparative 2045 Traffic Operations at Study Intersections, PM Peak

INTERSECTION	No-Build			Concept A			Concept B			Concept C		
	CONTROL	LOS	v/c >0.9	CONTROL	LOS	v/c >0.9	CONTROL	LOS	v/c >0.9	CONTROL	LOS	v/c >0.9
I-265 SB Ramp at US 60	Signal	D	1/6	Signal[1]	C	0/6	Signal	C	0/6	Signal	C	0/6
I-265 NB Ramp at US 60	Signal	E	2/6	Signal[1]	D	2/6	Signal	D	3/6	Signal[1]	D	4/6
US 60 at English Station Way/Beckley Woods	Signal	F	6/10	Signal[1]	E	1/10	Signal[1]	D	1/10	Signal[1]	E	3/10
US 60 at English Station Road/Lake Forest Parkway	Signal	F	5/11	Signal[1]	F	3/11	Signal[1]	F	3/10	Signal[1]	F	6/11
US 60 at Beckley Station Road	Signal	C	1/10	Signal[1]	C	0/10	Signal[1]	C	0/10	Signal[1]	C	0/10
US 60 at New Build A/B	N/A			Signal[2,3]	F	2/6	Signal[2,3]	F	2/6	N/A		
US 60 at KY 2841 (West)	1-way Stop	-	NB	Signal[2] Signal[2,3]	F B	3/6 0/6	1-way Stop[2,3]	-	NB	Signal[2,3]	A	0/6
KY 2841 at Gilliland Road	1-way Stop	-	-	1-way Stop	-	-	1-way Stop	-	-	1-way Stop	-	-
KY 2841 at KY 1531	2-way Stop	-	NB + SB	Roundabout	C	0/4	Roundabout	A	0/4	Roundabout	B	0/4
US 60 at KY 1531	2-way Stop	-	NB + SB	Signal[2] Signal[2,3]	F D	6/8 3/10	Signal[2,3]	C	2/10	2-way Stop[2] Signal[2,3]	- C	NBL + SB 3/10
US 60 at KY 2841 (East)	1-way stop	-	NB	1-way Stop[3]	-	NB	1-way Stop[3]	-	NB	1-way Stop[3]	-	NB
US 60 at Flat Rock Road	Signal	F	3/5	Signal[1] Signal[1,3]	F C	3/5 2/6	Signal[1,3]	C	2/6	Signal[1,3]	B	0/6
US 60 at Clark Station Road/Locust Creek Boulevard	2-way Stop	-	NB	Signal[2,3] R-cut[2]	A A	0/8 0/8	Signal[2,3] R-cut[2]	A A	0/8 0/8	Signal[3] R-cut[2]	A A	0/8 0/8
US 60 at New Build C	N/A			N/A			N/A			Signal[2]	F	4/9
I-265 SB Ramps at KY 155	Signal	C	0/6	Signal	B	0/6	Signal	B	0/6	Signal	C	0/6
I-265 NB Ramps at KY 155	Signal	B	1/6	Signal[1]	B	1/6	Signal	B	0/6	Signal[1]	B	1/6
KY 155 at S Pope Lick Road	2-way Stop	-	NB + SB	R-cut[3]	A	0/8	2-way Stop[2,3] R-cut[3]	- A	SB 0/8	2-way Stop[2,3]	-	NB + SB
KY 155 at KY 148	Signal	F	1/6	Figure 50	C	2/10	Signal[2,3]	C	0/6	Signal[2,3]	C	1/6
KY 148 at S English Station Road	2-way Stop	-	NB + SB				Roundabout	C	0/4	Roundabout	C	1/4
KY 148 at New Build B	N/A			N/A			1-way Stop Roundabout	- B	NB 0/3	N/A		
KY 148 at KY 1531	1-way Stop	-	SB	1-way Stop[2]	-	SB	1-way Stop	-	SB	Roundabout	C	0/3
KY 148 at Clark Station Road	1-way Stop	-	-	1-way Stop	-	-	1-way Stop	-	-	Figure 55	B	0/6
KY 155 at KY 1531	1-way Stop	-	EB	Signal[2,3]	A	0/6	Signal[2,3]	C	0/10	Signal	C	1/6
I-64 WB Ramps at KY 1848	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6
I-64 EB Ramps at KY 1848	Signal	C	0/6	Signal	B	0/6	Signal	B	0/6	Signal	B	0/6
Signals in Study Area	**11**			**15-16**			**14-15**			**14-16**		
LOS E/F Signalized Intersections	**4**			**3-6**			**2**			**3**		

[1] Optimizes existing signal timing/phasing; [2] Adds turn lanes at intersection; [3] Upgrades to four thru lanes on major street

Based on projected traffic volumes, **Concept A** is assumed to be five lanes north of I-64 and two to three lanes south. New intersections with US 60 and KY 148 are assumed to be signalized with turn lanes for key movements. Ramp termini at a new I-64 diamond-style interchange (with a representative layout shown in **Figure 56**) are assumed to be signalized, with dual left turn lanes from the eastbound off-ramp; this configuration results in LOS A-B operations with 95th percentile queue lengths around 500 feet for the eastbound off-ramp. For comparison, a typical diamond-style ramp is around 2,000 feet long.

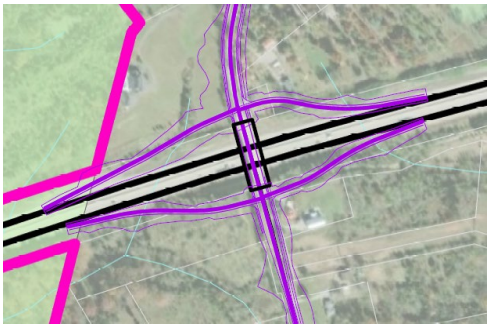


Figure 56: Concept A Interchange

Concept B is assumed to carry five lanes for its length north of KY 148. As in Concept A, the intersections with US 60 and new I-64 ramps are assumed to be signalized with turn lanes. On the south end, a roundabout at the grade separated access point to KY 148 handles anticipated traffic well while the intersection at KY 155/Routt Road is assumed to be signalized with additional lanes at the intersection. The new I-64 interchange is assumed to be signalized with dual left turn lanes from the eastbound off-ramp; to minimize impacts to Long Run creek, the westbound off-ramp flips to the northwest quadrant. One possibly design is shown in **Figure 57**. This configuration, paired with higher anticipated traffic, results in LOS F at the eastbound ramps with an 1,800-foot queue backing up on the off-ramp.

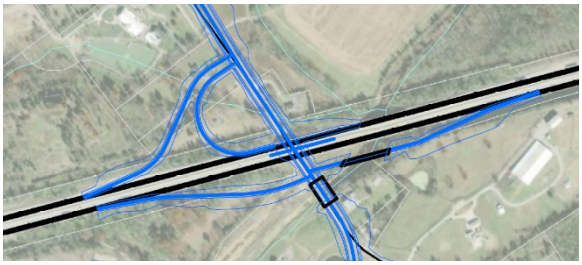


Figure 57: Concept B Interchange

Concept C is assumed to have two to three lanes for its length, with signals and turn lanes at intersections with US 60 and the new I-64 ramps. A signal or roundabout at the southern terminus with KY 148 handles anticipated traffic well. Similar to Concept A, anticipated traffic at the diamond-style interchange operates at LOS C or better during both peak hours with dual left turn lanes from the eastbound off-ramp. Maximum queue lengths are around 350 feet.

8.5 Comparison of Tier 2 Impacts

In addition to traffic performance, Tier 2 concepts were screened to evaluate impacts to the surrounding properties and environmental resources. While any future project development phases will include more in-depth assessments, this screening is intended to highlight major "red flag" concerns that would affect decision-making and prioritization. **Table 23** contains a summary, discussed in the following paragraphs.

