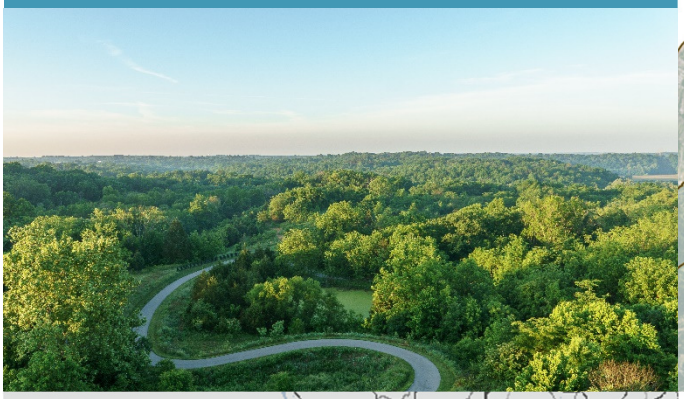

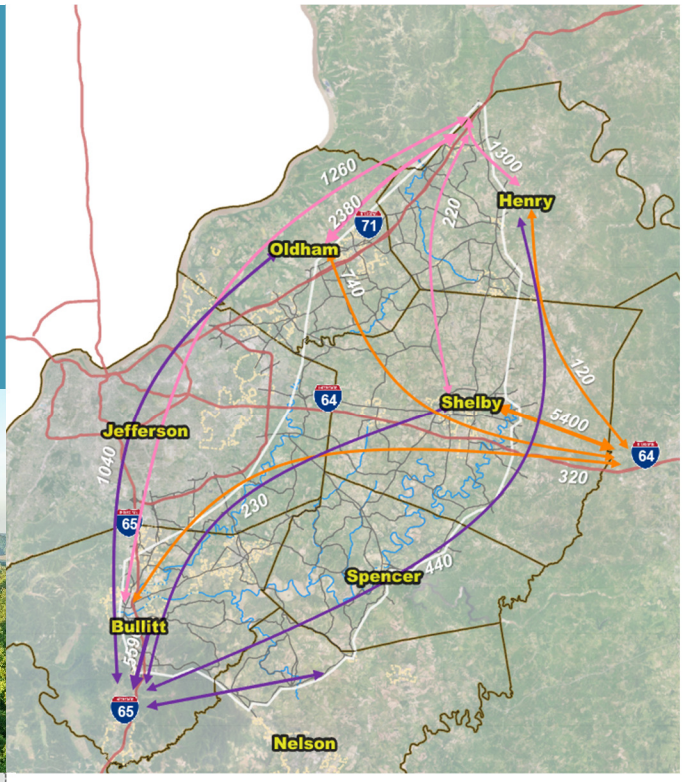

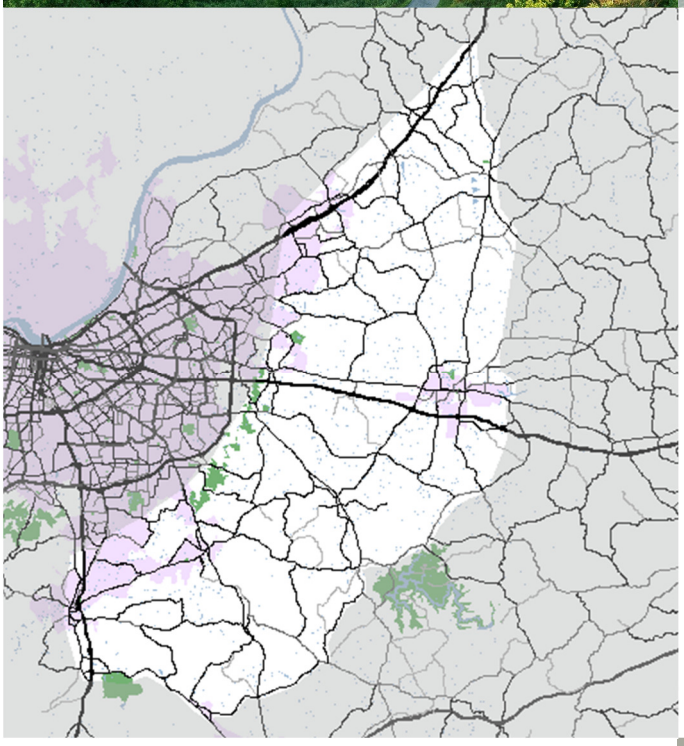

65-71 Regional Connector – Existing Conditions Report

Louisville, Kentucky, US
April 3, 2019

KENTUCKY TRANSPORTATION CABINET

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1

Introduction

1 – Introduction

The Kentucky Transportation Cabinet (KYTC) initiated the 65-71 Regional Connector Study (Item No. 5-564) to examine the need for and feasibility of a new and/or upgraded highway that would connect I-65 in Bullitt County to I-71 in Oldham County. The area being studied is outside the Gene Snyder Freeway (I-265) and includes portions of seven counties.

This existing conditions analysis was conducted to create a baseline of known information within the project's study area regarding a variety of issues and existing elements that have the potential to impact the development and/or screening or one or more project alternatives. This section presents a current "snapshot" of those important existing natural and human-made features in the area that will be taken into account as the study progresses. The topics in this document are organized by subject area and include the following:

Chapter 2: Study Area
Chapter 3: Socioeconomic Data
Chapter 4: Land Use
Chapter 5: Utilities and Rail
Chapter 6: Transportation System
Chapter 7: Environmental Executive Summary
Chapter 8: Related Near and Long Term Projects Summary
Chapter 9: Summary of Prior and Related Studies

2

Study Area

2 – Study Area

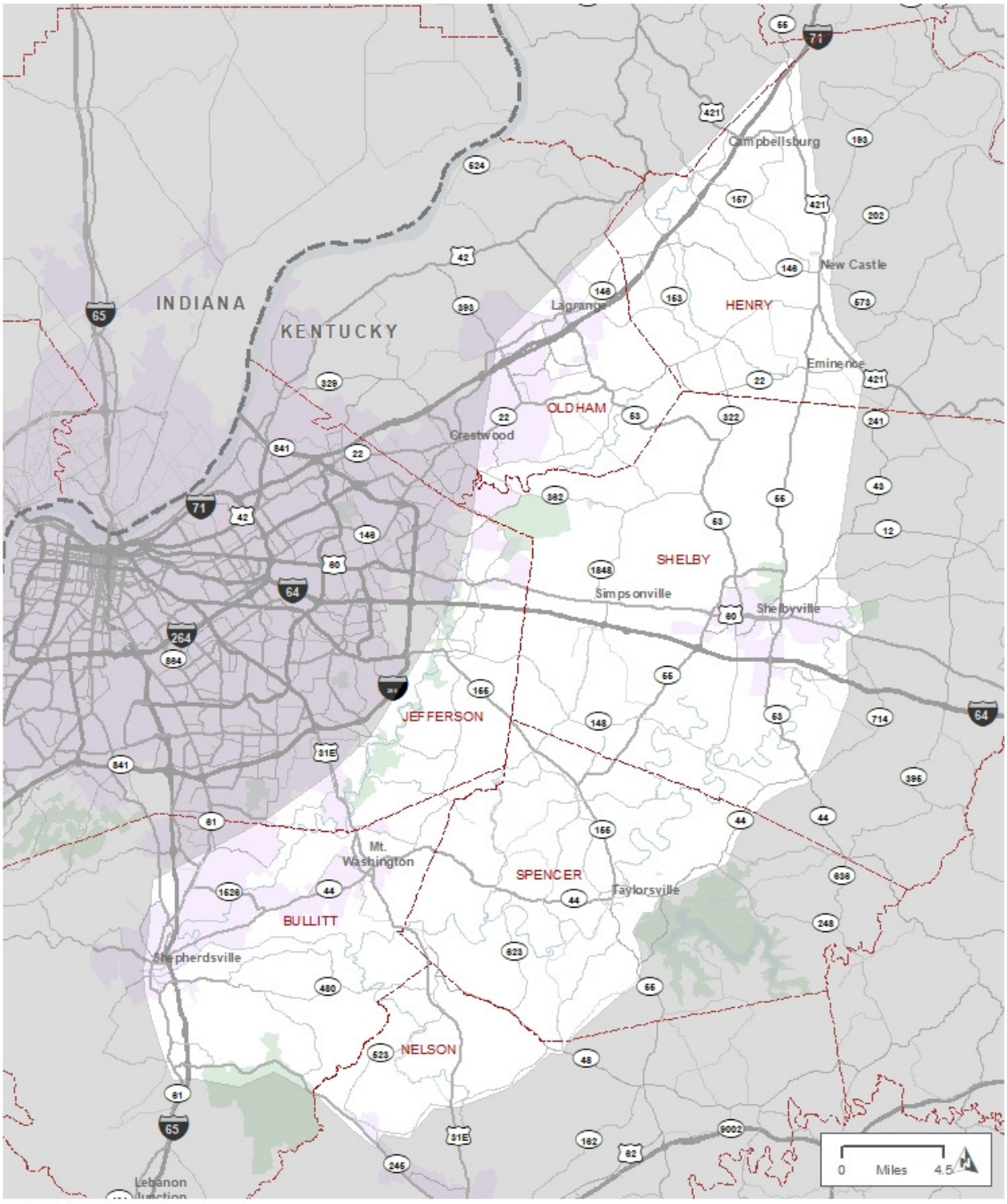
The study area is a broad, 16- to 17-mile-wide sweeping band around the east side of Greater Louisville, beginning in the south at I-65 in Bullitt County and terminating to the north at I-71 in Oldham and Henry County. The study area is located on the outside of the I-265 (Gene Snyder Freeway) outer loop and includes portions of Bullitt, Nelson, Spencer, Shelby, Henry, Jefferson, and Oldham counties. **Figure 2-1** shows the location and extents of the study corridor, which covers approximately 742 square miles. Notable cities near or in this study area include Shepherdsville, Taylorsville, Shelbyville, and LaGrange.

The study area is predominantly rural in nature and lacks the efficient circumferential mobility that is provided by the existing radial interstate beltways located within Jefferson County. The study area is bookmarked by the major interstates of I-65 in Bullitt County and I-71 in Oldham County.

The westernmost boundary of the study area runs along I-65 from KY 245 (north of Bernheim Forest) to a point just south of Brooks. From there, it loosely parallels the outer corridor of the I-265 interstate in Jefferson County, and just west of the Parklands of Floyds Fork linear park system. Although included in the study area, the Parklands system will be avoided with regard to developing roadway corridors in this study. The western boundary continues north and terminates at I-71 near Buckner, KY.

The easternmost boundary of the study area starts along KY 245, southeast of Bernheim Forest and northwest of the City of Bardstown. It continues along KY 509 through the City of Fairfield, thence along KY 1392, and then loosely flows along the western boundary or Taylorsville Lake State Park. The eastern study area boundary then turns north and runs along the eastern edges of the City of Shelbyville and the City of Eminence. From there, the eastern boundary follows KY 421 until it crosses I-71 near I-71 mile marker 37.

Figure 2-1. Study Area



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

STUDY AREA
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

3

Socioeconomic Data

3 - Socioeconomic Data

This section presents existing and future socioeconomic data in the study area, centering on households, population and employment.

According to the Kentucky State Data Center (KSDC), as indicated in **Table 3-1**, four counties in the study area – Jefferson, Oldham, Shelby and Bullitt – are forecasted to be among the top 10 fastest-growing cities in Kentucky over the next 25 years. In terms percentage gain, Oldham and Shelby Counties remain on the top 10 list, and are joined by Spencer County. **Table 3-2** summarizes forecasted growth by County in 5-year increments, and **Figure 3-1** contains graphs of these trends.

Table 3-1. Projected Change in Total Population (2015-2040)

Rank	Largest Numeric Gain (by County)		Largest Percentage Gain (by County)	
1	Jefferson	111,836	Scott	86.5%
2	Fayette	105,325	Oldham	52.8%
3	Boone	63,381	Shelby	51.7%
4	Warren	60,854	Boone	49.6%
5	Scott	45,325	Warren	49.5%
6	Oldham	34,249	Spencer	45.7%
7	Hardin	28,462	Jessamine	40.3%
8	Shelby	23,607	Fayette	33.5%
9	Jessamine	20,956	Montgomery	32.5%
10	Bullitt	19,543	Hardin	26.7%
11	Madison	18,477	Bullitt	24.8%
12	Kenton	15,400	Nelson	21.3%
14	Nelson	9,626	Madison	21.0%
16	Spencer	8,171	Anderson	15.3%
17	Pulaski	7,514	Jefferson	14.6%
60	McCracken	-745	Henry	-5.6%
62	Henry	-877	Breckinridge	-6.1%

Source: Kentucky State Data Center (KSDC)
Highlighted counties fall within the study area.

Table 3-2. Projected Population, Households, and Employment by County (2010-2040)								
Counties	**Census 2010**	**Estimate 2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**% Growth 2015-2040*** **
Population*								
Jefferson	741,096	763,623	790,010	815,058	837,477	857,013	875,459	14.6%
Bullitt	74,319	78,702	83,186	87,470	91,527	95,170	98,245	24.8%
Henry	15,416	15,620	15,617	15,541	15,360	15,081	15,946	2.1%
Nelson	43,437	45,126	47,473	49,702	51,695	53,337	54,752	21.3%
Oldham	60,316	64,875	69,419	74,806	81,831	90,346	99,124	52.8%
Shelby	42,074	45,632	49,988	54,637	59,415	64,209	69,239	51.7%
Spencer	17,061	17,894	19,451	21,069	22,780	24,479	26,065	45.7%
Non-Jefferson County Total	252,623	267,849	285,134	303,225	322,608	342,622	363,371	35.7%
All Counties Total	993,719	1,031,472	1,075,144	1,118,238	1,160,085	1,199,635	1,238,830	20.1%
Households*								
Jefferson	309,175	323,630	336,587	349,103	360,287	370,882	380,593	17.6%
Bullitt	27,673	30,537	33,363	35,971	38,414	40,575	42,463	39.1%
Henry	5,963	6,153	6,285	6,341	6,375	6,315	6,238	1.4%
Nelson	16,826	17,901	19,200	20,387	21,450	22,377	23,231	29.8%
Oldham	19,431	21,135	23,441	25,868	28,604	31,478	34,304	62.3%
Shelby	15,321	16,857	18,649	20,454	22,322	24,177	26,247	55.7%
Spencer	6,165	6,715	7,539	8,349	9,164	9,911	10,570	57.4%
Non-Jefferson County Total	91,379	99,298	108,477	117,370	126,329	134,833	143,053	44.1%
All Counties Total	400,554	422,928	445,064	446,473	486,616	505,715	523,646	23.8%
Employment**								
Jefferson	505,868	--	543,890	552,038	560,184	573,450	587,225	16.1%
Bullitt	24,631	--	31,117	34,317	37,158	40,179	43,200	75.4%
Henry	6,315	--	6,254	6,666	7,077	7,489	7,900	25.1%
Nelson	14,244	--	--	--	--	--	29,591	107.7%
Oldham	20,816	--	25,575	27,885	30,195	32,505	34,815	67.3%
Shelby	13,318	--	22,880	24,700	26,520	28,340	30,160	126.5%
Spencer	2,636	--	3,515	3,817	4,118	4,419	4,721	79.1%
Non-Jefferson County Total	81,960	--	89,341	97,477	105,068	112,932	150,387	83.5%
All Counties Total	587,828	--	633,231	649,423	665,252	686,382	737,612	25.5%

*Source: **http://www.ksdc.louisville.edu/wp-content/uploads/2016/10/projection-report-v16.pdf**

**Source: MSA Forecast by County for all but Nelson for 2020 to 2040. All 2010 employment numbers from U.S. Census.

***Percent Growth for Employment calculated using 2010 and 2040 values.

Population

The seven counties in the study area are expected to grow by over 207,000 new residents between 2015 and 2040, with Jefferson County accounting for just over half of that total. However, only a portion of Jefferson County's growth will be in the study area. The first ring counties of Bullitt, Oldham, and Shelby are projected to account for the majority of the growth outside of Jefferson County. Both Oldham and Bullitt are expected to have nearly 100,000 people by 2040, with Shelby approaching 70,000. By 2040, the outer six counties will have approximately 360,000 people combined which is larger than the current population of the City of Lexington.

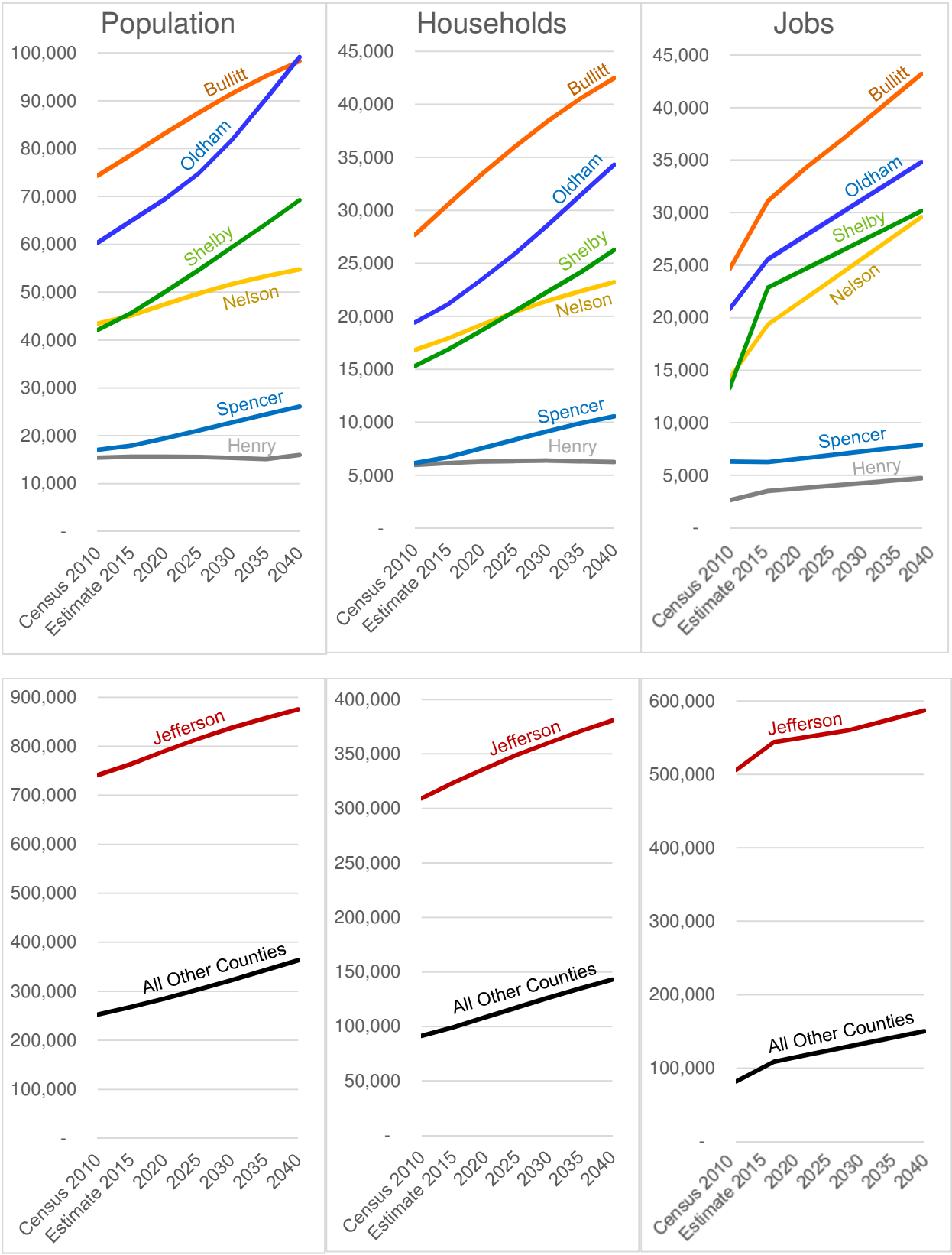
Households

Households are projected to grow in a similar manner to population, with over 120,000 new households in the region by 2040. Over 40,000 households will be in the outlying counties, with the remainder in Jefferson County. These 40,000 households will result in a large increase in travel in the six outer counties, including additional county-to-county travel outside of the Gene Snyder.