Table 23: Comparative Impacts between Build Concepts

Metric	Concept A	Concept B	Concept C
Corridor Length	3.6 miles 2-5 Lanes	4.4 miles 5 lanes	3.4 miles 2 lanes
% Length on New Alignment	32%	80%	44%
New Right-of-Way	50-60 acres	100-110 acres	60-70 acres
Recreational Resources	Near Parklands	-	-
Conservation Easements	-	Bisects LJCET	-
NRHP Historic Resources	Eastwood HD +3 other sites	Eastwood HD +3 other sites	2 sites
Potential Relocations	50-60 acres plus ±8 relocations	100+ acres plus ±8 relocations	60-70 acres plus ±3 relocations
Community Resources	Serves fire depts, school, Industrial Park	Serves fire departments	-
Future Planned Developments	1 subdivision; 2 businesses	2 subdivisions; 1 business	-
Stream Impacts	4 crossings 1,600 feet	9 crossings 2,700 feet	7 crossings 1,600 feet
Earthwork (1,000s cubic yards)	70 cut 230 fill	190 cut 160 fill	180 cut 310 fill
Utility Impacts	Most	Some	Some

8.5.1 Parks & Conservation Easements

As discussed in **Chapter 4.0**, signature parklands, public recreational amenities, and different easement types protect existing greenspaces from development.

Concept A runs near the eastern boundary of the Parklands at Floyds Fork. There is also a public canoe/kayak launch southwest of the KY 155/KY 148 intersection that merits consideration as future configurations at that intersection are considered. Both resources are protected by Section 4(f) laws. Corridor A is also close to two USACE-owned wetland restoration sites that will warrant coordination with USACE during any future phases.

Concept B bisects the LJCET conservation easement south of KY 148, a public easement on privately owned property intended to protect the property in perpetuity, even if the parcel is sold. While the LJCET easement is not protected by Section 4(f), it is an important local protection, intended to "retain or protect natural, scenic or open space values of real property, assuring its availability for agricultural, forest, recreational or open space use and for protecting natural

resources, maintaining of enhancing air or water quality, or preserving the historic, architectural, archaeological, or cultural aspects of real property."[22] The corridor also runs along the edge of a Future Fund parcel by Rolleigh Peterson Educational Forest, shown with a purple outline in **Figure 36**.

No recreational resources or conservation easements were identified along **Concept C**.

8.5.2 Historic Resources

As discussed in **Chapter 4.0**, resources listed on or eligible for the NRHP are protected by Section 4(f) and require consultation under Section 106. While the region has been thoroughly studied over the years, it is possible additional historic resources could be identified during detailed field studies should a Build option advance. At the planning stage, the following historic resources have been identified.

Concept A wraps along the outer edge of a potential Eastwood Historic District, identified as a potentially eligible district in the 2008 planning study, including 23 elements noted as likely contributing at the time. While detailed investigations and coordination with the State Historic Preservation Office (SHPO) will be required for a formal determination, the Eastwood Village Center likely retains adequate integrity to represent a NRHP eligible historic district although the boundary likely has decreased since the initial assessment due to modern development.

Further, three other potentially historic resources have been identified along the corridor:

- Candlewood (JF-377) lies opposite US 60 from the proposed northern terminus.
- Eastwood Colored School (JF-2596) is NRHP listed and stands about 100 feet west of existing Gilliland Road.
- Muir Chapel (JF-709) was identified as potentially eligible in the 2008 study; it lies 90 feet east of existing Gilliland Road.

Figure 58: Muir Chapel and Gilliland Road

[22] Deed of Conservation Easement. Book 12237 Page 298.

Following a similar alignment near US 60, **Concept B** skims along the outer edges of potential districts in both Eastwood and Fisherville. The potential Fisherville Historic District was identified in the 2008 study with 13 elements noted as likely contributing at the time. Detailed investigations and coordination with SHPO will be required for a formal determination.

Further, three other potentially historic resources are located along the corridor:

- Candlewood (JF-377) lies opposite US 60 from the proposed northern terminus.
- Frederick Sturgeon Farm (JF-739) is an NRHP-eligible farm complex, lying on the west side of KY 1531 and south of Long Run Creek. The farmhouse was demolished around 2015, replacing the structure with a series of prefabricated outbuildings.
- The vernacular house at 2200 Eastwood Fisherville Road (JF-287) lies northwest of the intersection with Homestead Trace, approximately 130 feet from existing KY 1531.

No potential historic districts have been identified along **Concept C** but two potentially historic resources are located nearby:

- Long Run Railroad Station (JF-721) is NRHP eligible and abuts existing Clark Station Road near Hobbs Lane but is 1,000+ feet from the Build corridor. The property was for sale as of late 2023.
- Bryant House (JF-1329) is NRHP eligible and stands about 50 feet east of existing Clark Station Road, southeast of its I-64 bridge.

8.5.3 Community Resources & Subdivisions

Beyond federal regulations protecting the resources discussed above, impacts to communities are another important consideration. Nearby Build concepts can improve access and safety but also result in property acquisitions and can negatively impact acoustic and visual settings.

Concept A begins just west of the Eastwood fire station. It runs in front of Echo Trail Middle School (**Figure 59**), improving access when compared to the narrow, rolling highway currently serving the facility. It also improves access to the industrial park north of Fisherville, providing a grade-separated railroad crossing. There is also a small cemetery (JF-255) southeast of the KY 155/KY 148 intersection that merits consideration as future options at that intersection are considered.

Figure 59: Echo Trail Middle School

Based on planning-level estimates, approximately eight existing homes/businesses may be relocated. It should be

noted that details will continue to be refined should a Build option advance and there are about 70 buildings within 300 feet of the current corridor shown.

As of Spring 2024, there are also three approved developments along the **Concept A** corridor:

- An athletic facility on South English Station Road near the industrial park; the Build corridor follows an existing highway along the edge of this property.
- Long Run Echo Trail subdivision (732 single family homes in three sections); the Build corridor follows an existing highway along the edge of this property.
- A rental storage facility off Shelbyville Road, west of Eastwood; the Build corridor currently bisects the site.

Concept B also begins just west of the Eastwood fire station. A large event venue and small cemetery are located north and east of the I-64 bridge over KY 1531. Based on planning-level estimates, approximately eight existing homes/businesses may be relocated compared to about 40 buildings within 300 feet of the current corridor shown.

As of Spring 2024, there are also two approved developments and one proposed along the corridor:

- Covington by the Park (624 single family lots); the Build corridor currently bisects the site.
- Eastwood Fisherville Residential (432 lots proposed); the Build corridor generally follows an existing highway along the edge of most of this property.
- A rental storage facility off Shelbyville Road, west of Eastwood; the Build corridor currently bisects the site.

Beyond individual homes and farms, no subdivisions or community resources have been identified along **Concept C**. North of I-64 large parcels have been acquired by developers, but no proposed developments have submitted to the Metro Planning as of this writing. Based on planning-level estimates, approximately three existing homes/businesses may be relocated compared to about 50 buildings within 300 feet of the current corridor shown. A section of homes along KY 148 near the county line may represent a cluster of low-income populations—a potential environmental justice concern.

8.5.4 Water Resources

Water resources abound throughout the study area; any of the Build concepts will result in impacts. There are minimal wetlands within the Tier 2 Build concept corridors.

Concept A crosses four blueline streams, resulting in an estimated 1,600 feet of impact excluding bridges. It bridges over Floyds Fork just north of the industrial park, between the existing Echo Trail bridge (056C00178N) and confluence with Long Run Creek.

Concept B crosses nine blueline streams, resulting in an estimated 2,700 feet of impact excluding bridges. Long Run Creek crosses I-64 and KY 1531 near the proposed interchange, leading to greater impacts or a more complex interchange design. Concept B bridges over Shakes Run west of the existing KY 531 bridge (056B00297N) and over Brush Run west of the current KY 1531 crossing.

Concept C crosses seven blueline streams, resulting in an estimated 1,600 feet of impact excluding bridges. It is assumed to bridge over South Long Run Creek but utilize culverts for other stream crossings.

8.5.5 Other Engineering Considerations

Concept B is the longest of the Tier 2 concepts, with the largest proportion on new alignment. Following existing roadbeds can reduce right-of-way acquisition needs but can increase utility and relocation impacts, depending on setbacks.

Based on planning-level designs, **Concept C** requires the most earthwork with over 300,000 cubic yards of fill. Considering total quantities, **Concept B** has the second most but cut and fill are closer to balancing each other than compared to **Concept A**, which will require extra fill from other sites.

Utility impacts are another concern, with corridor-level impacts summarized in **Table 24**. The highest impacts are associated with **Concept A**; the fewest are with **Concept B**.