Jobs

The region's rate of job growth is expected to keep pace with the population growth, with 150,000 new jobs (25% increase) from 2010 to 2040. A little more than half of the job growth is expected to be in Jefferson County, but nearly 70,000 new jobs are expected in the outer counties by 2040. This job growth is likely to drive trip making to and from the region outside of the Gene Snyder Freeway. It will increase travel on the radial routes as well as the circumferential routes in the study area.

Figure 3-1. Projected Growth in Population, Households, and Jobs by County (2010-2040)



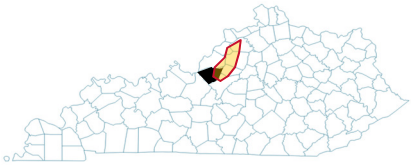
4

Land Use Data

4 - Land Use

This section describes existing development and land-use patterns in each study-area county, along with future projections development and growth projections per individual county plans. Since land use is typically regulated at the discretion of each local government entity per the Kentucky Revised Statutes, land-use categorizations are slightly different for each county as described in this section.

Bullitt County



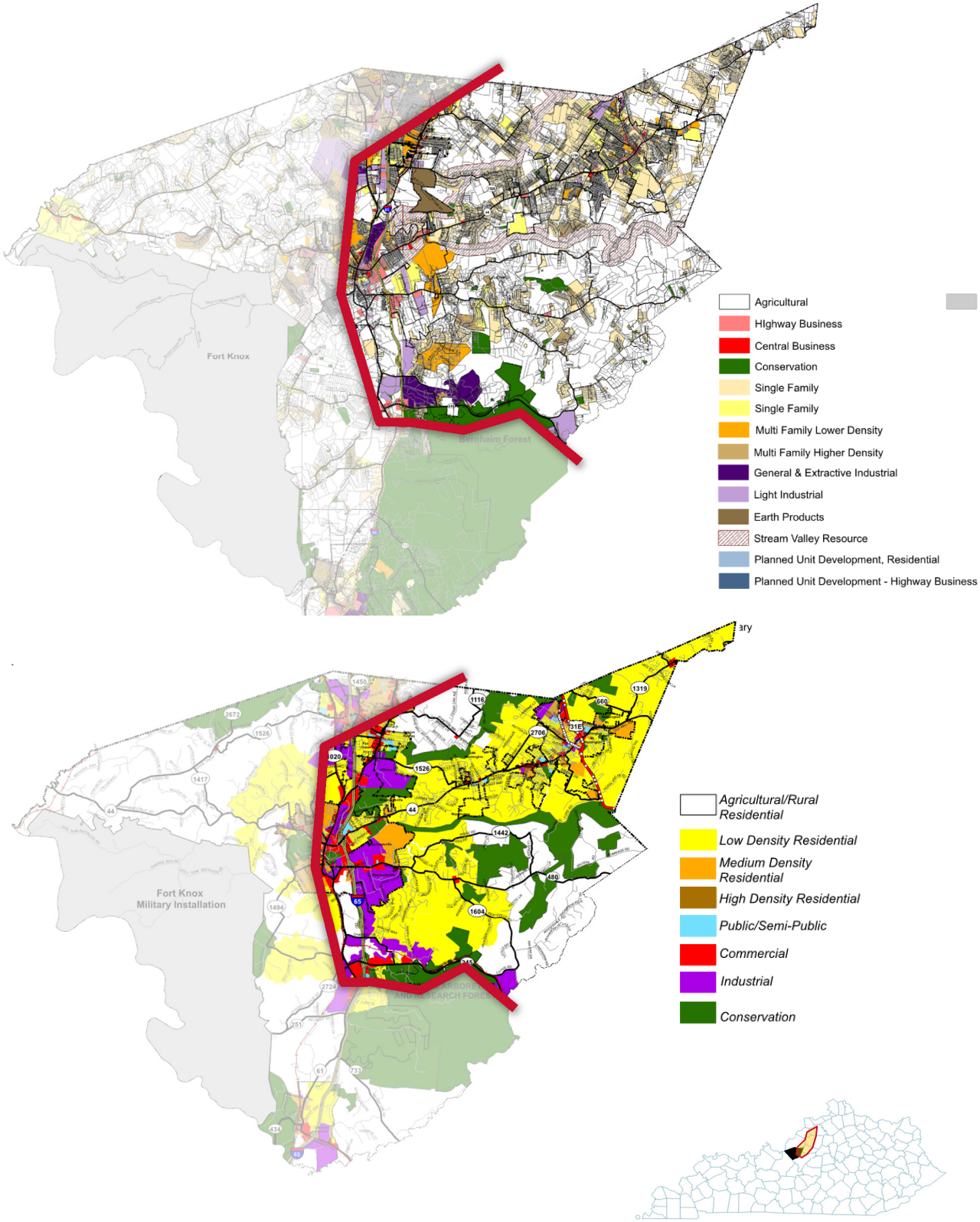
Bullitt County is about 300 square miles in area and is in a fast-growing portion of south central Kentucky just south of Louisville along I-65. Approximately 124 square miles of the county are in the study area, and this portion includes some of the county's higher growth areas. Due to its proximity to Louisville, the Louisville International Airport and nearby businesses, Bullitt County is seeing growth in warehousing and logistics uses. Bullitt County is also seeing growth in residential and other types of land uses, as more and more people seek to work in or near Jefferson County, but choose to live in more housing affordable locations like Bullitt County.

Key cities in the study area include Mount Washington (population 14,554) and Shepherdsville (the county seat, population 12,260).

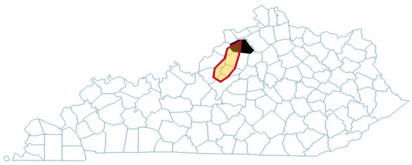
The study area contains a portion of the Frederick Law Olmstead designed 15,000-plus acre Bernheim Arboretum and Research Forest in the southwest portion of the county. These areas are effectively off-limits for development and shift growth to other parts of the county.

Figure 4-1 includes the existing county zoning as well as the Comprehensive Plan's Future Land-Use Map. Within the study area, the most developed areas are along the I-65 corridor (a mixture of mostly residential and industrial uses), along the KY-44 corridor (mostly residential subdivisions), and in Mt. Washington. The Future Land-Use Map shows low-density residential and agricultural uses in most of the eastern part of the county, a potentially accommodating environment for a future transportation corridor. The Salt River and Floyd's Fork run through much of the potential future growth areas in the eastern portion of the county, and are perhaps the county's most significant constraints in locating a future transportation corridor (along with some other conservation areas).

Figure 4-1. Bullitt County Zoning Map (2013) and Future Land-Use (2015)



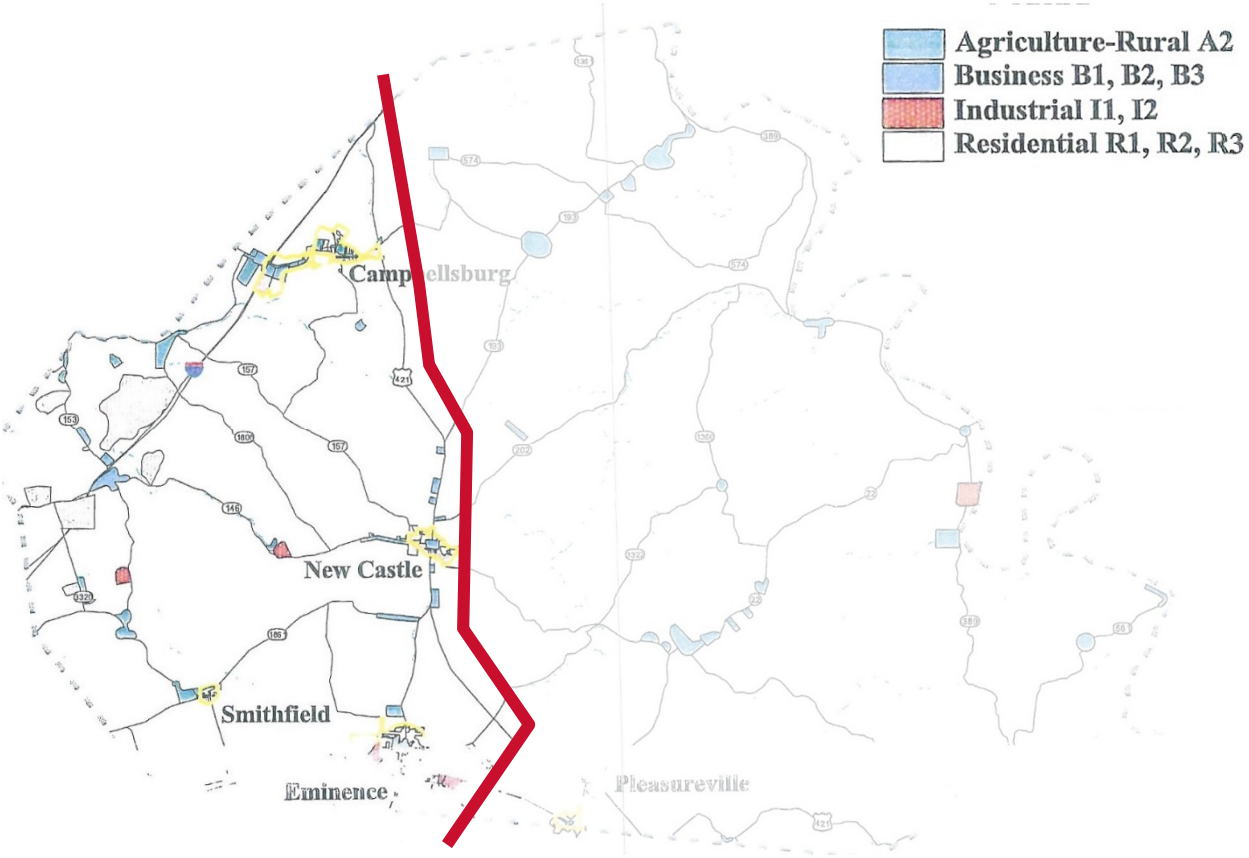
Henry County



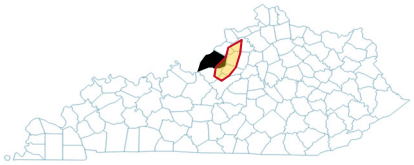
Henry County is located along I-71 northeast of Jefferson County and contiguous to Oldham County. The county has a total land area of 291 square miles, with approximately 103 miles falling within the study area. The terrain varies from rolling hills and cliffs to flat farmlands. Incorporated communities within the study area include Campbellsburg (population 788), Eminence (population 2,569), New Castle (population 936), and Smithfield (population 110).

Henry County is primarily rural and agricultural, but it is well-linked to urban markets. Interstate 71, which passes through the northwest quadrant of the county, provides access to Interstates 65 and 64 in Louisville and Interstates 75 and 74 in Cincinnati.

Figure 4-2. Henry County Land Use



Jefferson County

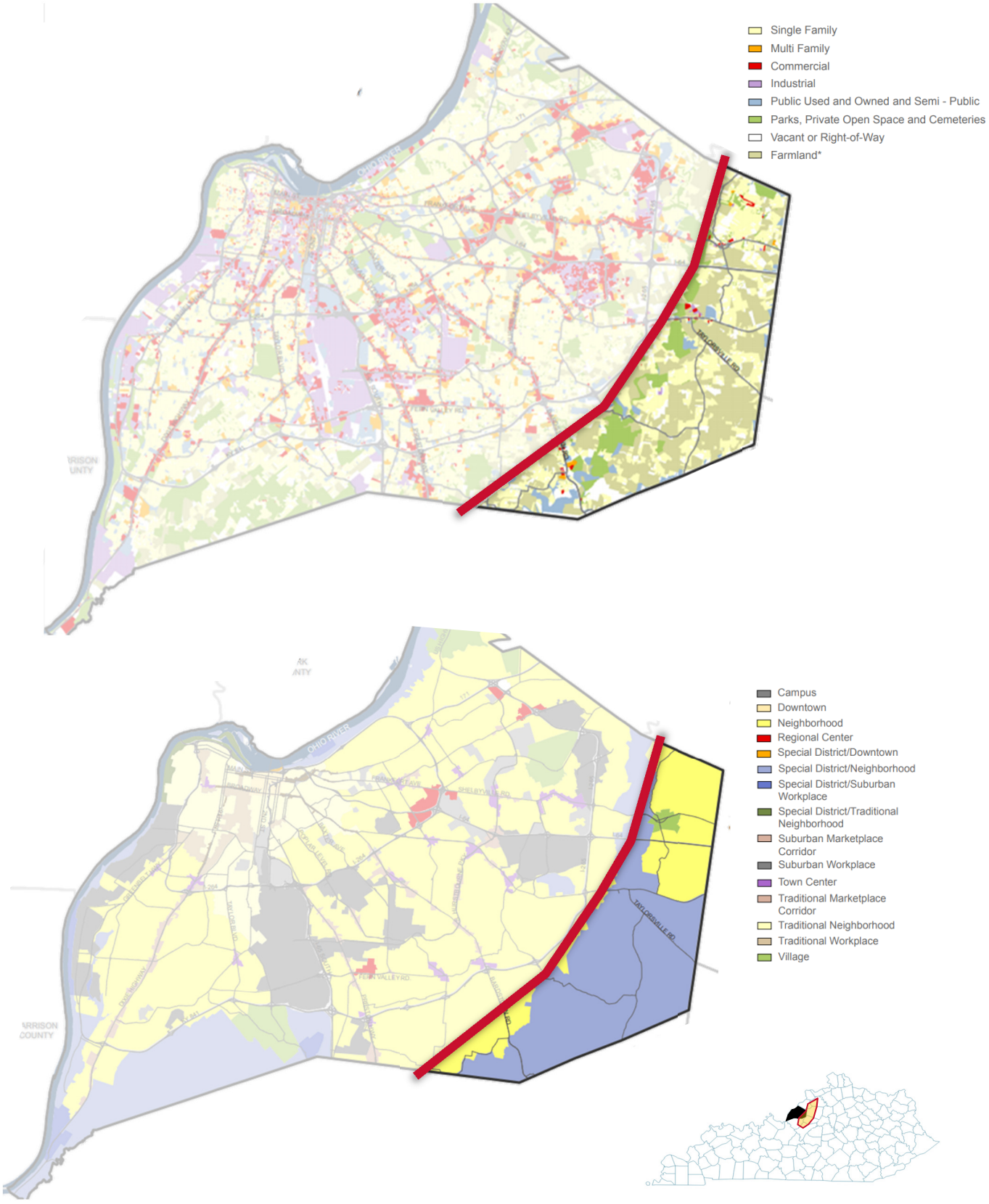


Jefferson County is the most populated county in Kentucky, and home to the state's largest and only first class city, Louisville. Louisville and Jefferson County merged in 2003 and now have joint city-county government. The county is 398 square miles and is bounded to the north by the Ohio River. Only 64 square miles are within the study area.

Jefferson County's "PLAN 2040: A Comprehensive Plan for Louisville Metro" (2019), and associated documents, include zoning and Future Land Use Maps, which are shown in **Figure 4-3.** The southeast portions of the county, outside of the I-265 beltway and including much of the study area, are some of the last remaining large sections of undeveloped land in the county. However, a lack of infrastructure in the area, especially sewers, is keeping density low for the time being. Without sewers, the average maximum potential residential density is 1 dwelling unit per 5 acres. However, if the area were to become sewered, that density would increase to 5 dwelling units per acre. The Metropolitan Sewer District (MSD) currently has long-term plans to build gravity sewers in the area, largely along Floyd's Fork.

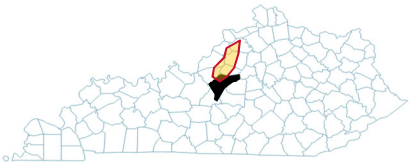
The Floyd's Fork area, essentially where the western boundary of the study area traverses Jefferson County, is a linear park system and home to array of natural areas, including the Parklands of Floyd's Fork. Recent long-range scenario planning in the area has envisioned anywhere from 10,000 to 40,000 new households by 2040, along with a commensurate number of jobs to create a jobs-housing balance of 0.4 jobs to I dwelling unit. As the Community Form Area map shows, the portion of Jefferson County in the study area is largely envisioned as a mix of neighborhoods and "special districts"

Figure 4-3. Jefferson County Current Land Uses and Community Form Areas



Source: Jefferson County Comp Plan Core Graphics - Accessed February 21, 2019

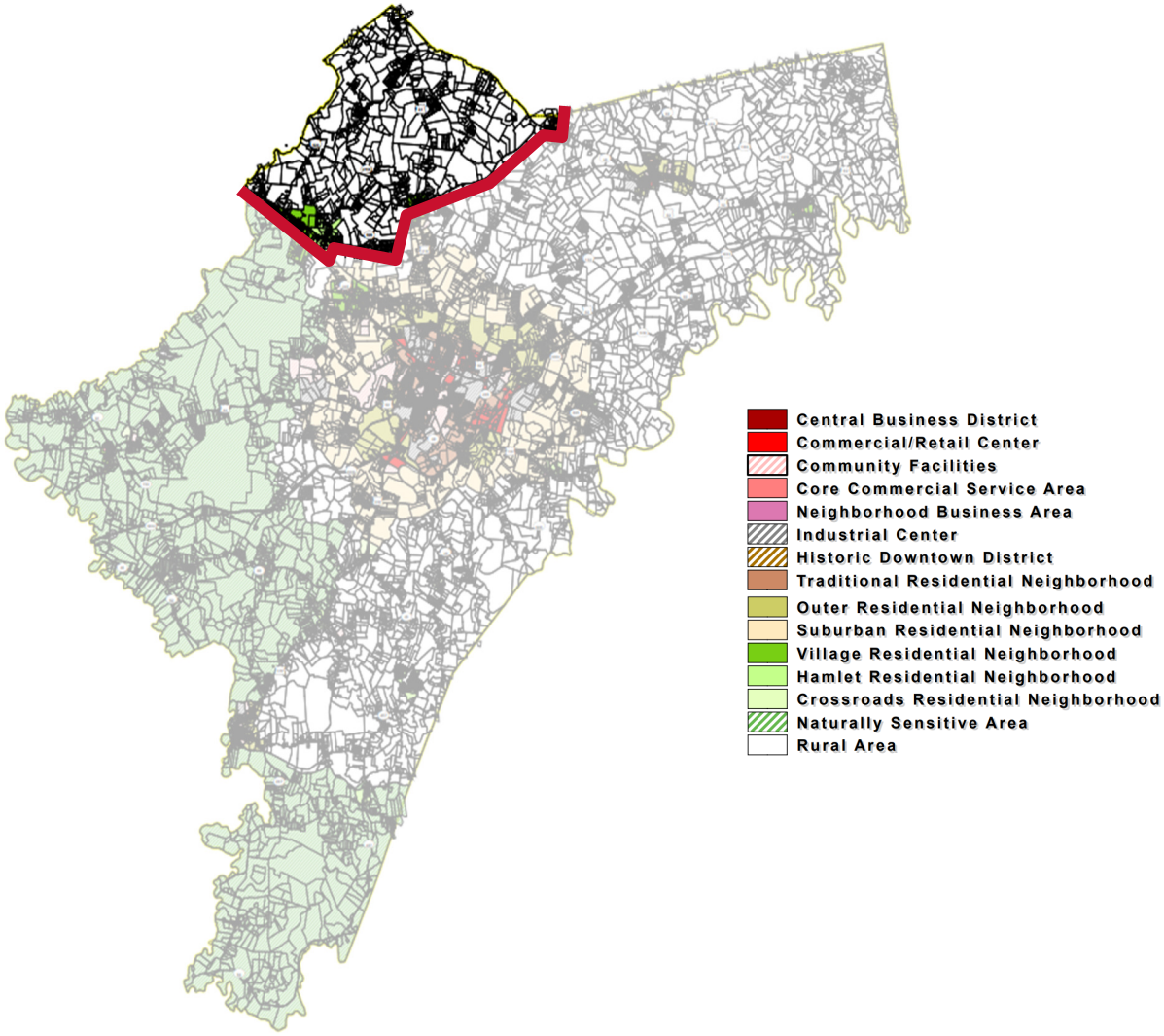
Nelson County



Nelson County is comprised of 424 square miles, 43 of which are in the study area. The portion of Nelson County in the study area is home to the small communities of Highgrove, Deatsville, Lenore, and Coxs Creek.

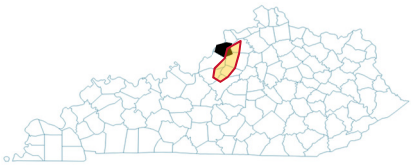
Figure 4-4 contains the county's Future Land-Use map. As the figure indicates, the majority of the portion of the county in the study area is shown to remain rural, with a small portion near Deatsville designated "Village Residential Neighborhood".

Figure 4-4. Nelson County Future Land Use



Source: http://www.ncpz.com/ordinances.asp - Accessed February 21, 2019

Oldham County



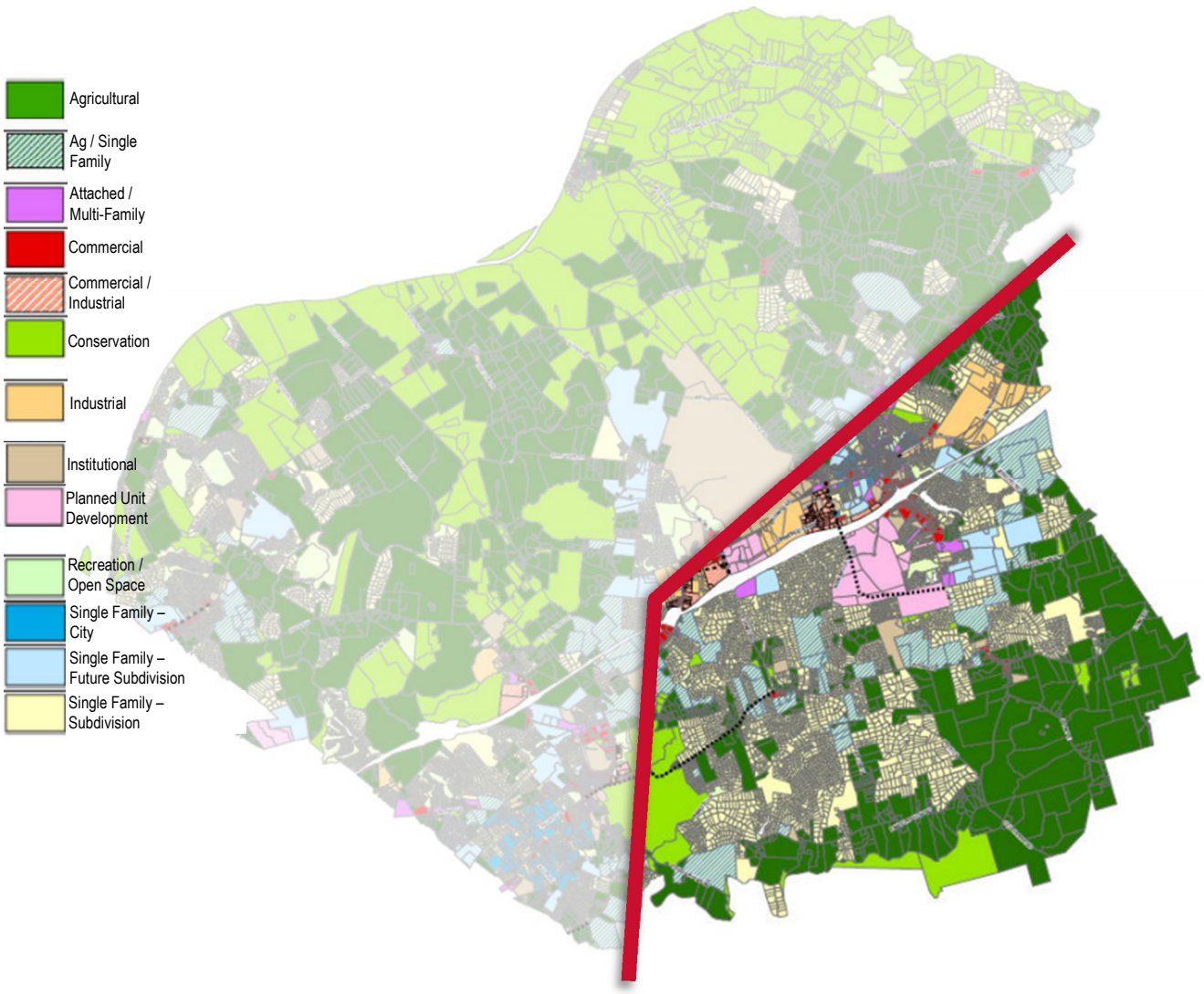
Oldham County contains 196 square miles, 61 of which are in the study area. The only local city within the study area is La Grange (population 8,722), although the City of Crestwood (population 4,910) is just outside the study area. Portions of the communities of Buckner (population 4,000) and Park Lake (population 537) are also within the study area.

Figure 4-5 shows the county's Future Land Use Map, taken from the Oldham County Comprehensive Plan Update (2014).

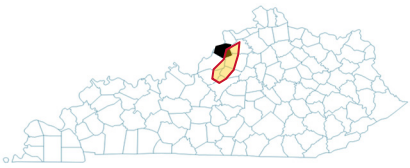
Oldham County is currently somewhat of a bedroom suburb to Jefferson County. However, the county has invested heavily in two business parks on either side of I-71 near La Grange, including supporting infrastructure, and wants to grow the number and diversity of jobs in the county to achieve a better housing-jobs balance and to diversify the tax base.

Figure 4-5 indicates that the county plans to further develop areas immediately south of I-71 with planned unit developments, single-family subdivisions, and mixed agriculture / single-family. The southeastern portion of the county is planned to remain largely agriculture, with a few conservation areas.

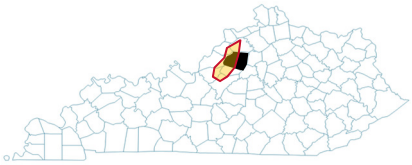
Figure 4-5. Oldham County Future Land Use



Source: http://www.oldhamcountyky.gov/sites/default/files/pdf/Oldham%20Comprehensive%20Plan%20Public%20Document_0.pdf – Accessed February 21, 2019



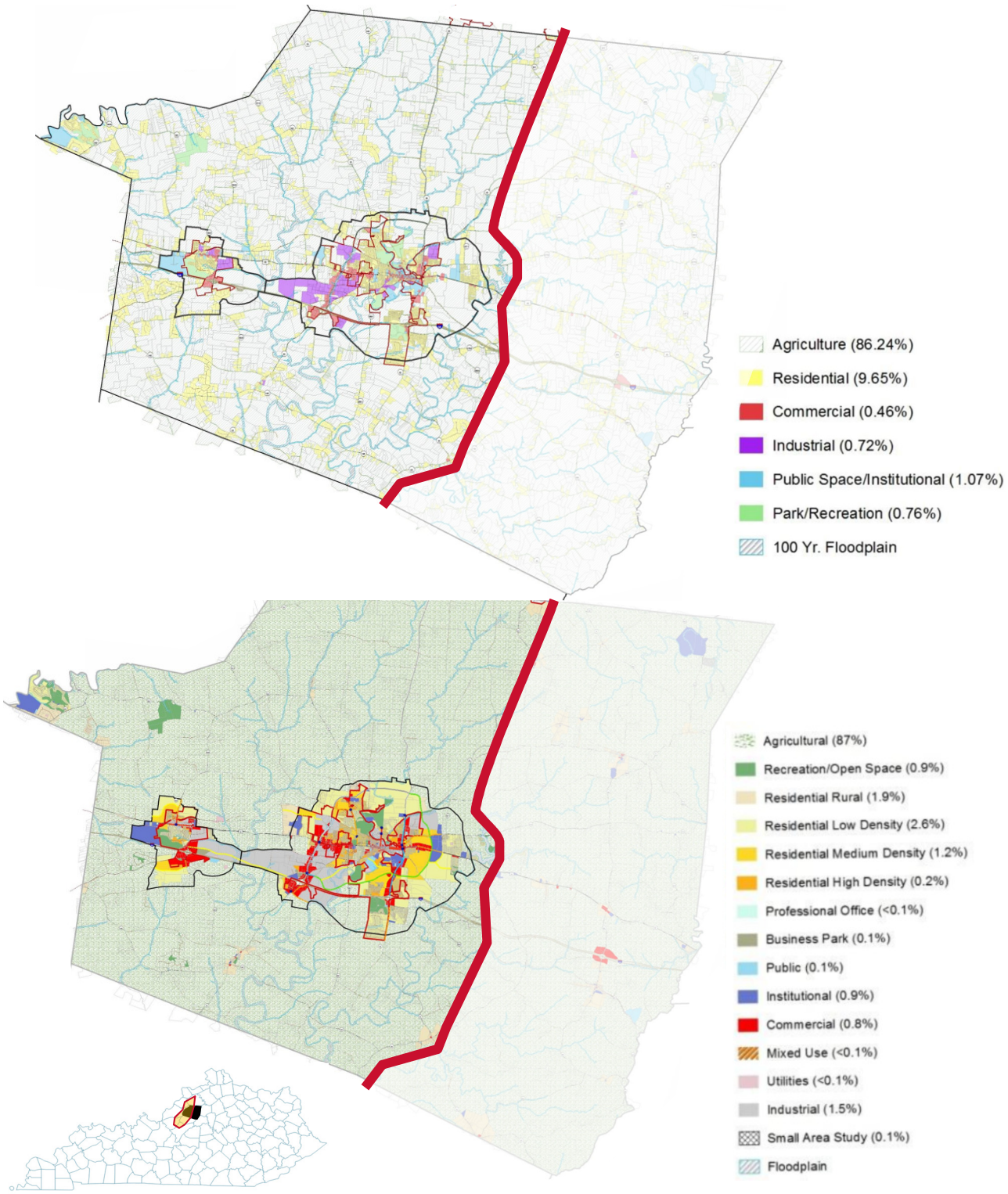
Shelby County



Shelby County is composed of 386 square miles, a large portion of which (222 miles) are in the study area, and is home to independent cities of Pleasureville (population 851), Shelbyville (population 15,514), and Simpsonville (population 2,751) – all of which are in the study area. One prominent land use is a regional outlet mall - the Outlet Shoppes of the Bluegrass, which is home to 95 stores – at I-64 in Simpsonville.

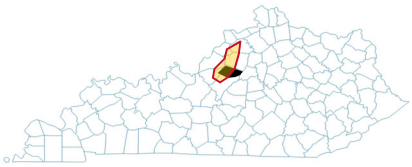
Figure 4-6 includes the existing and future land-use maps from the Shelby County Kentucky Comprehensive Plan (2018). Shelby County has an urban services area which is able to accommodate more growth than other parts of the county. Outside this service area, future development (if any) is shown as very sparse – almost exclusively agricultural. Inside the service area, there are still areas for additional growth.

Figure 4-6. Shelby County Existing and Future Land Use



Source: https://drive.google.com/file/d/1dozOfd8EKC9Aq3DmpHuVAqOTkfuJ6bFQ/view - Accessed February 21, 2019

Spencer County

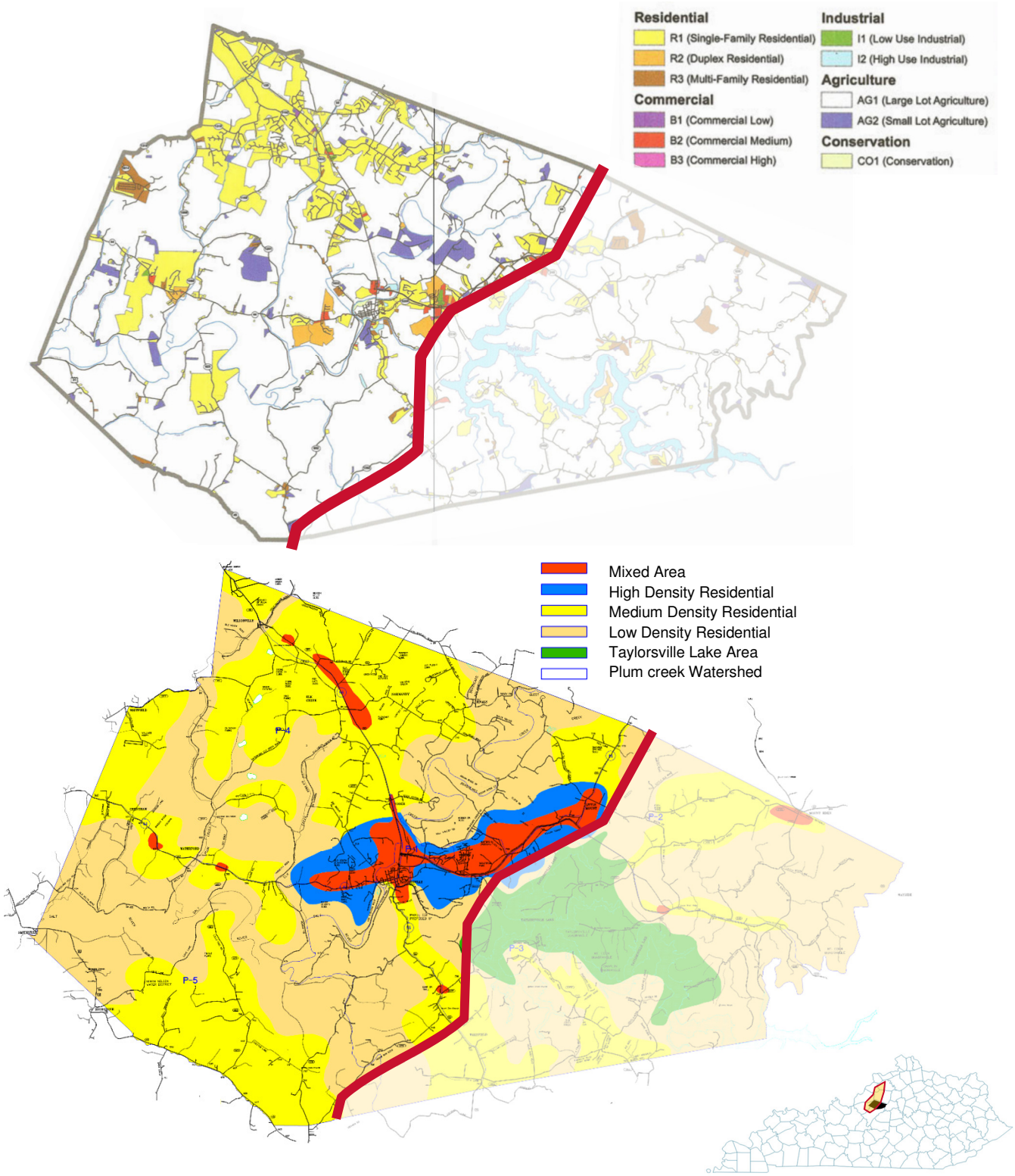


Spencer County covers 192 square miles (122 of which are within the study area). The part of the county outside the study area is dominated by the Taylorsville Lake recreation area, which spans over 3,000 acres. Spencer County is a bedroom community and currently has many more households than jobs. It has one independently incorporated city – Taylorsville (population 1,252), which is near the eastern edge of the study area and is the county seat.