Table 24: Corridor-level Utility Impacts for Tier 2 Concepts

Metric	Concept A	Concept B	Concept C
Water Main in Corridor	18,231 ft	8,350 ft	15,215 ft
Sewer in Corridor	1,300 ft	1,640 ft	-
Sewer Pump Stations in Corridor	0	1	0
Gas Main in Corridor	6,590 ft	1,420 ft	975 ft
Transmission Clearance Concern*	LOW	HIGH	HIGH
Transmission Towers in Corridor	1	0	0
Other Overhead Utilities in Corridor	16,191 ft	6,340 ft	11,690 ft
Cell Towers in Corridor	0	1	0

** Reduction in vertical clearance as Build concept raises profile beneath overhead lines*

8.6 Cost Estimates

Table 25 summarizes cost estimates in 2023 dollars based on planning-level quantities for major construction items like pavement, earthwork, and structures. Parametric factors were applied for

items like drainage, maintenance of traffic, and environmental to account for elements that will be defined in future design phases, plus a 30% contingency. Unit cost assumptions include $22/cubic yard for excavation, $30/cubic yard for fill, $250/square foot for structures, and $220/cubic yard of pavement.

Design phase costs, including engineering and environmental investigations, are estimated at 15% of construction. Modeled disturb limits were considered to derive right-of-way estimates, including a 20-foot buffer. Unit costs assume $150,000 per acre, $600,000 per residential relocation, $500,000 per commercial relocation, plus administrative fees. Utility estimates were developed based on GIS data for LG&E lines, Louisville Water Company, and Metro Sewer District assuming all facilities within the modeled disturb limits are relocated. A 30% contingency factor was applied as well.

Table 25: Cost Estimates by Phase (2023 Dollars)

Concept	Design	Right of Way	Utilities	Construction	Total
A	$11M	$22M	$23M	$75M	**$130 million**
B	$16M	$32M	$11M	$105M	**$164 million**
C	$11M	$18M	$14M	$70M	**$113 million**

The typical project development process (**Figure 60**) progresses through several phases prior to construction, starting with project-level planning—like efforts summarized throughout this report. Each phase of the process can take a year or more, depending on the size and complexity of the project. Each stage introduces its own unique risk factors, which can extend those timelines. For example, public opposition, environmental investigations, or geotechnical issues could identify unexpected challenges, resulting in redesigns or new approaches. Legal actions to acquire properties, long lead times to secure specialty materials, higher than expected construction bids, and/or change orders can influence timelines later in the process—even looping back to reevaluate earlier decisions.

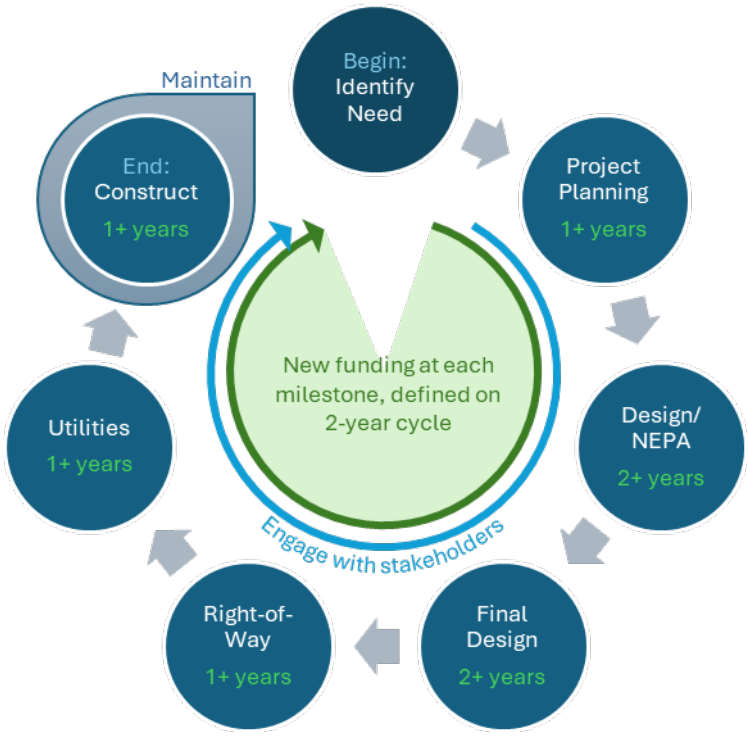


Figure 60: Typical Project Development Process

Each phase of the project development process also typically requires additional funding, which is traditionally identified through the Commonwealth's biennial Highway Plan. For larger projects with higher costs, a project may have to compete statewide for adequate funding through multiple budgetary cycles. Each step of the process introduces uncertainty and risk while the time value of money can substantially impact long-term cost estimates.

FHWA's National Highway Construction Cost Index[23] tracks constant dollar expenditures across a range of highway construction costs: 2023 estimates are more than triple 2003 baselines and have steadily increased by over 50% in the past two years alone.

In short, planning-level estimates shown are conservative, but costs associated with larger projects on longer implementation timelines are likely to escalate.

9.0 BUILD CONCEPT COORDINATION MEETINGS

After improvement concepts were developed, a second round of community meetings was held to gather input. Summaries of each meeting are in **Appendix E**.

- The project team met February 28, 2024, to review the Tier 2 concepts presented in **Chapter 8.0** and to prepare for upcoming community engagement efforts.
- A briefing for local elected officials and other stakeholders was held April 16, encouraging discussion on the Tier 2 Build concepts, impacts on regional land use and traffic flows, and future funding allocations. An informal poll indicated a general preference for Concept A and that the northern section (US 60 to a new I-64 interchange) was the highest priority.

9.1 Second Round of Public Input

In April 2024, a set of two public meetings were held on both sides of the study area to present the Tier 2 concepts and collect feedback. Meetings corresponded to a website update and public survey, promoted via area newspapers, social media, roadside message boards, and other notices. As with the first set of meetings, numerous practices were employed to ensure nondiscrimination under Title VI, including attendance by staff from KYTC's Civil Rights Office.

Tuesday, April 16, 2024	Wednesday, April 17, 2024
Open House from 6-8 PM	Open House from 6-8 PM
Echo Trail Middle School (Gym)	Christian Academy of Louisville (Cafeteria)

[23] Online at https://www.fhwa.dot.gov/policy/otps/nhcci/

Over the 4-week public comment period, 307 survey responses were collected. The majority of survey participants (76%) travel through the study area daily; 75% of all responses agreed that a connection/interchange would improve travel in the study area—up from 60% supportive of the project during the initial survey effort.

Two related questions helped distinguish between Build options. Participants were asked which Build option(s) they would likely use (**Figure 61** left) and which Build option—limited to a single choice—they preferred (**Figure 61** right). In each case, Concept A received the most support and Concept C received the least. In each case, about 20% prefer a No-Build option. Overall, 47% indicated the north section was the highest priority.

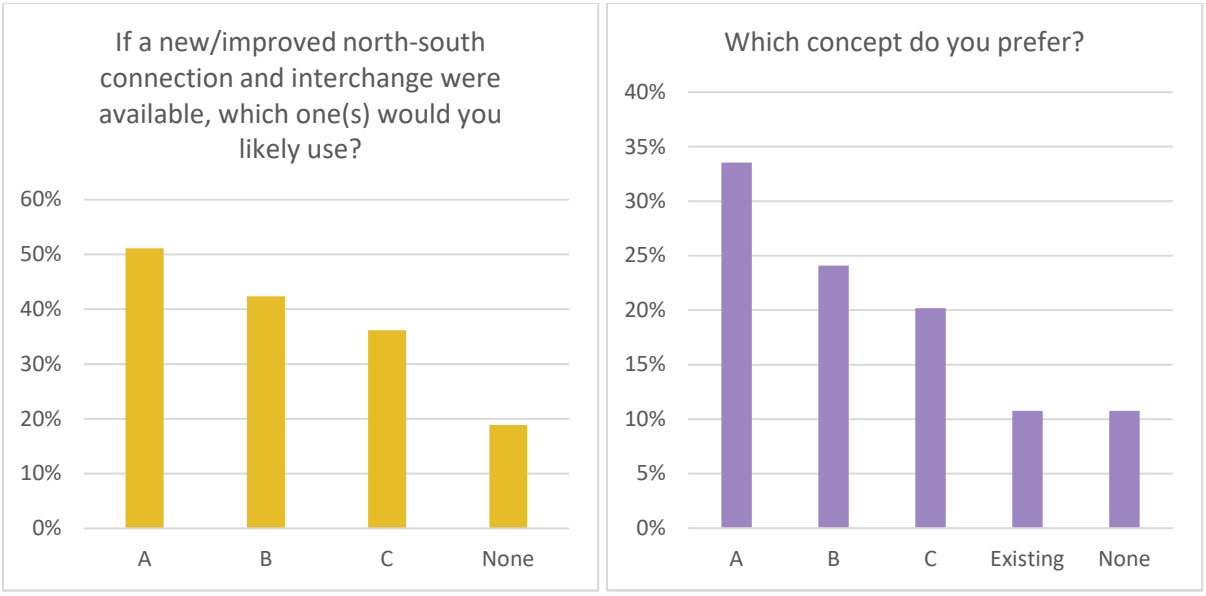


Figure 61: Survey Responses on Build Usage (left) and Preference (right)

The following themes emerged from written-in responses.