Spencer County typically has large-lot development, as most of the county (except for a few areas around Taylorsville) lacks sewers and must rely on septic systems. As a result, the minimum lot size is 1 acre per code.

Figure 4-7 includes existing and proposed land-use maps from the county's Comprehensive Plan. The plan includes a higher-density development corridor around Taylorsville and KY-248, as well as some "spot" areas west on KY-44 and north on KY-55.

Figure 4-7. Spencer County Existing and Proposed Land Use

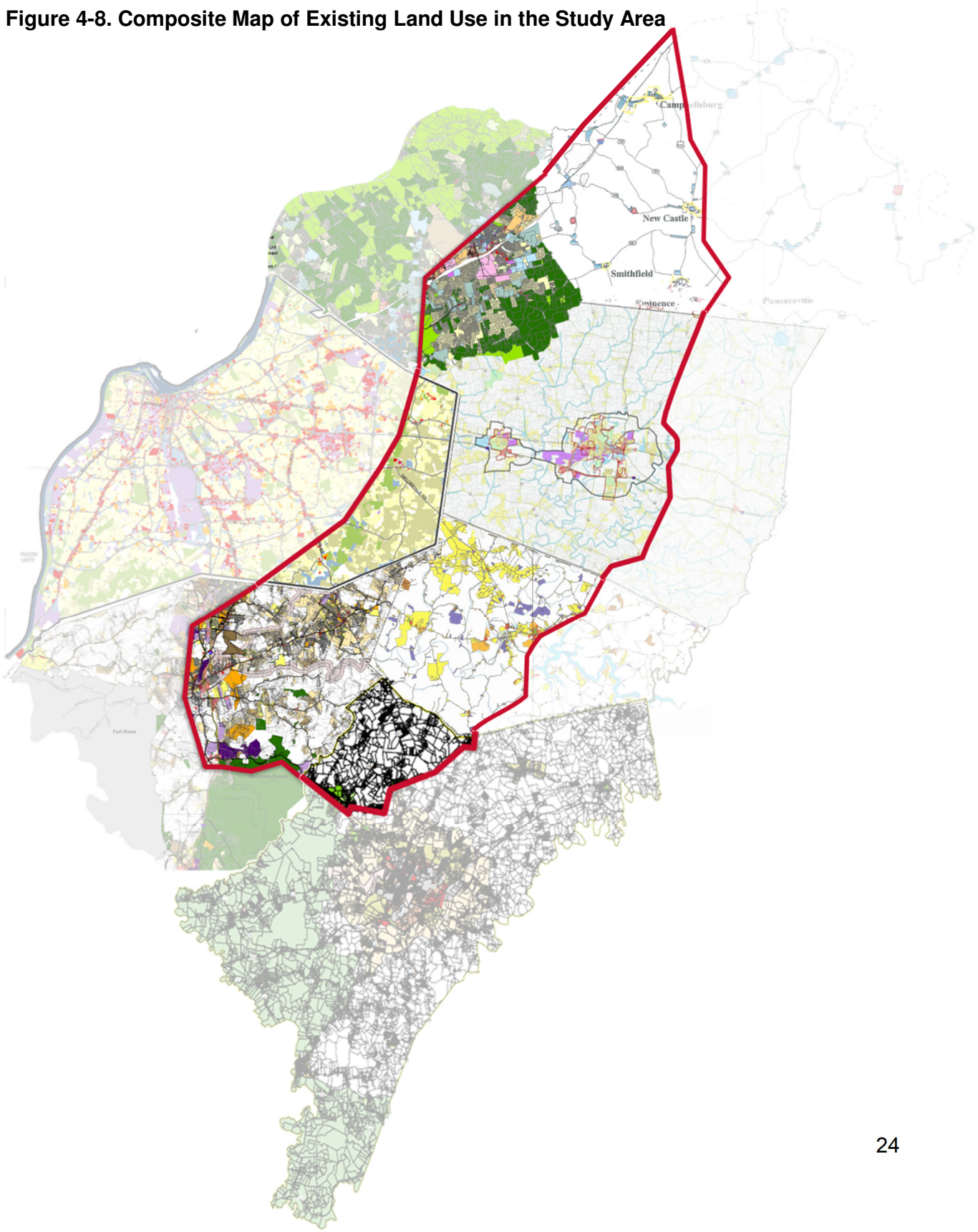


Source: https://spencercountyky.gov/pz.php - Accessed February 21, 2019

Entire Area

The land use maps for the entire study area are presented in **Figure 4-8**. As shown, most of the area has a low development intensity.

Figure 4-8. Composite Map of Existing Land Use in the Study Area



5

Utilities and Railroads

5 – Utilities and Railroads

Utilities

Since the corridor is mostly rural, it is not densely populated with utilities such as water, sewer, electric, natural gas, phone and internet. However, there are several the large gas and electric transmission utilities that would be logistically challenging and very costly to relocate. Known major utilities in the corridor are mapped on **Figure 5-1** and **Figure 5-2**.

Water Transmission

The **Figure 5-1** utility map shows known 16" or larger water lines. There is a recently installed 24" line running parallel with I-64 on the north side. Water transmission lines are costly to relocate and should be avoided or given special design consideration to minimize impacts.

Sewer Lines

The utility map shows known lines that are 15" and larger. Given the predominately rural area, there are few large sanitary sewer lines and most sewer lines are located within towns and cities.

ATT Legacy (fiber)

There is currently an AT&T fiber line that is installed on the east side of I-65 and runs from Louisville to Nashville. Alternatives that are on new alignment will likely impact this utility due to its location being adjacent to I-65. Special design considerations may be advisably to avoid relocation.

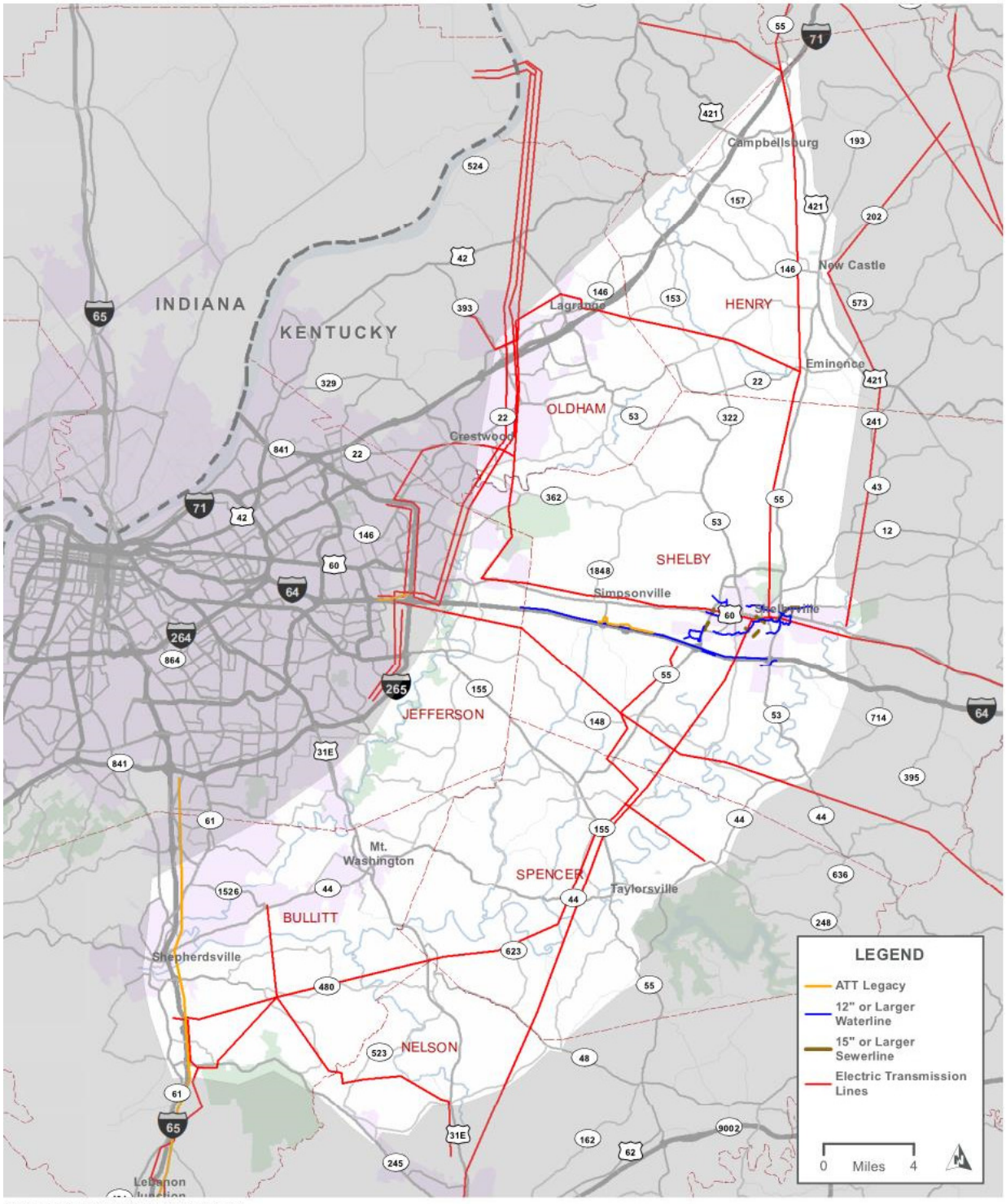
Electric Transmission

Major overhead electric transmission lines should be avoided for risk, schedule, and cost reasons. The composite utility map shows the location of these major transmission lines.

Gas & Hazardous Liquid Transmission

It is important to avoid high pressure gas transmission pipelines and hazardous liquid pipelines when possible to keep down project risks and cost. An alternative on new alignment may have the potential to impact major gas pipelines given that they cross the study area as shown on **Figure 5-2**. Special design considerations (e.g. no cuts, shallow fills, and concrete encasement) may be permitted for design alternatives that include a proposed roadway on new alignment minimize conflicts and relocations.

Figure 5-1. Utilities



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

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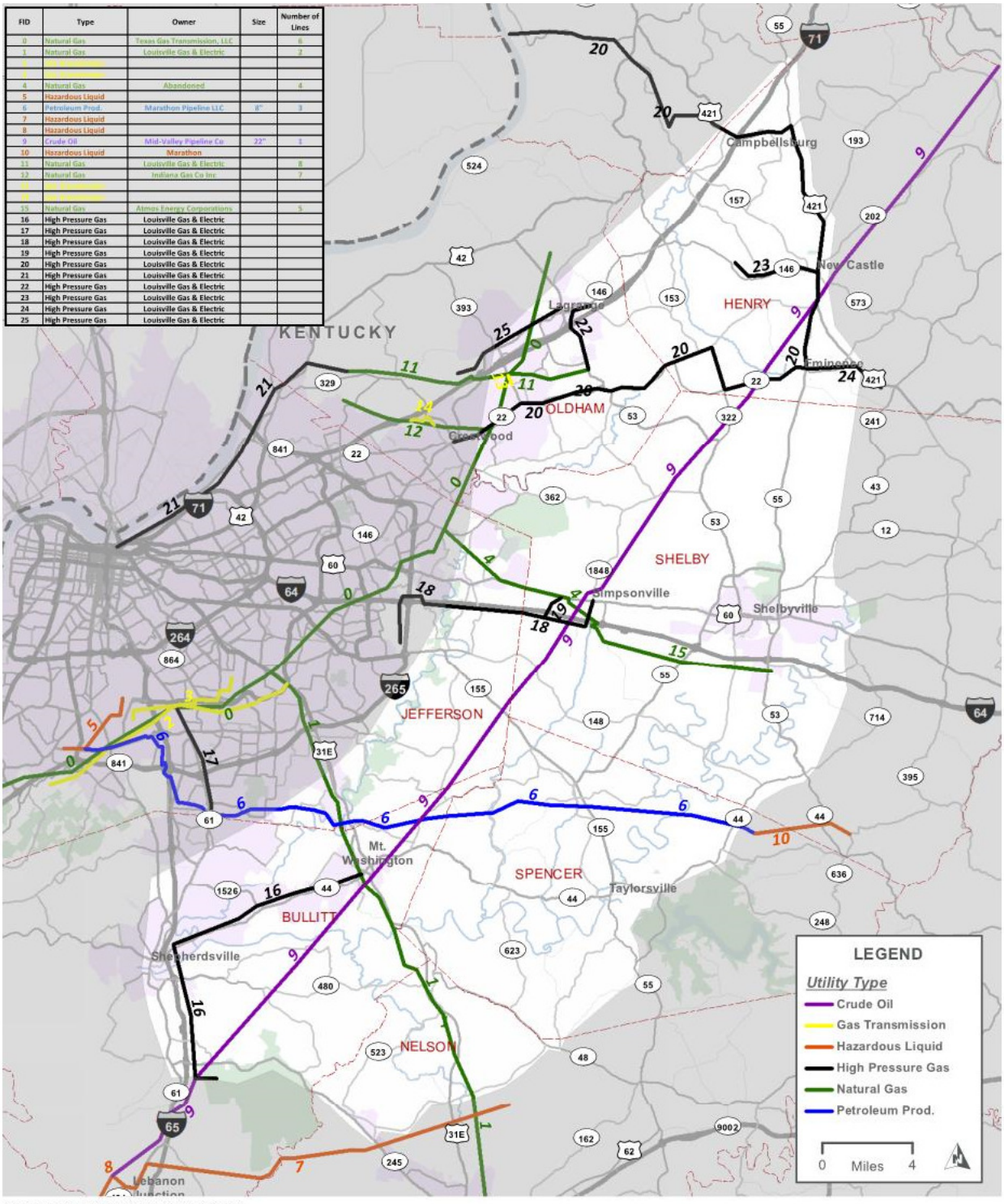
UTILITIES
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Figure 5-2. Gas Transmission and Pipeline Utilities



FID	Type	Owner	Size	Number of Lines
0	Natural Gas	Texas Gas Transmission, LLC		6
1	Natural Gas	Louisville Gas & Electric		2
2	[illegible]			
3	[illegible]			
4	Natural Gas	Abandoned		4
5	Hazardous Liquid			
6	Petroleum Prod.	Marathon Pipeline LLC	8"	3
7	Hazardous Liquid			
8	Hazardous Liquid			
9	Crude Oil	Mid-Valley Pipeline Co	22"	1
10	Hazardous Liquid	Marathon		
11	Natural Gas	Louisville Gas & Electric		8
12	Natural Gas	Indiana Gas Co Inc		7
13	[illegible]			
14	[illegible]			
15	Natural Gas	Atmos Energy Corporations		5
16	High Pressure Gas	Louisville Gas & Electric		
17	High Pressure Gas	Louisville Gas & Electric		
18	High Pressure Gas	Louisville Gas & Electric		
19	High Pressure Gas	Louisville Gas & Electric		
20	High Pressure Gas	Louisville Gas & Electric		
21	High Pressure Gas	Louisville Gas & Electric		
22	High Pressure Gas	Louisville Gas & Electric		
23	High Pressure Gas	Louisville Gas & Electric		
24	High Pressure Gas	Louisville Gas & Electric		
25	High Pressure Gas	Louisville Gas & Electric		

DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

GAS TRANSMISSION AND PIPELINE UTILITIES
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Railroads

There are five railroad lines in the study area as illustrated in **Figure 5.3**. These lines present potential obstacles to a new highway alignment and would need to be passed over or under to avoid any new at-grade crossings.

CSX Transportation (CSXT) runs lines north along I-71 and south along I-65. The single-track line along I-71 is north of I-71 and therefore not an issue until it nears Campbellsburg in Henry County. Any new corridors in this area would need to include a new grade separated rail crossing. The CSXT track along I-65 remains west of I-65 and is not an issue for a new corridor.

The Norfolk Southern Railway (NS) line in the I-64 corridor runs across the study area and would need to be crossed with any new corridor. The same is true for the east-west RJ Corman Railroad line (Central Kentucky Line) that runs north of I-64. Only highway upgrades that use existing crossings could avoid new grade separated crossings of these lines.

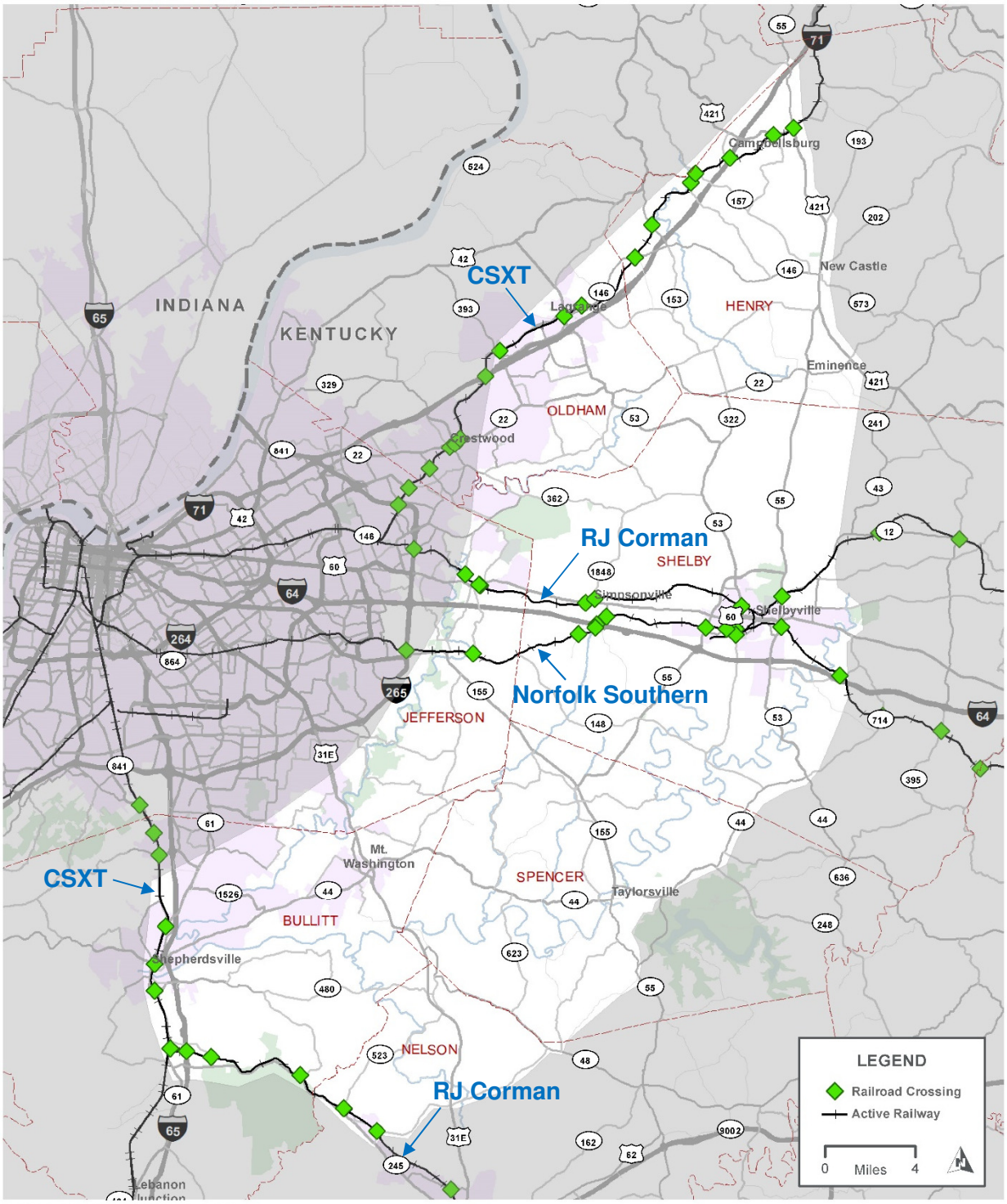
The RJ Corman Railroad line that runs along the southern border of the study area (Bardstown Line) is unlikely to present an obstacle to a new corridor as it parallels KY 245 and is at the edge of the area being examined for possible new alignments. It could affect an upgrade of existing highways that involves KY 245.

There are at-grade and grade-separated crossings throughout the study area along the rail lines. Some of these crossings could need to be upgraded if an alternative used one or more of them as part of an upgrade of existing highways. For example, the KY 1531(Eastwood-Fisherville Road) Norfolk Southern crossing (see **Figure 5-4**) is a one-lane crossing with limited vertical clearance.

Figure 5-4. KY 1531 Norfolk Southern Grade-Separated Crossing

Photo courtesy of Google

Figure 5-3. Railroads and Crossings



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

6

Transportation System

6 – Transportation System

Overview

The Louisville region's transportation system is designed as a hub-and-spoke system with three major interstates (I-65, I-64, and I-71) and many major arterials (US 31E, US 60, KY 22, KY 155, and others) radiating out from the core developed area. Two very effective circumferential interstate highways within Jefferson County distribute traffic around the core: The Watterson Expressway (I-264) and the Gene Snyder Freeway (I-265). Both of these interstates are in the urbanized area and experience considerable peak-period congestion as well as system reliability issues, as discussed in this section. In fact, due to this congestion, I-265 is planned to be widened to six lanes from I-65 to I-71, with improvements at all system interchanges.

Outside of I-265, the only circumferential routes are arterial highways. These routes are typically not direct and several of them are congested or have other limitations (such as sharp curves, or narrow shoulders, or sections through a town). As described previously, historical and projected growth in the outer counties is strong.

Growth prospects have raised questions about the effectiveness of the current highway system to accommodate the future transportation needs in the study area.

Congestion has arisen in built-up corridors such as KY 44 and KY 480 in Bullitt County, KY 44 and KY 55 in Spencer County, US 60 in Shelby County, KY 22 and KY 146 in Oldham County, and numerous secondary routes and "cut-throughs".

The study area is bounded on the north and south by I-65 and I-71, respectively, with another major interstate, I-64 in the middle. The study area, which is outside of Jefferson County's I-265 corridor, lacks regional mobility between these three major interstate routes. Virtually every trip made between outer-Louisville counties and communities must occur on narrow back-roads and/or be made circuitously via I-265.

The lack of regional circumferential mobility between heavy employment zones along I-65 south of Shepherdsville, major shopping attractions at I-64 near Simpsonville, and major residential areas along I-71 near LaGrange creates daily traffic pressure on I-265 that could be alleviated with an outer beltway designed to accommodate "rural-to-rural" connections along the outer fringe of the Louisville Metro Area.

The use of Parkway/Interstate design standards would also allow freight traffic to bypass the Louisville urban area for trips between I-65 south and I-71, enabling faster travel times in this important freight corridor.

Study-Area Network Characteristics

This section describes key characteristics of the study-area network: functional classification, interchange access, number of lanes, and posted speed limits. Each of these characteristics is discussed network-wide at a high level in the following sub-sections, and then each key study roadway/highway is discussed individually.

Functional Classification

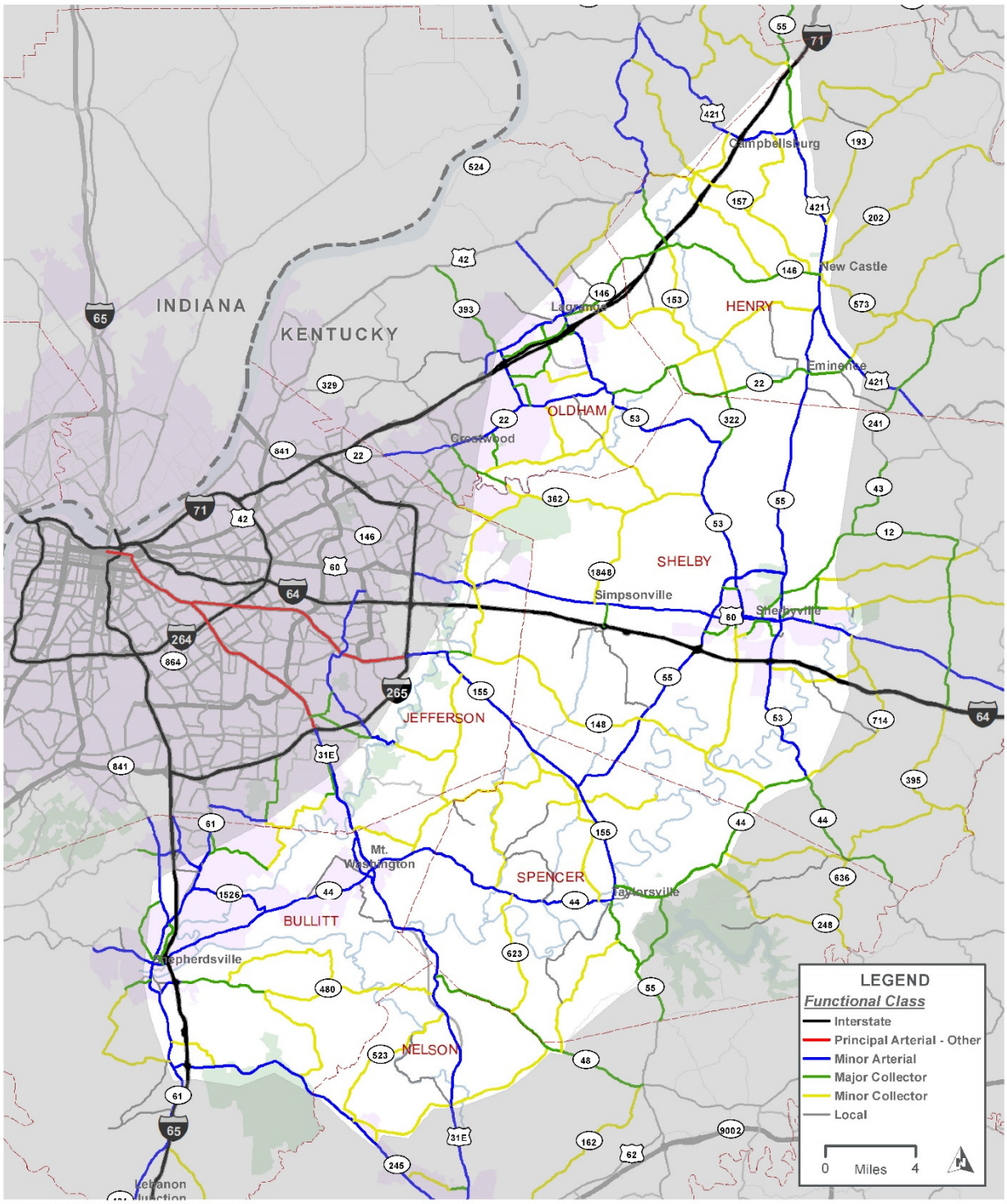
Functional classifications of key roadways in the study area are depicted in **Figure 6-1**. The three primary interstates in the study area – I-65, I-64, and I-71 – facilitate both local and regional movements through the Kentucky, Tennessee, Ohio, and Indiana region. The interstates are supported by a network of minor arterials and major collectors spaced at approximately six to eight miles from the interstates and each other, generally extending radially away from the Louisville metro area, but with only limited circumferential connections that are indirect and often discontinuous. This web of roadways connects local towns and other places of interest to each other, but there is a clear lack of a circumferential direct route from I-65 to I-71.

The figure also indicates the census designation of area types within the study area, with the shaded (light purple) areas indicating urban areas and the unshaded areas indicating rural areas. The vast majority of the study area is rural; however, key highways in Shelbyville, Shepherdsville, Mt. Washington, and Lagrange are considered urban highways.

Interchange Access

Figure 6-2 illustrates interchange access along the three major interstates in the study area, along with interchange type (diamond, cloverleaf, etc.). Interchanges are spaced particularly sparsely along the I-64 corridor (three- to eight-mile spacing) and the northeast portion of I-71 (north of Lagrange, five- to six-mile spacing). A few new interchanges are also being considered, designed, and/or constructed in the study area (shown on **Figure 6-2** and also discussed individually in a later section).

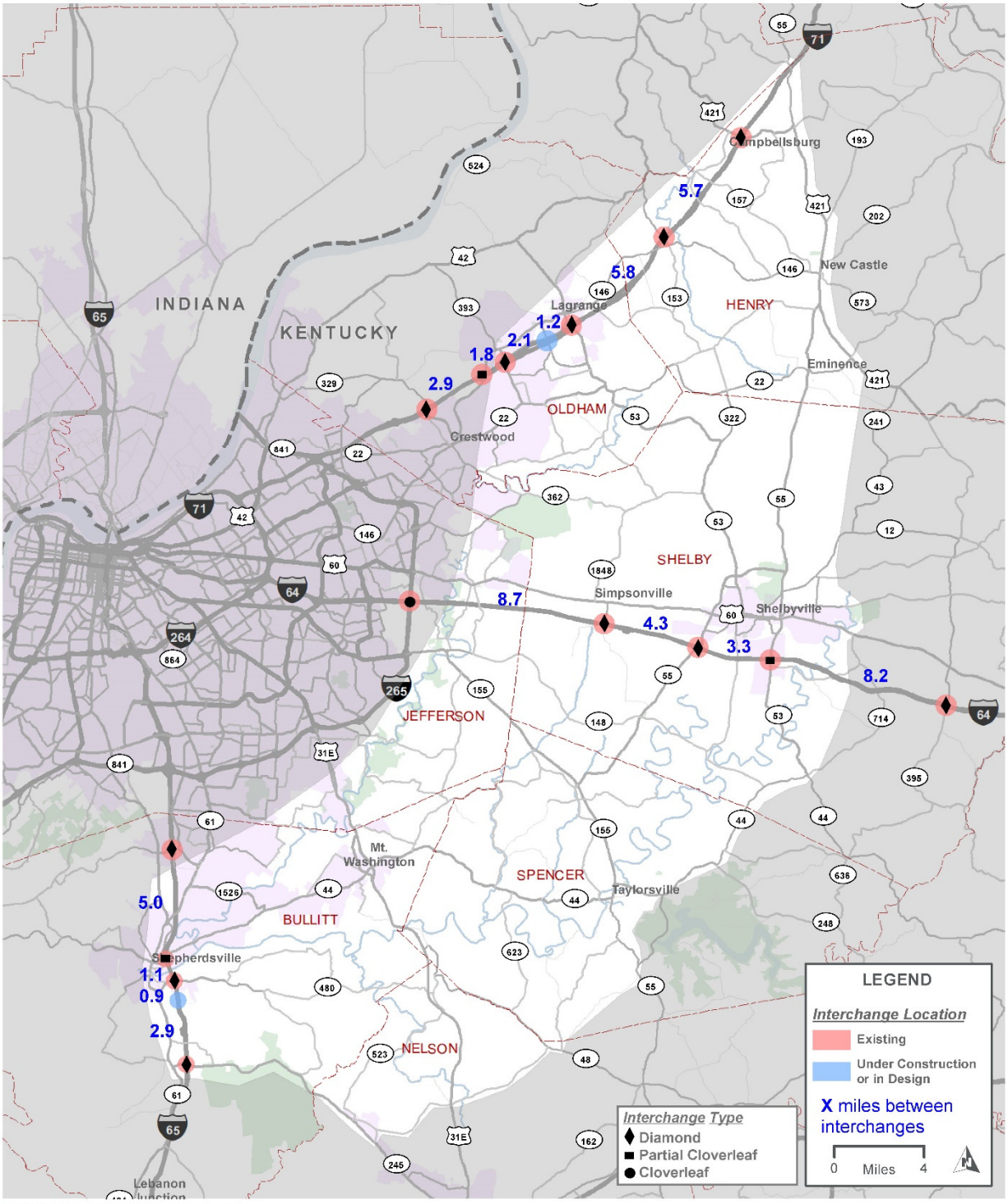
Figure 6-1. Functional Classification



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

FUNCTIONAL CLASSIFICATION
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Figure 6-2. Interchanges in the Study Area



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

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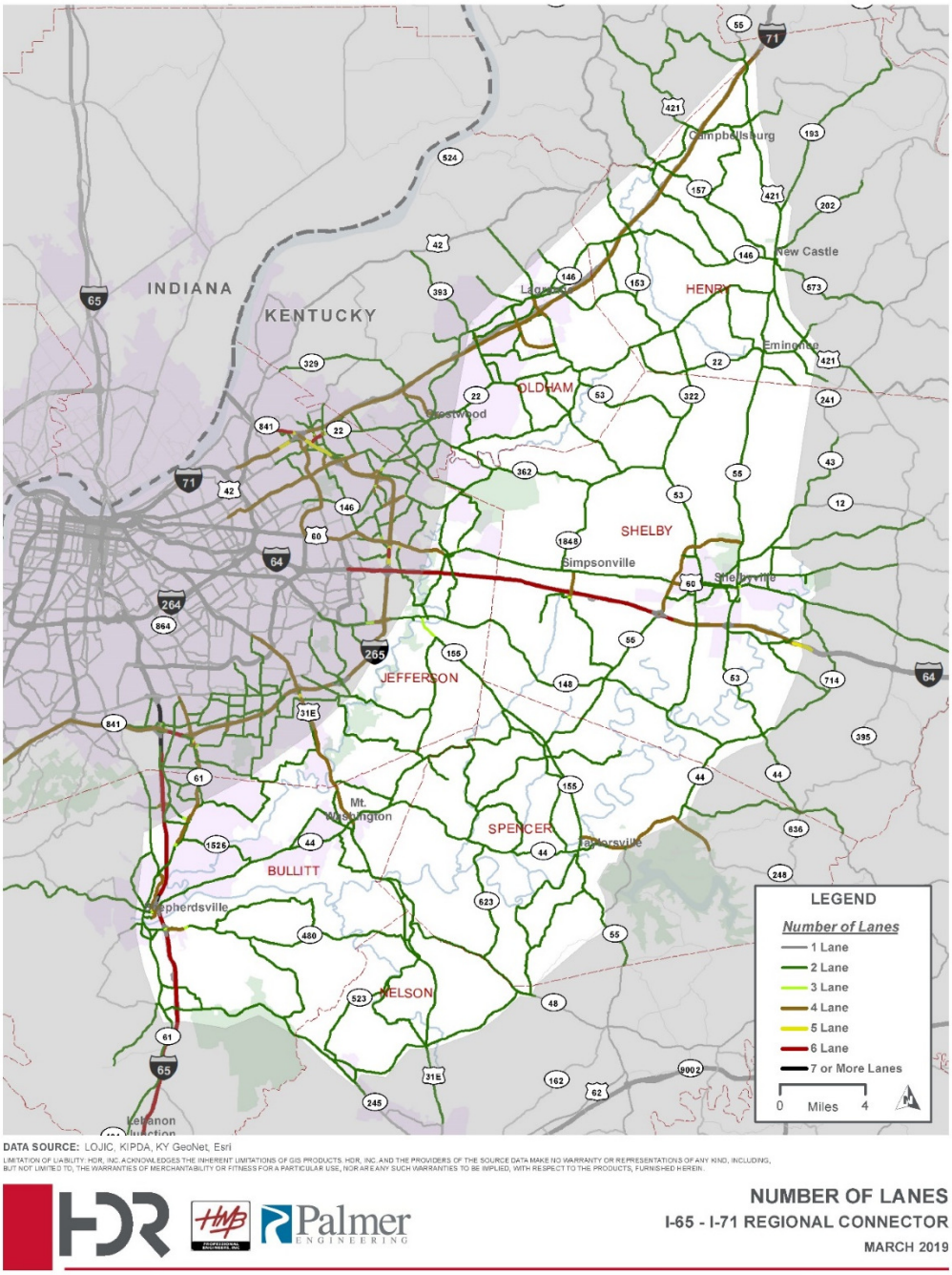
INTERCHANGE LOCATIONS
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Number of Lanes

Figure 6-3 shows that the study corridor is dominated by two-lane roadways. The only roadways that have more than two lanes are the interstates, US 31E (north of Mount Washington), KY 55 around Shelbyville, and KY 44 east of Taylorsville. A two-lane roadway can move traffic very efficiently, up to a certain threshold. However, the lack of continuous roadways (even two-lane roadways) connecting to the interstates produces interruptions and out-of-direction travel that hamper the efficiency of the study-are roadway network.