- Widen or improve existing highways, including US 60, KY 155, and/or Clark Station Road.
- Future development should be limited. Building new roads increases traffic and encourages more intensive land uses, resulting in urban sprawl.
- Increase east-west links between existing north-south routes.

- Consider two new interchanges/connectors to serve the nine-mile gap.
- Specific intersection and interchange improvements were suggested. Generally, roundabouts, new signals, and improved signal coordination at study area intersections were suggested.
- Planners should also consider how a new interchange/connector would impact local traffic when crashes impact I-64 operations.
- Extend a western Build concept north of US 60 to Johnson Road.
- Consider Build options further east in Shelby County. Analyses should consider the future, not just existing needs.
- Increase modal options, specifically rail or transit access, to reduce demand.

9.2 CAG Coordination

The CAG met again May 31, 2024, to review public input and discuss the pros and cons of each Tier 2 concept. Participants were tasked with advising KYTC on community perspectives for each Build concept, rather than recommending a preferred solution. However, a survey was distributed following the meeting to collect individual feedback on preferences.

Key meeting discussion items included the following.

- Traffic projections indicate existing highways may not be sufficient to handle expected peak traffic with anticipated growth patterns. Only improving existing roadways does not meet the study's purpose: improving connectivity to I-64.
- A connection east of Eastwood was recommended in the 2005 Neighborhood Plan, which the representative from Eastwood still favors. Additional developments in the area increase impacts for an eastern connection and there is an agricultural district southeast of Eastwood (**Figure 36**). The 2005 Plan did not include traffic analyses.
- A new western corridor could induce new development and be inconsistent with the area's rural character near the Parklands. Truck trips accessing the interchange and lighting are concerning. Concerns with Concepts A and B are similar but impacts to the LJCET easement should preclude B.
- Near the midpoint of the nine-mile access gap along I-64, Concept C serves longer term development patterns and would be well-spaced for detour traffic during I-64 incidents.

Following meeting discussions, CAG members were encouraged to complete a brief survey to register their preferences on Build concepts. Ten individuals participated. Nine of ten participants agreed or strongly agreed the study goals are appropriate. As shown in **Figure 62**, general consensus was to dismiss No-Build and Concept B from further consideration while A was most favored to advance for preliminary design. Responses were evenly split whether the northern section or full length represents the highest priority.

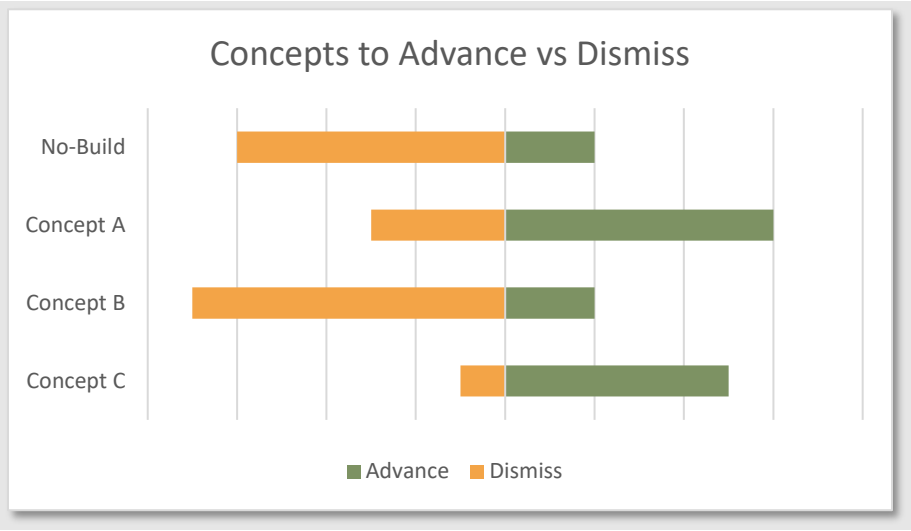


Figure 62: CAG Survey Responses on Concept Preferences

A final survey question asked individuals to identify which potential design features would enhance each Build option. Results are summarized in **Table 26**. Combinations with higher support are shaded darker green. Incorporating a shared use path and green infrastructure received the most support; enhancements for western corridors were noted over the eastern route suggesting more context sensitive design considerations may be warranted to reflect the sensitive character of these corridors.

Table 26: CAG Input of Design Elements

Design Element	Concept A	Concept B	Concept C
Shared Use Path	8	7	6
Sidewalks	7	6	6
Bike Lanes	4	4	3
Lower Design Speed	6	5	3
Narrower Typical	7	5	5
Lighting	4	4	4
Green Infrastructure	7	8	6
Defined Access	6	8	6
Planted Medians	6	7	6

Other suggested measures included parking/pull-offs for hiking, landscaping, east/west connections, placemaking, wayfinding, and accommodations for wildlife crossings.

9.3 Resource Agency Coordination

During May 2024, KYTC sent requests for information to 70 state, federal, and local agencies. Feedback was requested regarding the study goals/objectives, any study area scoping concerns, conservation/development plans, sensitive locations, and appropriate mitigation strategies to consider. Responses were received from 15 organizations (**Appendix G**), summarized in **Table 27**.

Table 27: Resource Agency Responses

Organization	Comment Summary
LJCET	Concept B directly impacts land within a conservation easement that is to be protected in perpetuity. LJCET noted concern that all public illustrations for planned routes should show protected lands on every map and requested remove alignments that impact the Blackbird Bend and Little Dove Farm conservation easements.
Louisville Metro Planning & Zoning	• Agreed with the study purpose and goals. • A future project should be designed with land use policies and regulations in mind to be sensitive to community character and environmental resources. • Early coordination with MSD for sewer locations recommended. • Concept B impacts to an LJCET easement make it a non-starter. • Concept A meets the needs and goal of the project and best serves the school and Parklands. • Concept C appears to be too far east to really help with connectivity and congestion. • Suggest meeting with the Zoning Board, LJCET, and Metro to see if there are any new easements should a project advance. • Any future project should consider tree preservation, stormwater runoff, and dark-sky lighting.
KY Division of Water	• Water Quality Branch: Use best management practices to reduce runoff, not in a designated Source Water Protection Area. • Groundwater Section: Endorses the project and recommends KYTC follow requirements of 401 KAR 5:037 and develop a Groundwater Protection Plan. • KYTC must self-enforce to meet all FEMA requirements. Local floodplain permitting is required and a water quality certification may be required. • Division of Enforcement: Endorses this project.
KY Division of Waste Management	• Mapping provided for USTs, superfund sites, landfills, and other known issues. • Should USTs be encountered during construction they should be reported to KY Division of Waste Management. • All solid waste generated by this project must be disposed of at a permitted facility. • If asbestos, lead paint, and/or other contaminants are encountered, Division of Waste Management should be contacted for proper disposal and closure. • If any evidence of illegal waste disposal facilities and releases of hazardous substances, pollutants, contaminants, or petroleum are encountered, report to Environmental Response Team.