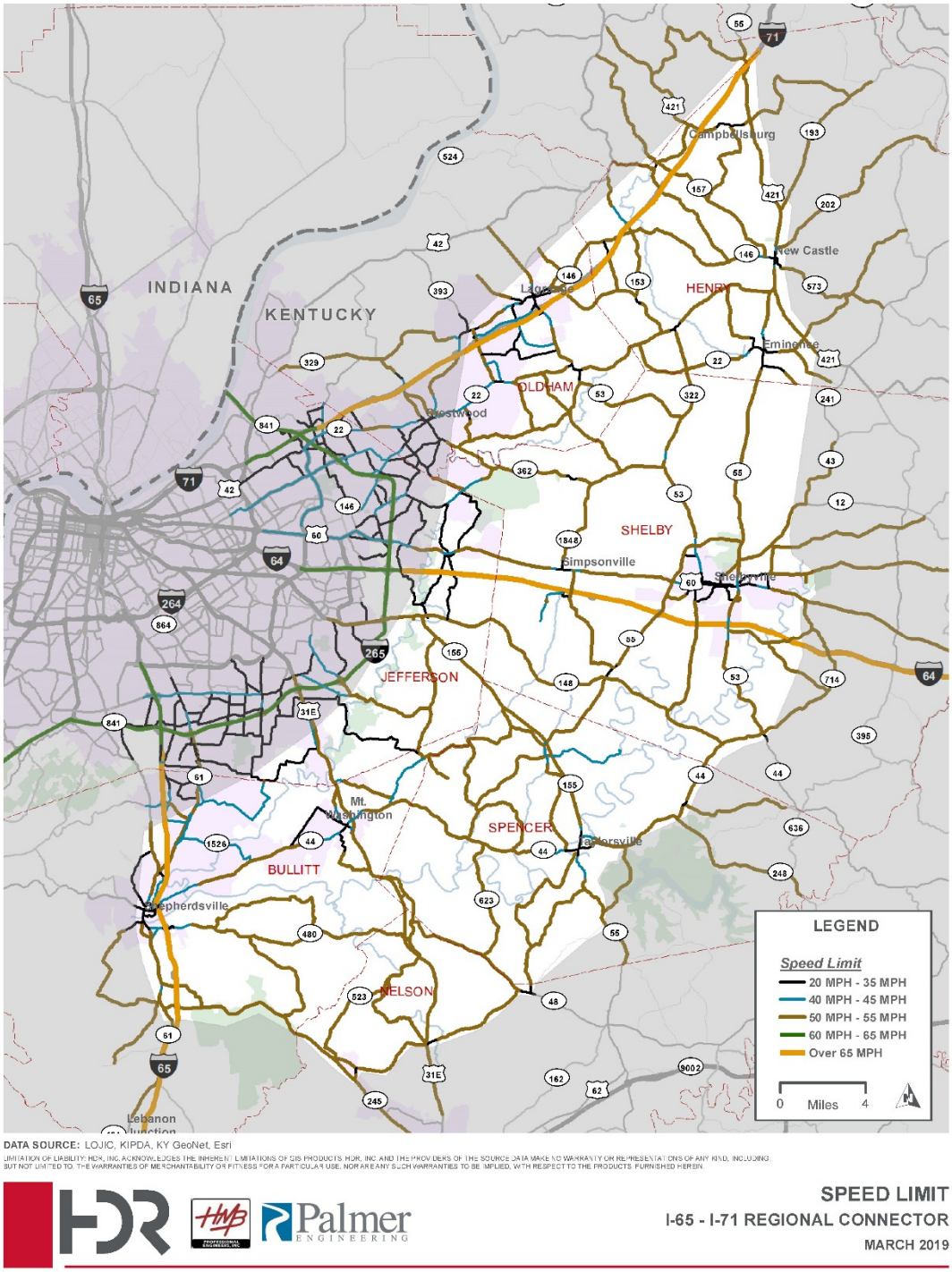
Figure 6-3. Number of Lanes



Speed Limits

The speed limits on state facilities in the corridor are predominantly in the 50- to 55-mph range - fairly typical in a rural context. However, as shown in **Figure 6-4**, speed limits are reduced near towns and cities, dropping to more local speeds of 25-35 mph, as is also typical in rural networks.

Figure 6-4. Speed Limits



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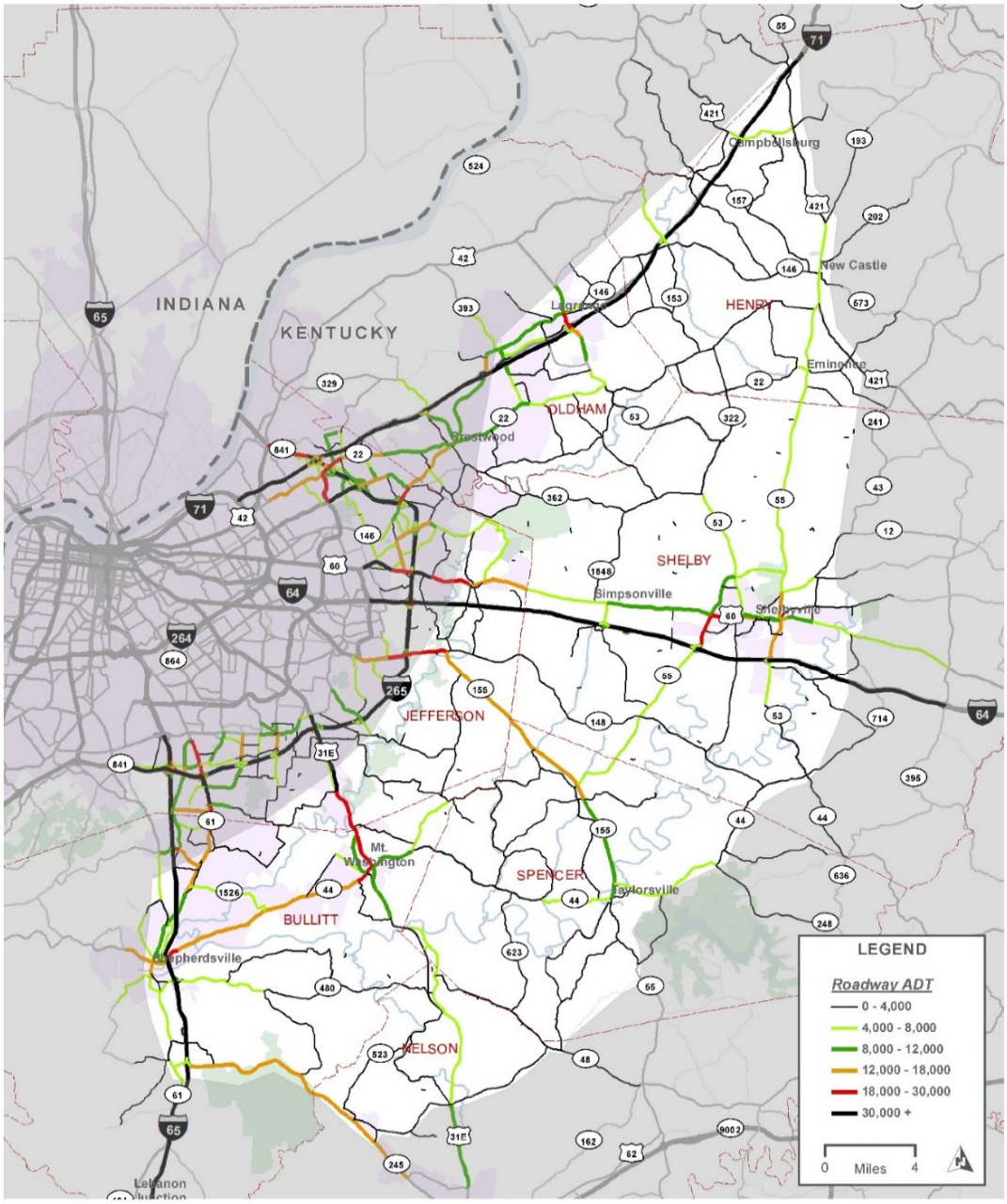
SPEED LIMIT
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Traffic Volumes

Figure 6-5 illustrates daily traffic volumes on key study-area roadways. The majority of the roadways carry fewer than 18,000 vehicles per day. Between Mt. Washington in Bullitt County and Lagrange in Oldham County, the circumferential type highways carry fewer than 8,000 vehicles per day (vpd). More details are discussed in the facility-specific text later in this chapter.

Figure 6-5. Average Daily Traffic (ADT) Volumes



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TRAFFIC VOLUME
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Study-Area Roadways

As alluded to previously, the study area is served by a backbone of three interstates, supported by a fairly sparse network of state routes and county roads, with some “spokes” leading into the metro area but very little circumferential connectivity or continuity.

Interstates

I-65

I-65 forms the westernmost boundary of the study area, and serves the Nashville-Louisville-Indianapolis and Nashville-Louisville-Cincinnati freight corridors. The areas adjacent to I-65 in the study area have experienced substantial growth over the past few decades, largely in industrial and “big box” developments.

Interchange access: There are three existing interchanges within the study area along I-65, and one under construction (KY 3538). Interchange spacing in the vicinity of Shepherdsville is relatively tight, largely due to the provision of access on both sides of the Salt River.

Number of Lanes: I-65 carries six lanes throughout the study area.

Speed Limits: The posted speed limit is 70 mph throughout the study area.

Traffic Volumes: I-65 carries 80,000 to 90,000 vpd south of Shepherdsville, and 95,000 to 105,000 vpd through and north of Shepherdsville to the Jefferson County Line.

I-64

I-64 serves the Louisville-to-Lexington corridor, and also provides national connectivity as it spans east-west from St. Louis, Missouri area to the Norfolk, Virginia. Adjacent growth in the study area has tended toward a commercial and recreational focus - though there are recent indications that industrial development may be increasing as well. Currently, there are five interchanges located along I-64 in the study area – the lowest interchange density among the three interstates studied.

Interchange Access: As shown in **Figure 6-2**, the I-64/I-265 interchange and the next closest interchange to the eastin Simpsonville, are separated by nine miles. Previous planning studies have examined the potential addition of a new interchange in the Eastwood area, approximately 2.5 miles east of the I-265 interchange.

Number of Lanes: I-64 carries six lanes from the western study-area boundary to KY 55 near Shelbyville, where it drops to four lanes through the eastern portion of the study area.

Speed Limits: The posted speed limit is 70 mph throughout the study area.

Traffic Volumes: Near the Jefferson/Shelby County line, I-64 carries 60,000 vpd. Between Simpsonville and Shelbyville, it carries 50,000 vpd. West of Shelbyville, it carries 40,000 to 45,000 vpd.

I-71

Interstate 71 serves the Louisville-to-Cincinnati corridor, and growth adjacent to it has primarily taken the form of business and residential development.

Interchange Access: There are four existing interchanges along I-71 within the study area, with one additional interchange planned at Lagrange Parkway.

Number of Lanes: I-71 carries four lanes throughout the study area.

Speed Limits: The posted speed limit is 70 mph throughout the study area.

Traffic Volumes: I-71 carries 40,000 to 50,000 vpd through the study area.

Major Arterials

Several major arterials in the study area connect communities to the interstate, and to each other.

KY 44

Kentucky Route 44 is a generally east-west route providing connectivity through the study area between Southwest Louisville near West Point, Shepherdsville, Mt. Washington, Taylorsville, and continues to Lawrenceburg.

Number of Lanes: KY 44 is primarily a two-lane rural highway. This cross section temporarily expands twice: through Shepherdsville, the roadway expands to a four-lane undivided urban section, and in Taylorsville, it expands to a four-lane divided highway for approximately five miles while it shares alignment with KY 248.

Speed Limit: The posted speed limit is 55 mph (45mph through the urban areas).

Traffic Volumes: KY 44 carries 23,300 vpd in Shepherdsville, 12,000 to 17,000 vpd between Shepherdsville and Mount Washington, 19,000 vpd through Mount Washington, 3,000 to 5,000 between Mount Washington and Taylorsville, 9,000 vpd through Taylorsville, and 6,000 to 7,000 vpd east of there. Where it turns north near the eastern study area limit, KY-44 carries less than 2,000 vpd.

KY 480

Kentucky 480 runs east-west for 13 miles between southern Shepherdsville to its junction with US 31E, and subsequently KY 523 south of Mt. Washington. This route serves as a primary access point for several large distribution and industrial centers in Shepherdsville, connecting them with I-65 as well as several other rural highways within the area.

Number of Lanes: Through Shepherdsville, KY 480 carries a five-lane cross-section to provide adequate capacity for the distribution centers. East of these facilities, the cross-section is reduced to a two lane highway

Speed Limit: The posted speed limit transitions from 45 mph to 55 mph east of the above-mentioned distribution centers.

Traffic Volumes: KY 480 carries 7,000 to 8,000 vpd within Shepherdsville, 5,000 vpd just east of Shepherdsville, tapering to less than 1,000 vpd at US 31E.

KY 155

Kentucky Route 155 serves as the primary non-interstate route between the southeastern Louisville area and the Taylorsville area (providing indirect linkage to the Taylorsville Lake area). This roadway connects with both I-264 and I-265, providing regional accessibility.

Number of Lanes: The cross-section transitions between four-lane, three-lane, and two-lane sections; east of the interchange with I-265, the cross-section is primarily a two-lane rural section.

Traffic Volumes: KY 155 carries volumes in the 12,000 to 19,000 vpd range. Once joining KY-55, it carries 11,000 to 12,000 vpd north of and inside Taylorsville.

KY 55

Kentucky 55 originates in Russell County at the intersection with U.S. 127 and runs north to Carrollton, Kentucky. This route provides connectivity to the Cumberland Parkway, Bluegrass Parkway, KY 44, I-64, U.S. 60, and I-71.

Number of Lanes: Through the study area, KY 55 is primarily a two-lane rural facility.

Speed Limit: The posted speed limit is 55mph (45 mph through some urban sections).

Traffic Volumes: KY 155 carries 3,000 to 7,500 vpd between Campbellsburg and New Castle (at KY 146). Between New Castle and the Henry/Shelby County line, KY-155 carries 5,000 to 6,000 vpd.

KY 53

Through the study area, Kentucky 53 primarily runs north and south through Spencer, Shelby, and Oldham Counties, connecting Mt Eden, Shelbyville, and La Grange. KY 53 shares concurrent alignment with multiple facilities (KY 44 and US 60/ KY 55) and provides connectivity to I-64, US 60, I-71, and US 42.

Number of Lanes: KY 53 is primarily a two-lane rural facility; however, in the urban areas, the cross-section transitions to a four-lane or five-lane section.

Speed Limit: The posted speed limit for KY 53 is 55 mph (reducing to 45 mph and 35 mph through some urban sections)

Traffic Volumes: KY 53 carries 1,000 to 3,000 vpd south of I-64. North of I-64 through Shelbyville, KY 53 carries between 10,000 and 18,000 vpd. North of Shelbyville to La Grange, KY 53 carries between 2,000 vpd to 9,000 vpd (aside from segments immediately adjacent to I-71 where the volume increases to 17,000 vpd).

US 31E

US 31E is a non-interstate highway route which provides a connection between Nashville, TN and Louisville, KY. Through the study area, US 31E provides north-south connectivity between

New Haven, Bardstown, Mt. Washington, Ashville, and downtown Louisville. US 31E has connections with Bluegrass Parkway, KY 44, I-265, and I-264.

Number of Lanes: US 31E has a two-lane cross section south of KY 44; north of KY 44, the cross section expands to a four-lane section.

Speed Limit: The US 31E posted speed limit is primarily 55 mph through the rural sections, reducing to between 35 and 45 mph in the urban sections.

Traffic Volumes: US 31E carries between 5,000 to 9,000 vpd south of Mt. Washington (aside from within Bardstown, where the volume increases to between 10,000 and 16,000 vpd). From Mt. Washington north to I-265 the volumes are significantly higher at between 20,000 and 40,000 vpd.

US 421

US 421 crosses Henry County within the study area, running from the southeastern corner of the county through Pleasureville, New Castle, and Campbellsburg. Between New Castle and Campbellsburg, US 421 is coincident with KY 55.The two routes split in Campbellsburg, each connecting to I-71.

Number of Lanes: US 421 throughout the study area carries a two-lane cross section.

Speed Limit: The posted speed limit along US 421 is 55 mph (reducing to 35 mph through some developed areas).

Traffic Volumes: The volumes on US 421 vary from 2,000 to 6,000 vpd.

KY 245

KY 245 runs east-west for 19 miles across Nelson and Bullitt counties, from east of Bardstown to south of Shepherdsville at the connection with US 61. KY 245 serves as the primary connection to Bernheim Arboretum and Forest, and provides connections with US 61, I-65, US 150, and US 62.

Number of Lanes: KY 245 has a five-lane cross section from Bardstown to Flaget Memorial Hospital, where it reduces to a two-lane cross section – which remains until the roadway's terminus at US 61.

Speed Limit: The posted speed limit on KY 245 is 55 mph (reducing to 45 mph within Bardstown).

Traffic Volumes: The traffic volumes along KY 245 range from 15,000 to 25,000 vpd (the higher volumes are mainly near the Bardstown area).

US 60

US 60 through the study area is primarily an east-west highway traversing Shelby and Jefferson Counties; in downtown Louisville, it becomes a north-south roadway as it shares a designation with US 31W until leaving Jefferson County at West Point. US 60 provides connectivity between

Shelbyville, Simpsonville, Louisville, and West Point, and has connections with KY 55, I-265, I-264, and I-64.

Number of Lanes: The number of lanes on US 60 varies between two, three, four, and five-lane cross-sections as the roadway transitions between rural, and urban contexts.

Speed Limit: The posted speed limit along US 60 is primarily 55 mph through Shelby County (with the exception of Shelbyville and Simpsonville, where the speed reduces to 35 mph). Within Jefferson County, the posted speed limit varies between 25 and 45 mph.

Traffic Volumes: Near the Jefferson-Shelby County line, US 60 carries 13,000 vpd. From the county line to Simpsonville, it carries 6,000 to 7,000 vpd. From Simpsonville to Shelbyville, it carries 8,000 to 10,000 vpd. East of Shelbyville, it carries 7,000 to 13,000 vpd.

KY 22

KY 22 is an east-west highway beginning in Jefferson County at the junction with US 42, continuing through Oldham County and Henry County, and exiting the study area as it crosses the Kentucky River near Gratz at the Henry County line.

Number of Lanes: KY 22 has a two-lane cross section throughout the study area.

Speed Limit: In Henry and Oldham Counties, the posted speed limit on KY 22 is 55 mph (reducing to 35 and 45 mph through urban sections). In Jefferson County, the speed limit varies between 35 and 45 mph.

Traffic Volumes: Within Jefferson County, KY 22 carries 12,000 to 20,000 vpd. West of KY 393 the volumes range from 8,000 to 10,000 vpd. East of KY 393 to Eminence, traffic volumes range between 2,000 and 4,000 vpd. East of Eminence, the volume is less than 2,000 vpd.