Organization	Comment Summary
KY Division of Air Quality	• Follow 401 KAR 63:010 fugitive dust and 401 KAR 63:005 open burning requirements. • Air quality strategies to help KY stay in compliance with National Ambient Air Quality Standards (NAAQs) include: utilizing alternatively fueled equipment, other emission controls, and reducing equipment idling time. • Ensure compliance with local government regulations.
KY Nature Preserves	Kentucky's Biological Assessment Tool provides a Standard Occurrence Report for information regarding known listed species in project area, public and private conservation lands, areas of biodiversity significance, and other natural resources.
KY Geological Survey	Much of the study area is potentially prone to the development of karst features and there are many scattered occurrences of sinkholes. Consider sinkhole locations as concepts are evaluated, minimizing or avoiding impacts. Where sinkholes are encountered, employ proper sinkhole mitigation strategies.
KY Division of Forestry	Noted proximity of each concept to the Rolleigh-Peterson State Forest. None of the concepts will actually be on the state forest (Concept B is the closest, traveling along the east edge), but they will increase traffic in the proximity of it.
KY Division of Mine Reclamation and Enforcement	• The closest known underground mine is approximately 2.5 miles northwest of Concept A and B locations near US 60. • Blasting requirements are unknown at this time, but with the proximity to railroads, populated residential or business districts, and historical landmarks regulations dictate precautions should be taken to reduce and/or eliminate potential for damaging effects to the safety of life and property.
NRCS	Should a future project require the conversion of prime farmlands or farmlands of statewide importance from an agricultural use, coordination with NRCS would be required. No known NRCS-held easements were identified.
US Army Corps of Engineers	Floyd Fork Aquatic Ecosystem Restoration Project is identified on mapping.
KYTC District 5 Permits	Noted area developments that are in the works or have applied for permits that would influence traffic in the study area.
KY State Police	Local experience echoes the needs of the study: congestion and lack of I-64 connectivity which will only increase with time. I-64 in this area is a high crash area. No concerns or preferences among the three concepts. Recommended construction plans or contracts include police presence to provide safety during construction.
KY Cabinet for Economic Development	• Detailed recent blueprint that economic developers and stakeholders could follow to spur growth in Kentucky over the next five years, noting physical infrastructure such as roads and bridges provide the foundation for economic activities to thrive. • Provided economic development growth potential and nearby projects, pointing to Jefferson and Shelby County's recent and forecasted growth. The projected increase in population, labor forces, and economic development activity will have significant economic impact within the study area region. Employers within 45 minutes of this location draw employees that will benefit from the road improvements.
CSX Railroad	RJ Corman leases former CSX railroad, include RJ Corman and Norfolk Southern on future project correspondence as appropriate.

Organization	Comment Summary
KY Department of Military Affairs	No comment
FHWA KY Division	No comment
KY Department of Public Health	No comment

10.0 RECOMMENDATIONS

This 5-80000 study set out to answer two key questions (**Section 1.1**):

- **Is there a need for improved access to I-64 or improved north-south connectivity in the study area?**

Yes, there is a documented traffic need for a new I-64 interchange and a north-south connector. With 6,000 new homes and 4,500 new jobs projected in the study area by 2045, traffic volumes are expected to increase over 2023 levels with or without the project. In some locations, projected increases are substantial: 12,000 extra vpd along KY 1531 near Eastwood and 14,500 extra vpd on US 60 near I-265. Current roadways, even accounting for other committed capacity projects, may not be able to support anticipated volumes. The two-lane portion of US 60 is one of the biggest concerns, already approaching capacity today with several developments underway nearby.

- **If so, do the benefits of a new interchange/connector outweigh the associated costs and impacts?**

Initial benefit-cost ratios were calculated based on a 30-year horizon for anticipated regional VMT and VHT savings. For consistency, each Build concept was assumed open to traffic in 2030, accruing benefits for 30 years with a 3.1% discount rate. A benefit-cost ratio greater than one signifies the discounted present value of benefits exceeds the discounted present value of the costs, indicating the project is fiscally worthwhile.

Summarized in **Table 28**, each Build concept results in a ratio greater than 1.0 suggesting benefits for regional traffic flows outweigh costs. Results for the northern section of each Build concept (including an interchange) yield higher ratios, with lower costs but providing a relatively high portion of regional travel time savings observed with the full-length corridors. It should be noted that costs and impact estimates will continue to evolve as part of any future project development as additional detail is developed, accounting for intersection-level operations, safety impacts, and other factors.

Table 28: Regional Benefit-Cost Ratios

Concept	2023 Cost	Travel Time Savings	Vehicle Operating Cost Savings	Benefit-Cost Ratio
A	$130M	$786M	-$124M	2.9
B	$164M	$764M	-$125M	2.2
C	$113M	$495M	-$107M	1.9

10.1 Linking Planning and Environmental Considerations

Considering all the information presented in previous chapters, the project team identified recommended projects to advance for further consideration as an outcome of this Planning and Environmental Linkage (PEL) study. PEL is an FHWA initiative that "represents a collaborative and integrated approach to transportation decision-making" to streamline early project development efforts. It considers environmental, community, and economic goals early in the transportation planning process, then uses planning information to inform the environmental review process. Toward that end, the project team met with FHWA on October 31, 2023, and July 1, 2024. Planning study recommendations may be adopted during a subsequent environmental review process in accordance with 23 United States Code (USC) Section 168. Additional information, including a PEL checklist, is included as **Appendix F**.

10.2 Final Project Team Meeting

A final project team meeting was held August 6 to review technical analyses and community input on the Tier 2 corridors then reach a consensus on which options to advance.

Independent of a Build corridor, four standalone future projects are recommended for consideration and inclusion in the CHAF database:

- Major widening of US 60 to extend the five-lane section east of Eastwood to near the Jefferson/Shelby county line, driven by forecast travel demands in all 2045 future year scenarios, including the No-Build. Exact limits should be determined based on traffic investigations and environmental constraints specific to the US 60 corridor.

- Major widening of KY 155 to extend a four-lane section with center turn lane from KY 148 to KY 1531 (Routt Road), driven by forecast travel demands in all 2045 future year scenarios, including the No-Build. This stretch overlaps portions of Items No. 5-8908 and 5-8954. Design plans for 5-8908 currently show a five-lane section between I-265 and the KY 148 intersection, with funding authorized through the right-of-way acquisition phase. KYTC is considering a 2+1 section from the KY 148 intersection into Spencer County as part of 5-8954 with a five-lane section overlapping the 5-80000 study area limits recommended if adequate funding is available.

- Minor widening along KY 1531 to address safety concerns along the narrow route as traffic increases with proposed development. The north end especially is forecast to experience substantial volume increases.

- Create a new east/west connector between Echo Trail and KY 1531, which was suggested by numerous stakeholders and members of the public. South of I-64, several constraints are likely to increase costs: terrain, Long Run Creek, and increased lengths. North of I-64 this concept could better serve as a bypass of Eastwood to mitigate anticipated cut-through traffic from the proposed 5-80000 project.

Regarding the Tier 2 corridors, the project team dismissed **Concept B** from further consideration in light of impacts to the LJCET easement, costs, stakeholder feedback, and interchange operations.

Concepts A and C are both viable options that satisfy the purpose, providing regional traffic benefits that outweigh anticipated costs. Advancing only the northern section of a Build corridor does not support network connectivity as well as the full length options considered but may prove to be a priority construction section to manage implementation with a limited budget. The project team expressed a slight preference towards **Concept A** as it better aligns with the project's purpose and need, serves higher traffic volumes, and better aligns with public preferences. However, if subsequent traffic analyses or detailed environmental investigations should identify additional considerations, **Concept C** remains a viable solution. Both concepts align with original public suggestions for a new corridor from the first round of feedback.

The corridor could be considered a minor arterial although the rural/urban designation warrants further consideration during future design phases. The Jefferson County portion of the study area north of I-64 is within the FHWA adjusted urban areas but the remainder is beyond.