Freight Routes

Figure 6-6 shows the Kentucky Designated National Truck Network (NTN), the interstate components of which are also known as the Primary Highway Freight System (PHFS) – which includes portions of the three interstates (I-65, I-64, and I-71). The PHFS is a national network of highways identified as the most critical portions of the U.S. freight transportation system. This national system is designed for large and oversize STAA trucks (STAA refers to the Surface Transportation Assistance Act of 1982). Routes that are state designated truck routes include KY 55, US 421, KY 155, US 31E, and KY 245. These routes connect the study area to the national network. There are no designated circumferential truck routes around the metro region within the study area. Also, none of the routes serve Spencer County, with the route on KY 155 stopping at the Jefferson/Spencer line.

Figure 6-7 shows the Kentucky Freight Network in the study area as designated in the Kentucky Freight Plan. This network is denser than the PHFS network, and is based on the four-tier system identified in **Table 6-1**. Roadways in the study area that provide freight local access or regional connectivity for trucks include KY 245, US 31E, KY 44, KY 155, US 60, KY 55, US 421, KY 22, KY 146. It is important to note that there is no connection from Bullitt County or Spencer County to Shelby County. The system does not include a connection between KY 155 and I-64.

Table 6-1: Kentucky Freight Plan Tiers

Tier	Significance	Corridor Type	Volume	Manual revisions to ensure connectivity?
1	National Regional	USDOT designated PHFS	Any segment of road (regardless of functional class) with AADTT ≥ 7,000	Y
2	Statewide	All remaining segments of interstate or parkway not on the PHFS	Any segment of road (regardless of functional class) with AADTT of 4,000 – 7,000	Y
3	Statewide Regional	NHS Intermodal connectors recognized by / filed with FHWA	Arterials and collectors with AADTT of 500 to 4,000	Y
4	Local Access	Access to major freight generators / Local access for freight (first mile, last mile)		Y

Note: AADTT is Average Annual Daily Truck Traffic

Figure 6-6. Kentucky Designated National Truck Network

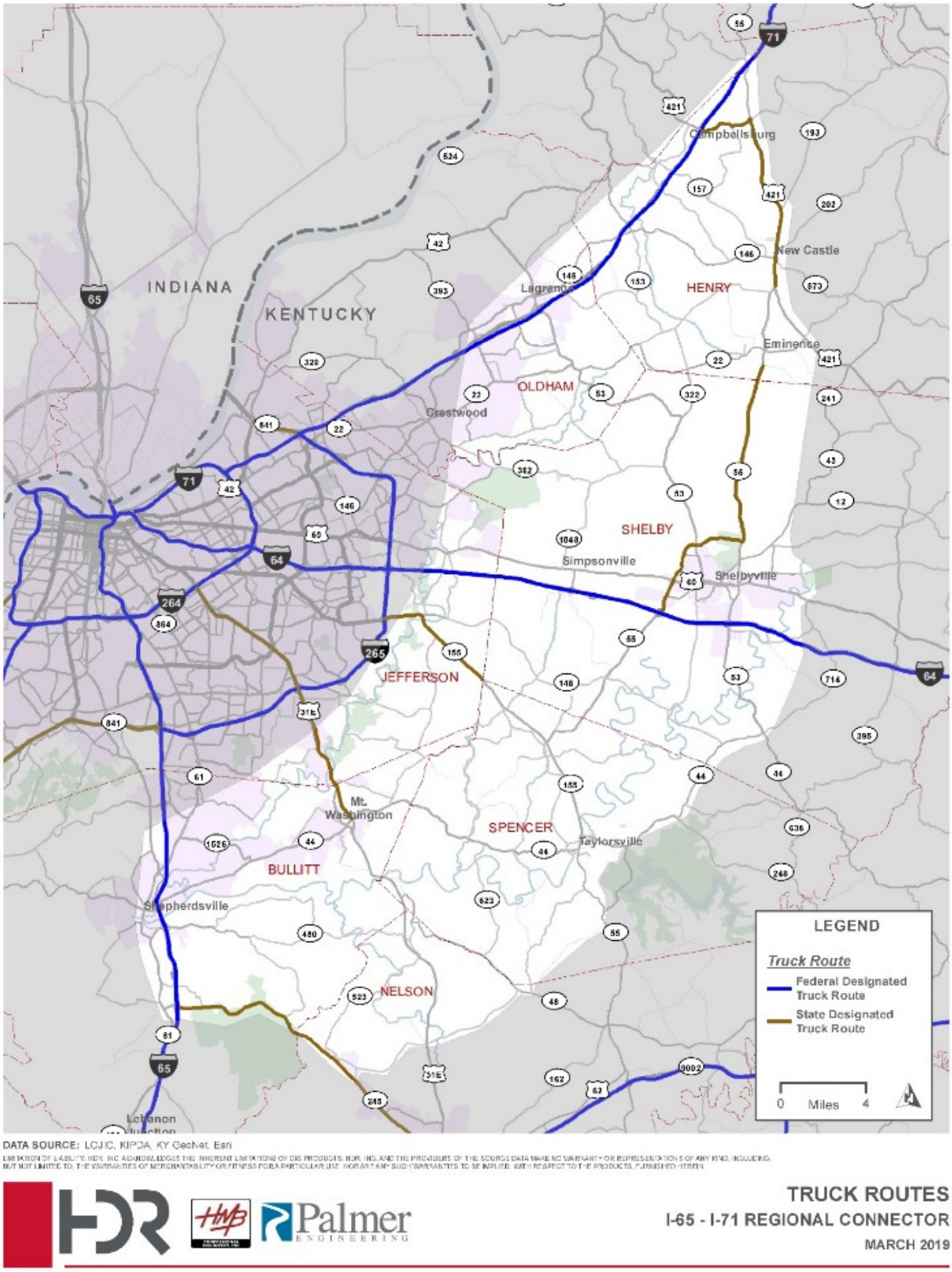
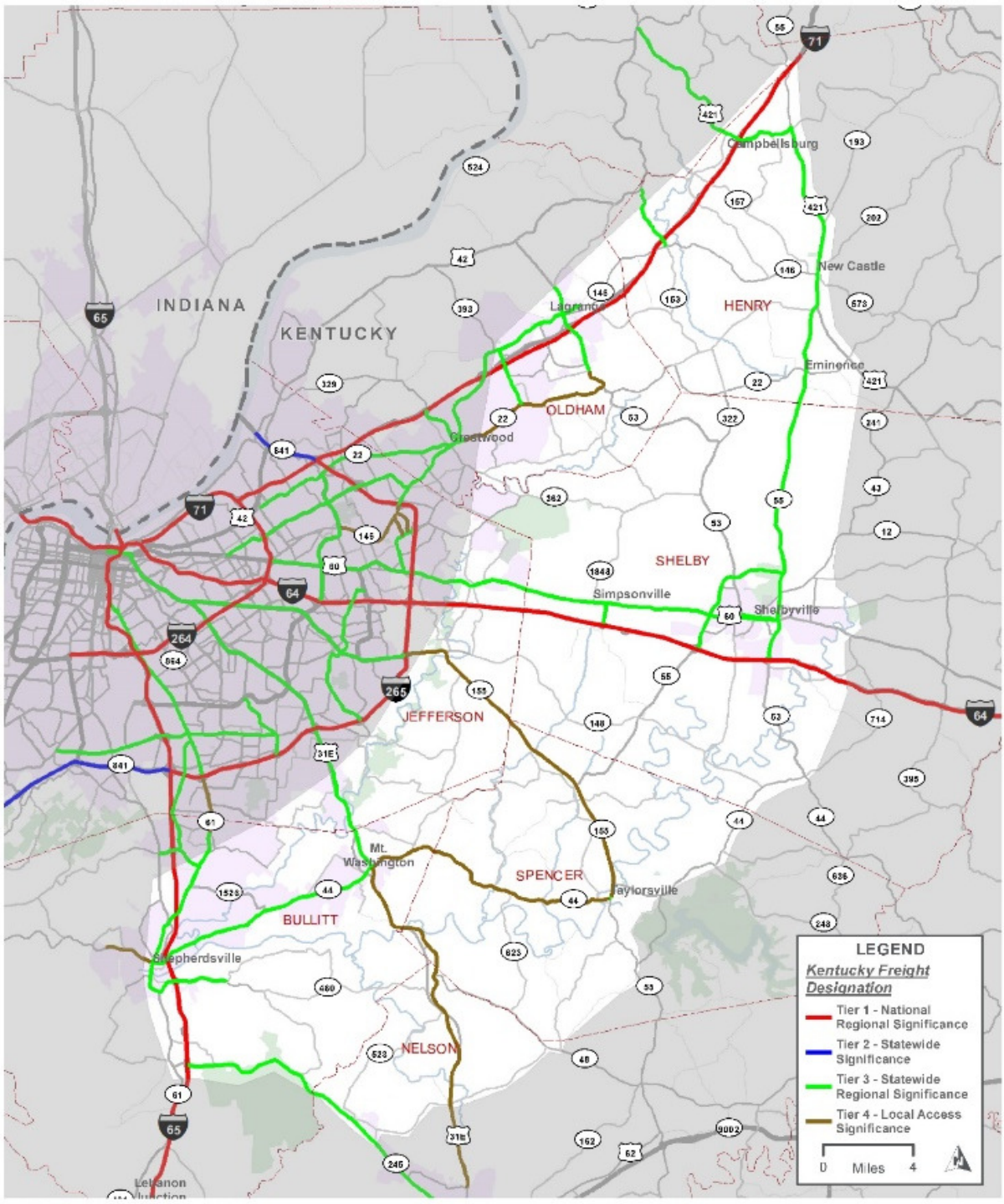


Figure 6-7. Kentucky Freight Network



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

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FREIGHT DESIGNATION
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Shoulder width

Shoulders provide an important safety function for the roadway network. Benefits of shoulders include:

- Space for emergency vehicles
- Space for enforcement activities
- Space for maintenance activities
- Area for drivers to maneuver to avoid crashes
- Bicycle accommodation
- Stable, clear recovery area for vehicles
- Improved stopping sight distance on horizontal curves where barriers exist
- Increased capacity via increased driver comfort

Table 6-2 summarizes shoulder widths throughout the study area corridors (excluding interstates). As shown, 82% of the existing non-interstate roadway network has four feet or less for shoulder width. The majority of corridor miles have shoulder widths that fall within the 3-4 foot range, at 58%. The next highest category is the 0-2 feet range, at nearly 25% of the network.

Figure 6-8 shows the existing shoulder widths for all roadways in the study area.

Table 6-2. Corridor Shoulder Widths

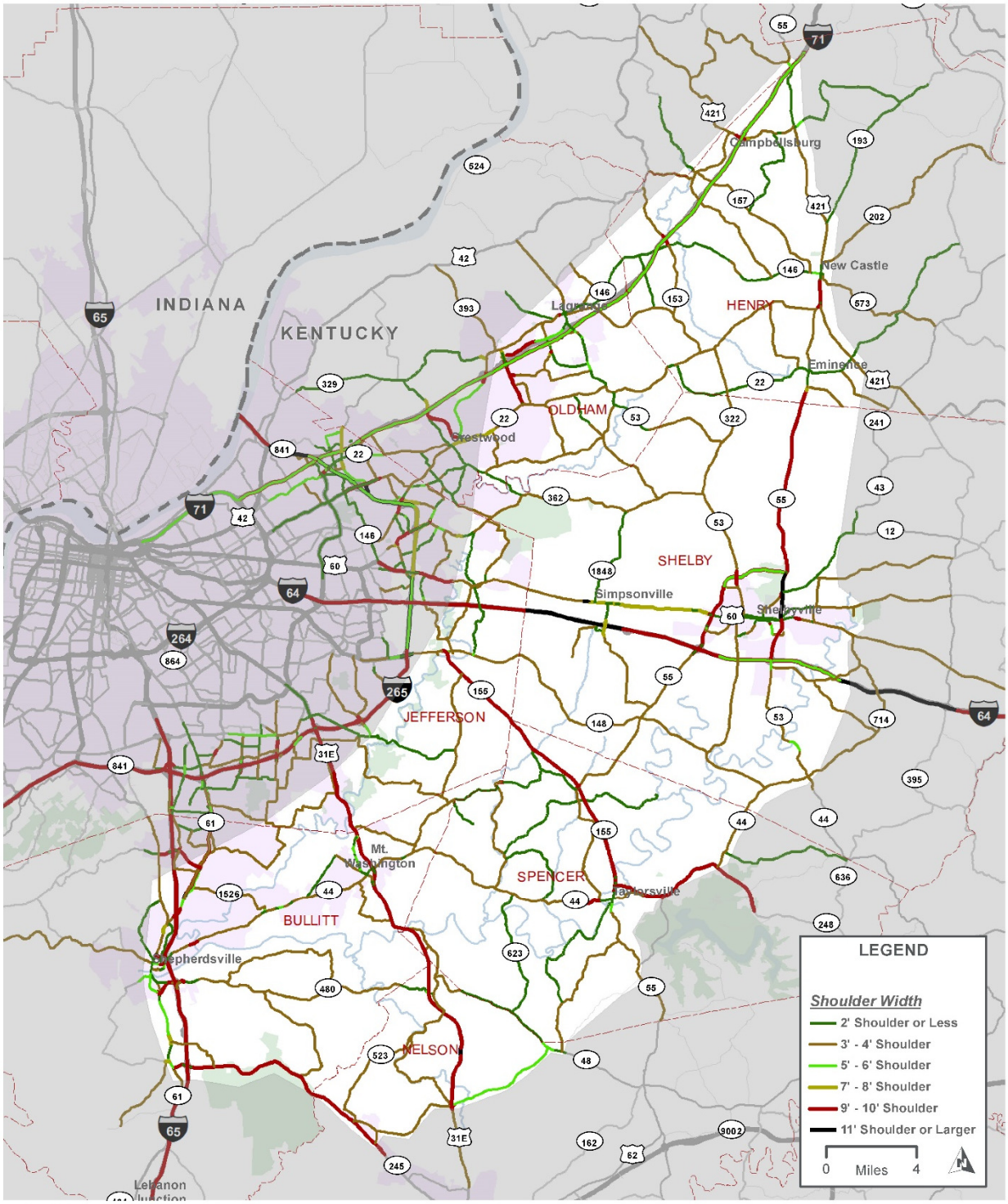
Shoulder Width (ft.)	% of Roadway Miles in Corridor (excludes Interstates)
0-2	24%
3-4	58%
5-6	4%
7-8	2%
9-11	11%
12+	0%

These numbers are indicative of a roadway network not designed for high volume of traffic. As more traffic uses this irregular, web shaped network of roadways, safety will likely decline due to the small shoulder widths that are prevalent throughout the corridor.

Some of the longer sections of roadways that have wide shoulders (9-11 feet range) include:

- US 31E (Bardstown Road)
- KY 155 and KY 55 (Taylorsville Lake State Road)
- KY 55 north of I-64 to Eminence

Figure 6-8. Shoulder Widths



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

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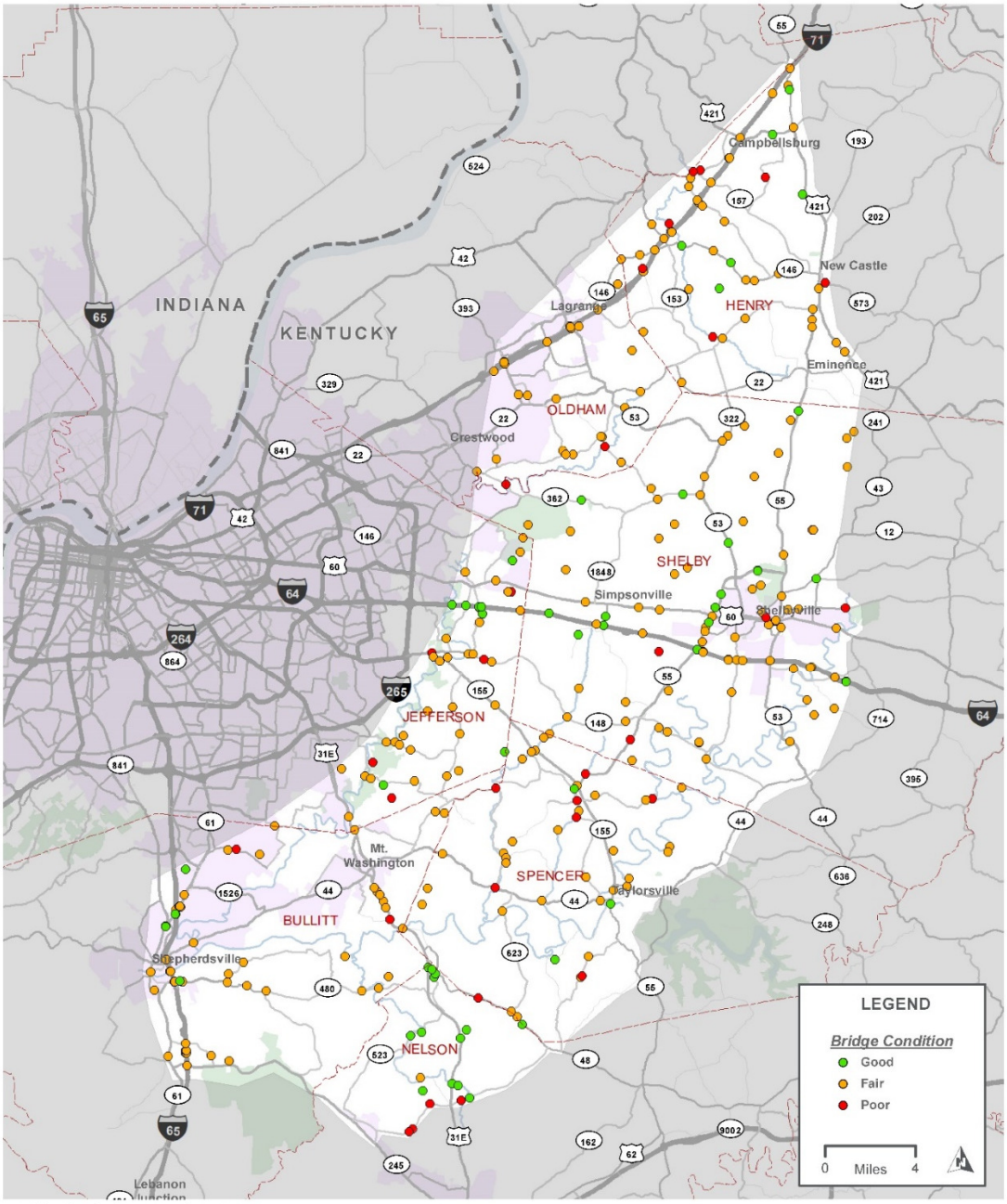
SHOULDER WIDTH
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Existing Bridge Structures

The bridge condition map on **Figure 6-9** shows bridges by their bridge rating: good, fair, or poor. The poor rating is a term that replaces the predecessor terms of structurally or functionally obsolete. There are both poor and fair bridges on key existing highways throughout the study area. These may need to be improved as part of any upgrades to existing highways.