Future design efforts should examine different alignments within the preferred corridor(s), specifically considering intersection-level operations and connections at US 60 and KY 155/KY 148. With **Concept A**, this should include a possible US 60 link east of Eastwood or extension north to KY 1531 (Johnson Road), both of which were suggested during Tier 2 public comment periods. An east-west connection to KY 1531 (Eastwood-Fisherville Road) could also be incorporated alongside Concept A plans. CAG input affirmed context-sensitive design features should be incorporated (e.g. shared use path, sidewalks, traffic calming measures, partial access

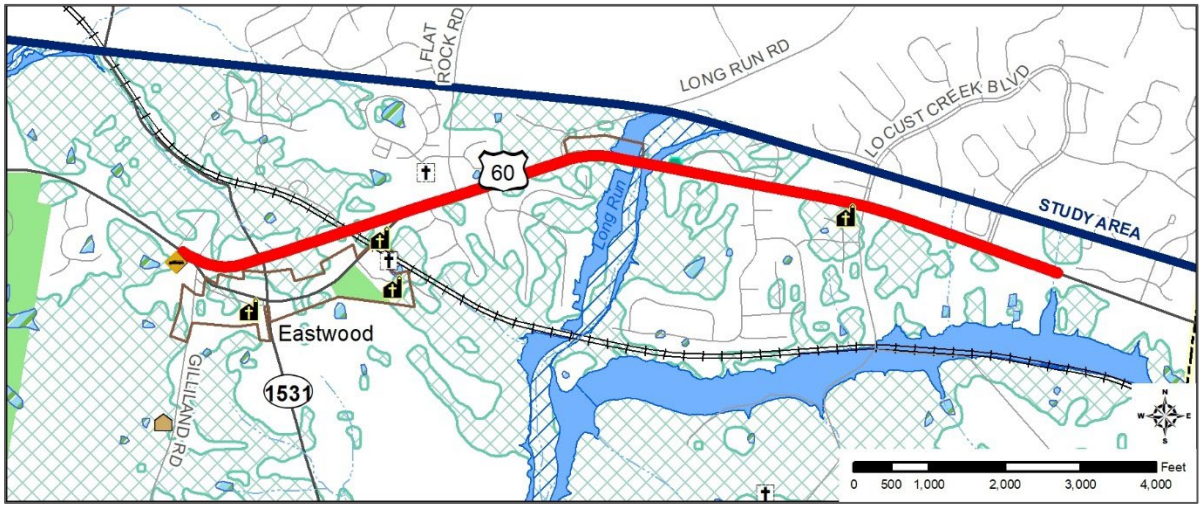
control, green infrastructure, etc.), consistent with the park-like boulevard described in the Floyds Fork vision. CAG meetings could continue into future phases to advocate for community values—such as the proposed Floyd's Fork DRO regulations under consideration by Louisville Metro.

10.3 Project Sheets

US 60 Major Widening		
US 60 Jefferson County, Approx MP 14.7-17.0		High Priority
IMPROVEMENT DESCRIPTION: Extend five-lane section eastward towards Shelby County line Recommend initial planning study to evaluate feasibility and quantify costs, benefits, and impacts	Phase Estimate	(2023 $'s)
	Planning	$500,000
	Total Cost	TBD

IDENTIFIED NEEDS:	
2024 Existing Traffic:	11,900-17,200 vpd on US 60 with signal at LOS B/C during peak hours
2045 No-Build Traffic:	17,500-27,000 vpd on US 60 with signal at LOS F during peak hours
Safety:	88 crashes (1 fatal, 21 injury) during 2018-2022; overlaps 3 LOSS-KAB segments
Geometry:	US 60 has two 11-foot thru lanes with 1-foot paved shoulders and one signalized intersection at Flat Rock Road. Steep Class D grade near Long Run creek.

STUDY GOALS: ☒ Congestion ☐ Connectivity ☒ Future Growth ☒ Safety



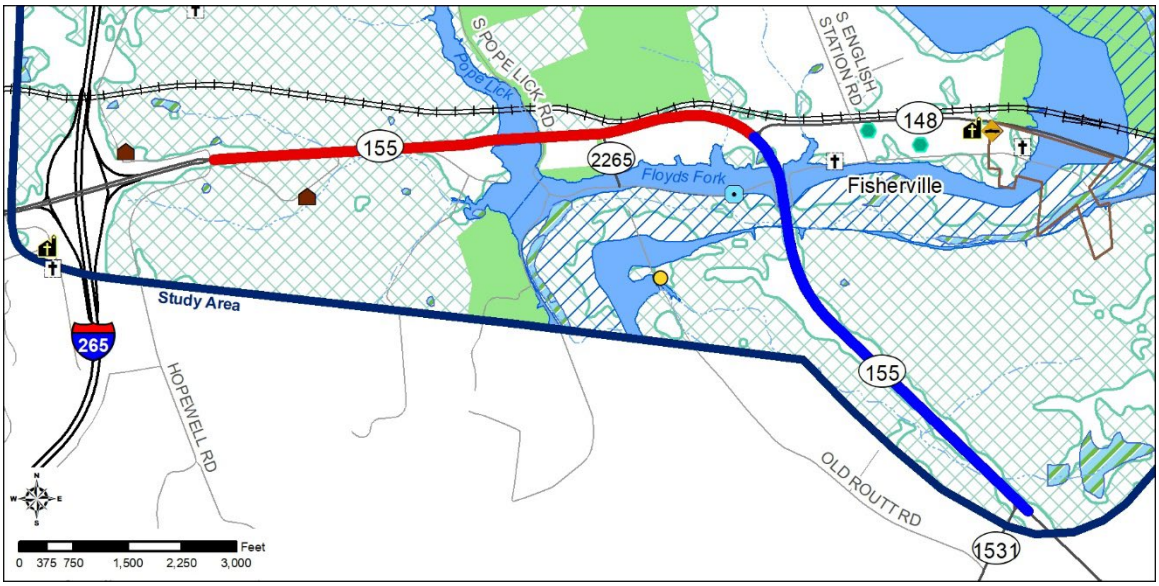
KY 155 Major Widening		
KY 155 Jefferson County, Approx MP 3.0-5.7		Medium Priority
IMPROVEMENT DESCRIPTION: Extend five-lane section eastward towards KY 1531 (Routt Rd) Recommend initial planning study to evaluate feasibility and quantify costs, benefits, and impacts	Phase Estimate	(2023 $'s)
	Planning	$250,000
	Total Cost	TBD

IDENTIFIED NEEDS:

2024 Existing Traffic:	16,800-20,000 vpd on KY 155 with signal at LOS B/D during peak hours
2045 No-Build Traffic:	23,500-25,400 vpd on KY 155 with signal at LOS D/F during peak hours
Safety:	136 crashes (32 injury) during 2018-2022; Continuous LOSS 3-4 west of KY 148
Geometry:	KY 155 has 2-3 thru lanes (11 to 12 feet wide) with varying shoulders and one signalized intersection at KY 148. Steep Class D grade approaching I-265.

STUDY GOALS: ☒ Congestion ☐ Connectivity ☒ Future Growth ☒ Safety

Active designs under Items No. 5-8908 (red) and 5-8954.1 (blue)

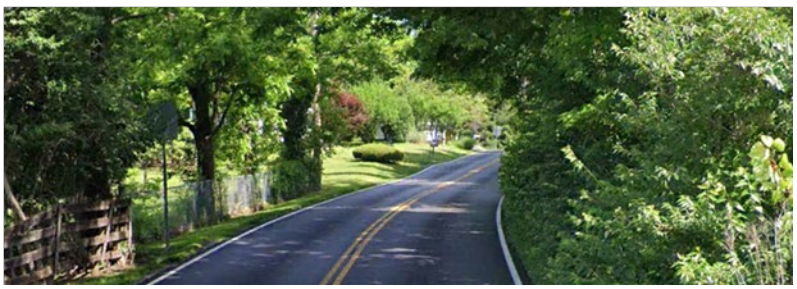


KY 1531 Minor Widening		
KY 1531 Jefferson County, Approx MP 5.620-9.119		Medium Priority
IMPROVEMENT DESCRIPTION: Minor widening to improve safety with increased traffic demands Recommend initial planning study or HSIP review to evaluate feasibility and quantify costs, benefits, and impacts	Phase Estimate	(2023 $'s)
	Planning	$250,000
	Total Cost	TBD

IDENTIFIED NEEDS:

2024 Existing Traffic:	1,500-1,800 vpd, operating at LOS A during peak hours
2045 No-Build Traffic:	7,600-13,500 vpd, operating at LOS C-E during peak hours
Safety:	12 crashes (2 injury) during 2018-2022; LOSS 3-4 segments south of I-64
Geometry:	KY 1531 has two 8- to 9-foot thru lanes with minimal shoulders. Grade data not available in HIS but 11 Class E/F horizontal curves over length.

STUDY GOALS: ☐ Congestion ☐ Connectivity ☒ Future Growth ☒ Safety

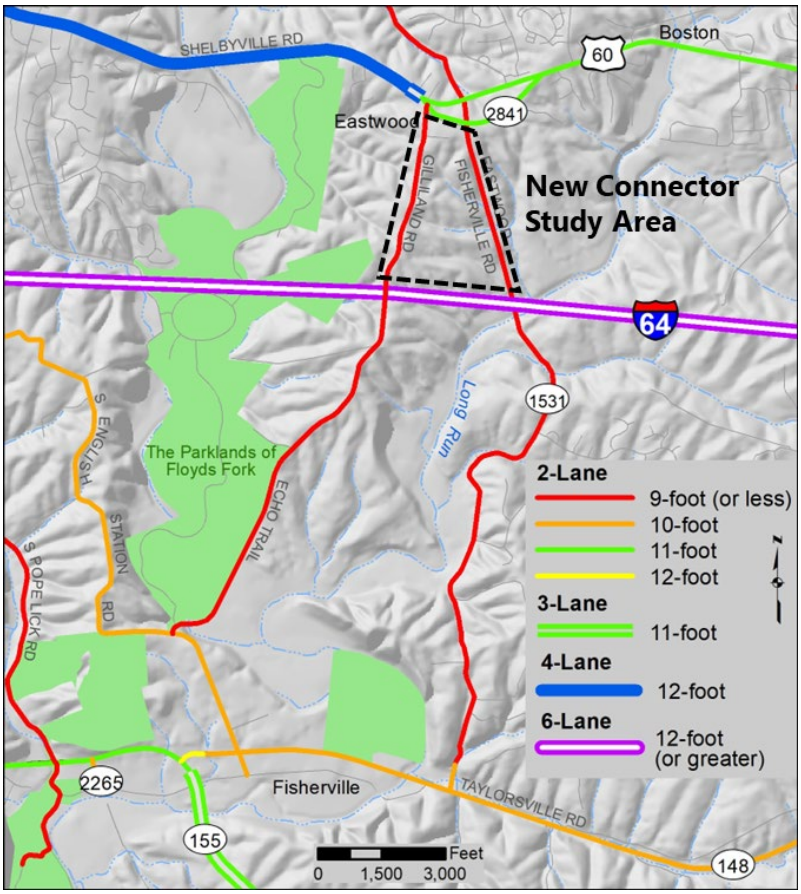


New East-West Connector		
New Route		High Priority
IMPROVEMENT DESCRIPTION: Create a new east/west connector between Echo Trail and KY 1531 Recommend initial planning study to evaluate feasibility and quantify costs, benefits, and impacts	Phase Estimate	(2023 $'s)
	Planning	$250,000
	Total Cost	TBD

IDENTIFIED NEEDS:

2024 Existing Traffic:	N/A—new route
2045 No-Build Traffic:	N/A—new route
Safety:	N/A—new route
Geometry:	N/A—new route

STUDY GOALS: ☐ Congestion ☒ Connectivity ☒ Future Growth ☒ Safety

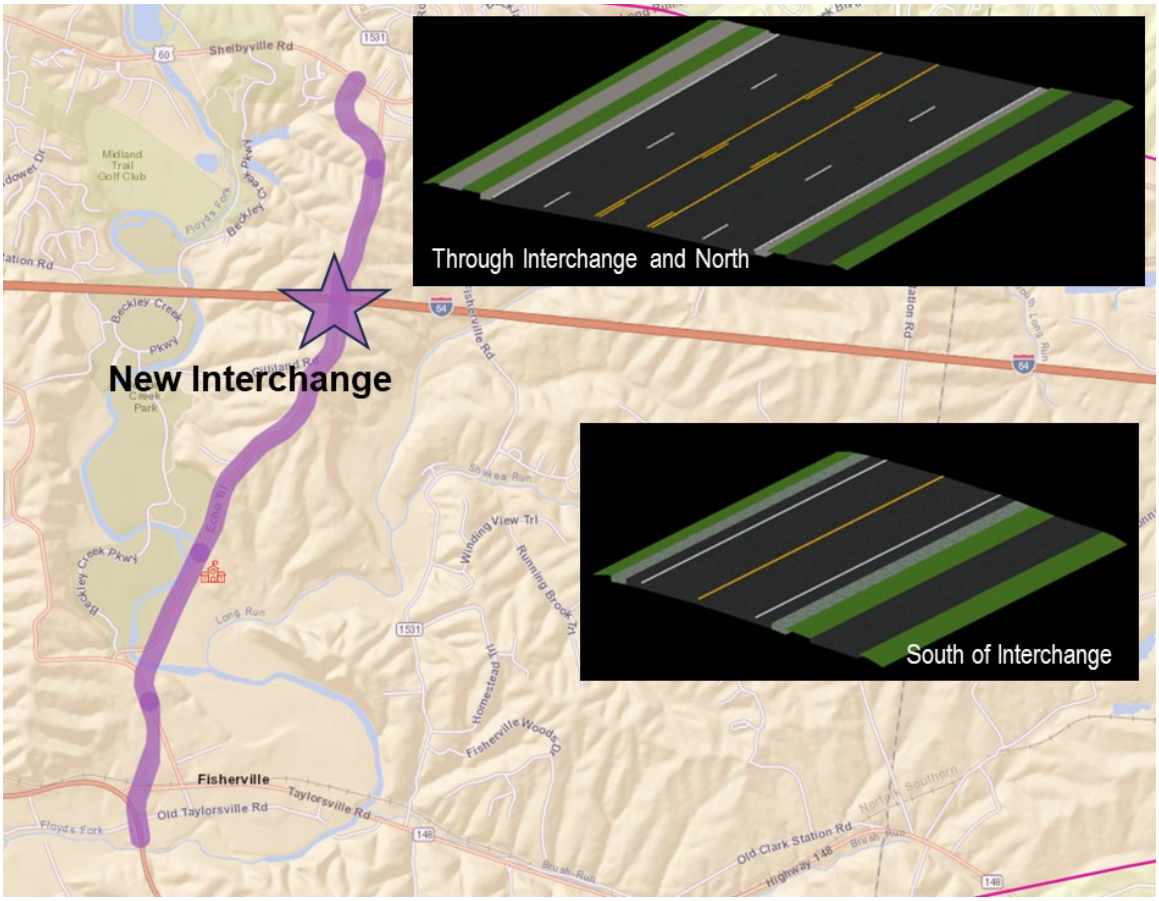


Concept A		
CR-1010J Gilliland Road MP 0.0-1.1 + CR-1009J Echo Trail MP 0.0-1.6		Medium Priority
IMPROVEMENT DESCRIPTION: Improved north-south corridor, roughly following Echo Trail/Gilliland Road, including new interchange with I-64. Five lanes north of interchange and 2-3 lanes south. Includes shared use path and other context-sensitive design features.	**Phase Estimate**	**(2023 $'s)**
	Design	$11 million
	Right-of-Way	$22 million
	Utilities	$23 million
	Construction	$75 million
	Total Cost	**$130 million**

IDENTIFIED NEEDS:

2024 Existing Traffic:	1,000-3,700 vpd on Gilliland Road, Echo Trail, and South English Station Road
2045 No-Build Traffic:	13,500-26,700 vpd, with intersection-level improvements to be developed during preliminary design to optimize performance
Safety:	11 crashes (1 injury) during 2018-2022; Gilliland Road north of I-64 is LOSS 3
Geometry:	Route has two 9-foot thru lanes with minimal shoulders. Grade data not available in HIS but 2 Class E/F horizontal curves over length.

STUDY GOALS: ☒ Congestion ☒ Connectivity ☒ Future Growth ☒ Safety

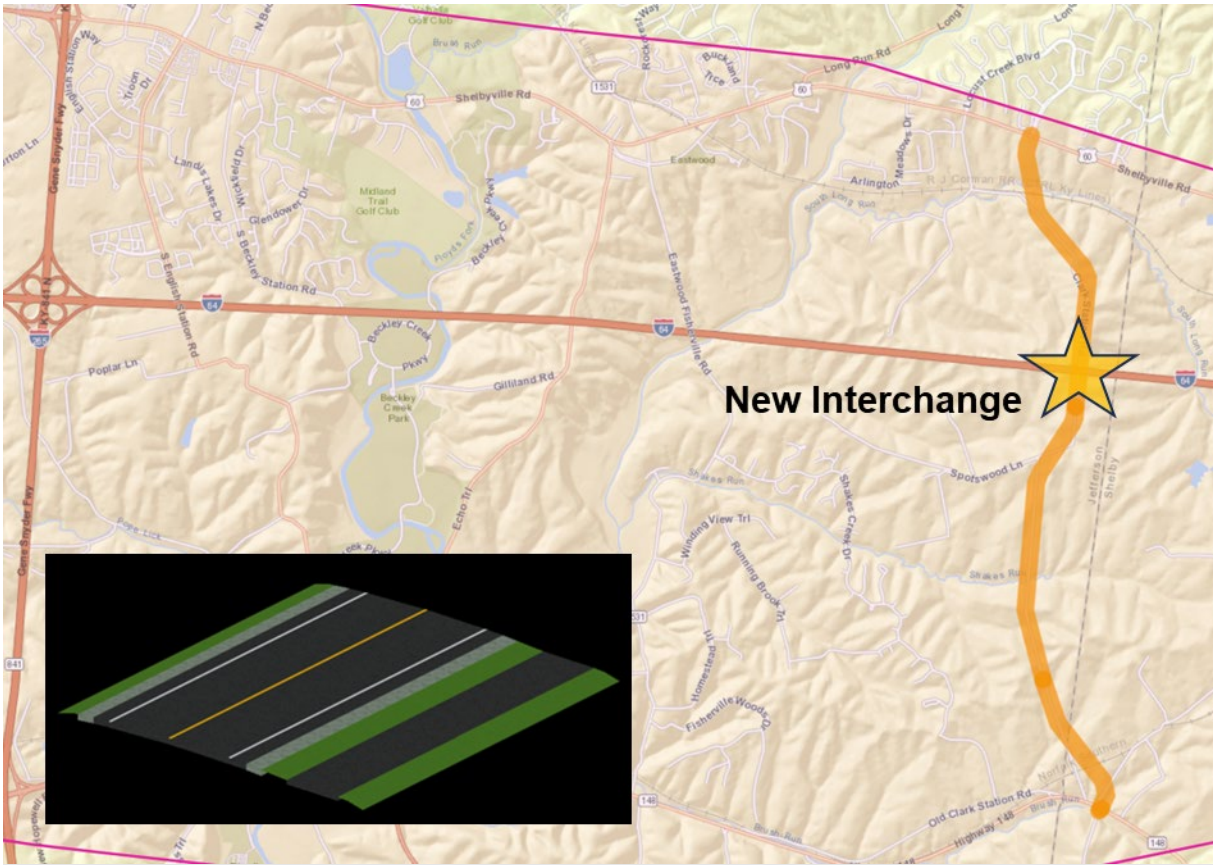


Concept C		
CR-1004J Clark Station Road MP 0.4-1.6		Medium Priority
IMPROVEMENT DESCRIPTION: Improved two-lane north-south corridor, roughly following Clark Station Road, including new interchange with I-64.	**Phase Estimate**	**(2023 $'s)**
	Design	$11 million
	Right-of-Way	$18 million
	Utilities	$14 million
	Construction	$70 million
	Total Cost	**$113 million**

IDENTIFIED NEEDS:

2024 Existing Traffic:	500 vpd, operating at LOS A during peak hours
2045 No-Build Traffic:	9,100-16,000 vpd, with intersection-level improvements to be developed during preliminary design to optimize performance
Safety:	4 crashes (2 injury) during 2018-2022
Geometry:	Clark Station Road has two 8-foot thru lanes with minimal shoulders. Alignment data not available in HIS.

STUDY GOALS: ☒ Congestion ☒ Connectivity ☒ Future Growth ☒ Safety



11.0 NEXT STEPS

The next phase in the project development process is Preliminary Engineering and Environmental Analyses (Phase I Engineering) per the National Environmental Policy Act (NEPA). Phase I should also include an Interchange Justification Study (IJS) and continued engagement with FHWA. Windshield surveys and database reviews conducted for this PEL study suggest environmental investigations in **Table 29** will be appropriate as a Build concept advances to preliminary design and NEPA. Coordination with local officials, key stakeholders, the already-established CAG, and the public is essential as concepts are advanced for implementation. Items not currently included in KYTC's CHAF database should be added to compete for funding alongside other needs statewide.

Table 29: Anticipated Future NEPA Analyses per PEL Data

Resource	Future Environmental Considerations
Air Quality	• Project should be included in both KIPDA Transportation Improvement Program (TIP) and Kentucky's Statewide Transportation Improvement Programs (STIP). • An *Air Quality Impact Analysis*, including at least qualitative Mobile Source Air Toxics (MSAT) analysis and quantitative Greenhouse Gas/Climate Change Impact Analysis may be required.
Archaeology	• A site-specific survey, report, determination of eligibility and effects, and coordination with SHPO required to fully assess potential impacts. • Tribal Consultation required if any potential Native American sites or resources were identified as a result of the field surveys.
Community	• *Community Impact Assessment* is recommended to further assess potential impacts to EJ communities. Planning data suggests low likelihood to encounter EJ clusters beyond a section along KY 148 near county line. • Due to the estimated number of relocations, an *Environmental Justice Impact Analysis* recommended to fully assess potentially disproportionately high and adverse impacts. • Continued resource agency and public coordination encouraged to further understand impacts and identify mitigation measures. While sites have been identified in the planning study, additional coordination with Louisville Metro is recommended to identify any newly proposed/approved developments, sewer expansions, or conservation easements. • Formal consultation with the USDA-NRCS required to assess farmland impacts.
Cultural Historic	• A site-specific survey, report, determination of eligibility and effects, and coordination with SHPO required to fully assess potential impacts. There is a potential historic district in Eastwood; however, the formal NRHP-eligible boundary has not yet been defined.
Ecological	• A *Biological Assessment* may be required due to potential acreage impacts. If the project is determined to have adverse effects, a *Biological Opinion* would also be required. Seasonal survey restrictions may affect timeframes and construction schedules.
Hazardous Materials	• Phase I site assessment recommended to formally identify sites/properties of concern that may need further investigation or avoidance.
Noise	• Project likely considered a Type I project, requiring a *Traffic Noise Impact Analysis*.

Resource	Future Environmental Considerations
Section 4(f)	• Because the future project would require FHWA approval of a new interchange, and would likely use federal transportation dollars, Section 4(f) would apply. The added time to navigate this process should be accounted for in project schedules. • Continued avoidance of direct impacts to the Parklands of Floyds Fork and the public canoe/kayak launch southwest of the KY 155/KY 148 intersection is recommended. • Continued coordination with Louisville Metro to identify minimization and mitigation measures.
Waters of the US	• Avoid, minimize, and reduce impacts where possible. • Mitigation costs should be anticipated. Check for new mitigation tools and guidelines—Kentucky is currently in initial development of a Kentucky-specific Stream Qualification Tool (SQT). • Several permits will be required with review processes accounted for in project scheduling. Early field delineation and jurisdictional determination submitted to the USACE Louisville District Office could help to better assess potential impacts, mitigation options, and permits. Field assess to determine if any open waters, lakes, ponds, or reservoirs provide potential wetland fringe features. • A USACE Section 404 permit and Section 401 permit from KDOW required. • Structures should be designed to avoid raising the flood elevation in the area. • A Section 408 permit may also be required if a project would impact a Civil Works project or USACE-owned lands. There is an USACE storm restoration project adjacent. • A Stormwater Pollution Prevention Plan (SWPPP), including an erosion and sediment control plan would be required. This plan requires submission and approval by KDOW and Indiana Department of Natural Resources. • Louisville is a MS4 Community and coordination with MSD is recommended to be consistent with local ordinances to address the management of stormwater and prevent flooding in this sensitive watershed

12.0 ADDITIONAL INFORMATION

Written requests for additional information should be sent to:

KYTC Division of Planning
ATTN: Director
200 Mero Street
Frankfort, KY 40622