Figure 6-9. Bridge Conditions



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

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BRIDGE CONDITIONS
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Travel Speed and Travel Time

Peak Hour Speeds

Figures 6-10 and 6-11 illustrates the approximate 7 AM and 5 PM peak hour speeds on the majority of the state and local roadway network within the study area. A significant amount of segments operate close to the posted speed during both peak periods. Some of the roadway segments operating significantly below the posted speed during one or both of the peak hours include:

- KY 2885 between Fairfield and Taylorsville
- KY 157 east of the junction with KY 146
- KY 61 north of Shepherdsville
- KY 1606
- KY 997 Near Campbellsburg

Peak Hour Travel Times and Routing

Table 6-3 highlights the travel times and preferred routing methods between many of the cities within the study area. The data shown in the table is derived from Google Maps travel-time and routing information during the typical weekday PM peak period.

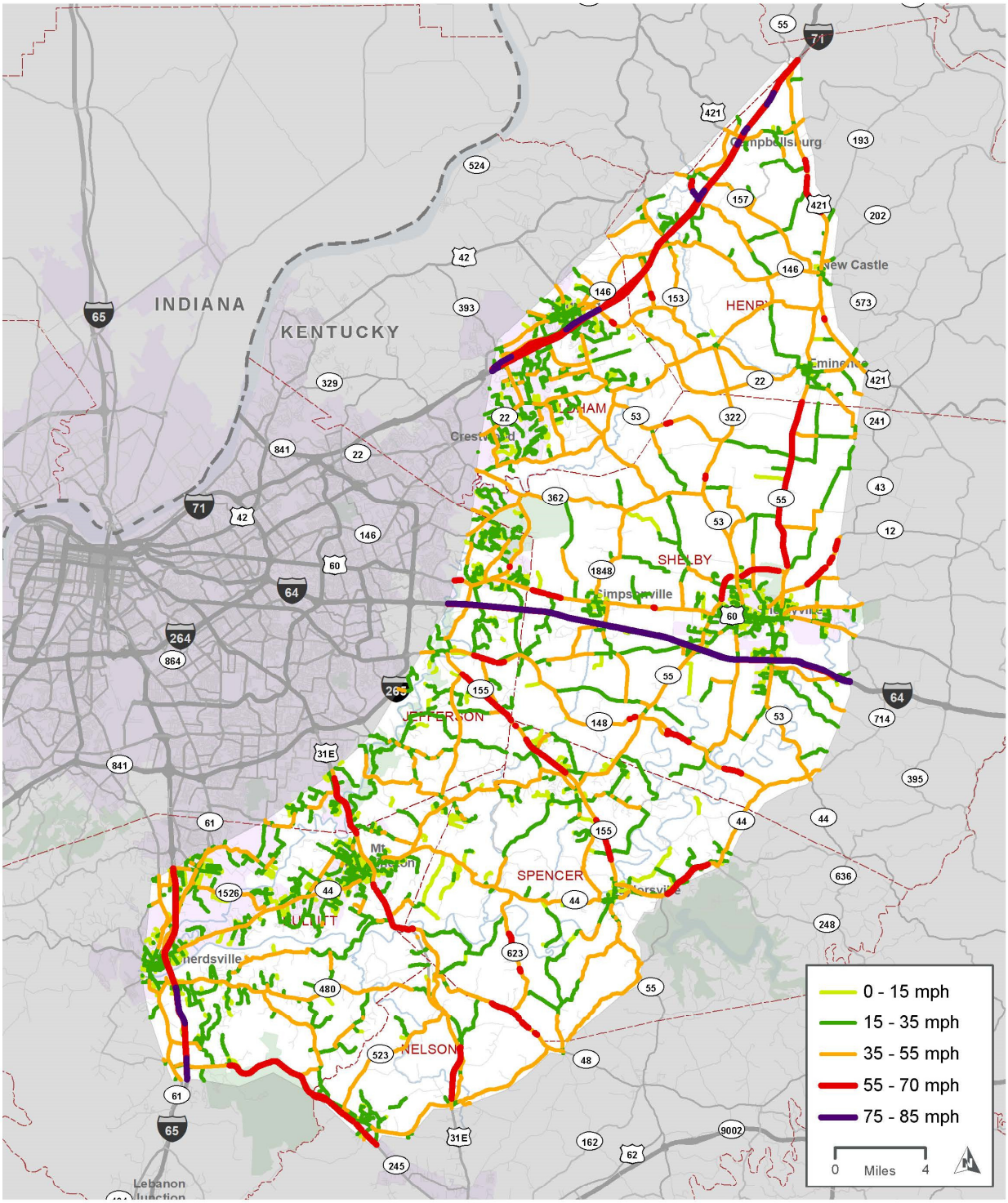
Table 6-3. Google Earth Travel Time and Routing Information

	Shepherdsville				
Mt Washington	21	Mt Washington			
Taylorsville	39	20	Taylorsville		
Shelbyville	51	42	27	Shelbyville	
LaGrange	51	43	45	29	LaGrange
Campbellsburg	63	59	53	32	19

Travel Time in minutes – according to PM peak travel time in Google Maps
Travel Routing – method of routing from Google Maps.
Interstate | State & Local Highways | Hybrid of Interstate and State/Local Roadways

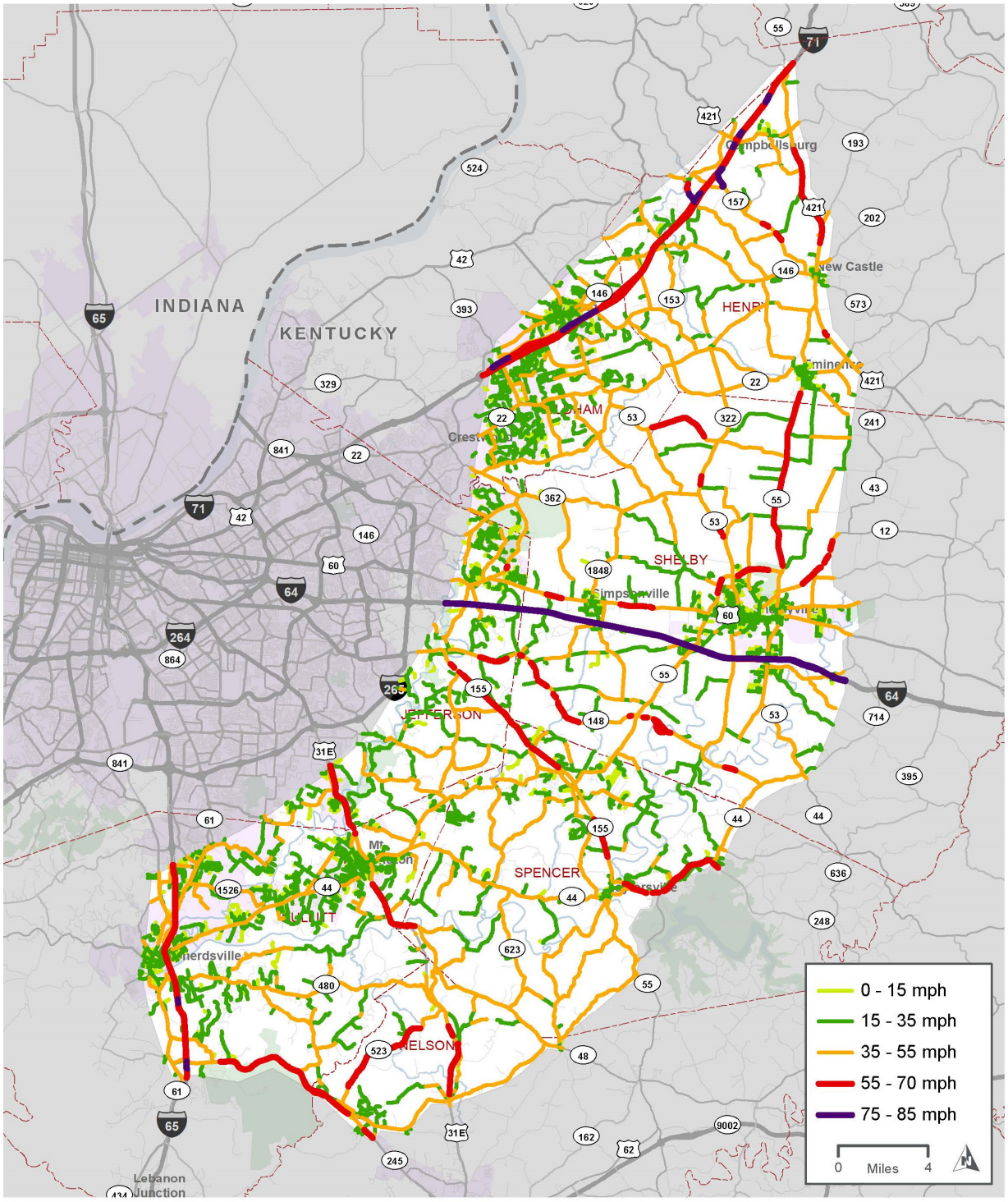
As shown in the table, the travel times between these city pairs vary between around 20 minutes to over an hour. The shortest paths are primarily a function of route distance between the pairs, because available routes do not experience significant congestion – even during the peak periods – thus, the route mileage is fairly strongly correlated with the travel times.

Figure 6-10. AM Peak Hour Speeds (50th Percentile)



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

Figure 6-11. PM Peak Hour Speeds (50th Percentile)



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

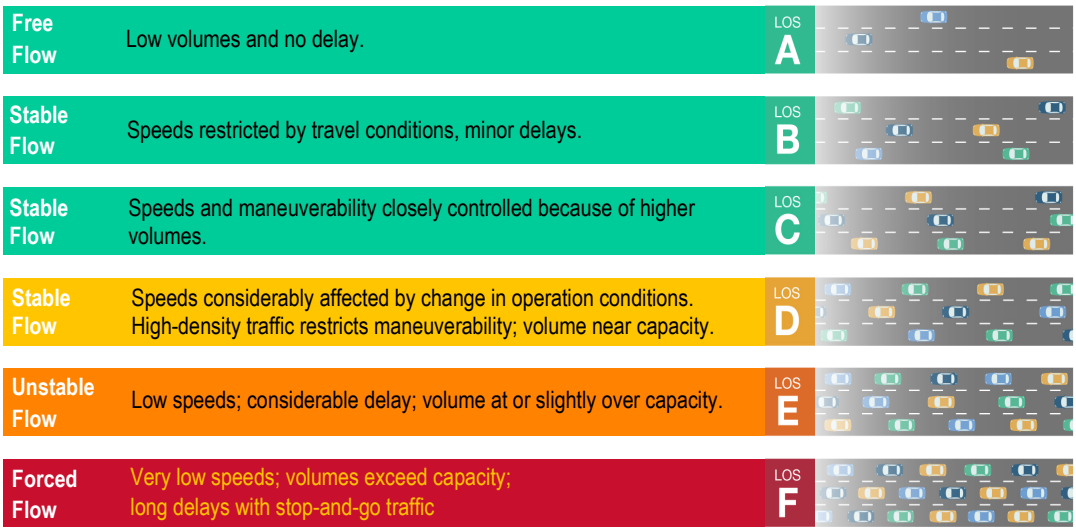
5PM AVERAGE SPEED
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Operational Performance

Level of Service (LOS)

LOS is used to provide a rating scale for congestion and operations of a roadway. LOS A represents a free-flowing facility. Travel speeds decrease with degraded level of service down to LOS F, which represents a congested roadway that is over capacity with very low travel speeds. **Figure 6-12** describes level of service in more detail.

Figure 6-12. Level of Service Definitions



Source: https://www.parleyseis.com/assets/images/Parleys%20LOS%20Levels_rev2.png

To evaluate LOS and roadway segment performance throughout the study area, a methodology was developed based on the Highway Capacity Manual – Sixth Edition (HCM6) methods. HCM6 provides guidance with regard to the evaluation criteria and parameters for which different facility types (two-lane, multi-lane) roadways of differing contexts (rural, urban) should be evaluated. To conduct a cursory analysis of the existing roadway performance within the study area network, the HCM6 methods in conjunction with the 2018 draft Florida Department of Transportation (FDOT) LOS guidelines, and the use of the accompanying Highway Capacity Software (HCS7), were implemented.

The FDOT LOS guidelines are planning-level thresholds to establish the LOS performance criteria for various facility and context situations. The threshold values in the FDOT guide were developed through the application of the HCM methods with specified parameters to develop threshold values more accurately aligned with localized roadway network base conditions.

Using the FDOT LOS guidelines as a base reference point, the project team developed and adapted input parameters to best reflect the localized roadway conditions. These parameters were input and tested to derive a similar set of base condition LOS thresholds for the Kentucky roadway network. The developed LOS volumetric threshold values were then compared against the existing roadway facility data (volume, cross-section, context, facility type) for the roadways within the study area to determine the applicable LOS for the existing operational conditions. The developed volume threshold values for the various roadway types are shown in **Table 6-4**. The base parameters assumed consistent across all roadway types are shown at right.

Base Parameters	
Peak Hour Factor	0.92
Directional Distribution	55%
K Factor	0.098 or 9.8%
Heavy Vehicle Percentage	10%
Terrain Type	Rolling

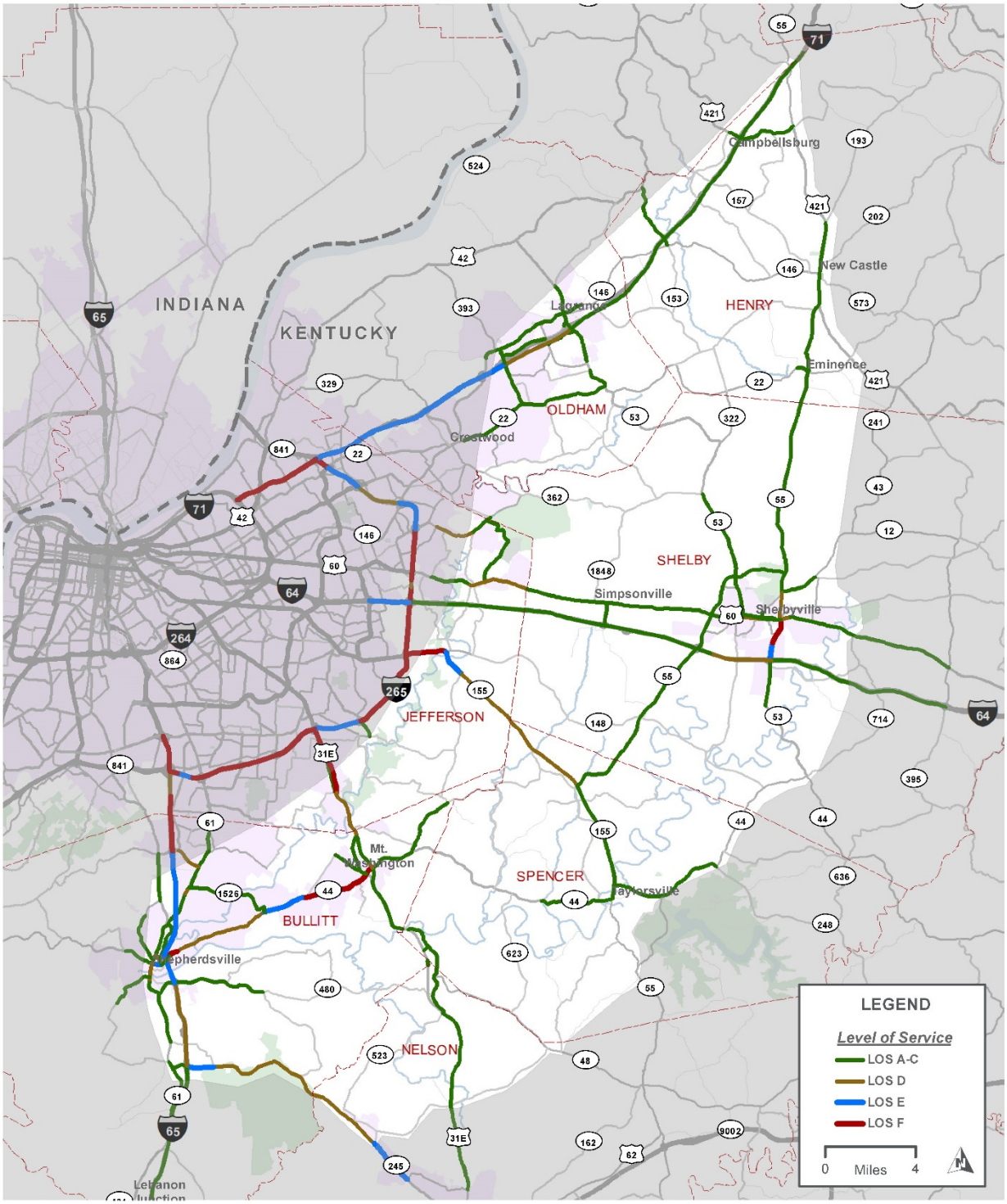
Table 6-4. Volume Thresholds by Facility Type

Facility Type	Lanes	Median	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Interstate	4	Divided	21,300	35,600	49,000	58,900	67,300	> 67,300
	6	Divided	31,200	53,400	73,700	88,400	100,000	> 100,000
	8	Divided	42,000	71,200	98,400	117,800	134,700	> 134,700
Arterial	2	Divided	1,200	5,100	12,400	15,000	17,100	> 17,100
		Undivided	1,200	5,100	12,400	15,000	17,100	> 17,100
	3	Divided	1,200	5,100	12,400	15,000	17,100	> 17,100
		Undivided	1,200	5,100	12,400	15,000	17,100	> 17,100
	4	Divided	5,000	11,900	27,800	31,000	35,100	> 35,100
		Undivided	5,000	11,900	27,800	31,000	35,100	> 35,100
	5	Undivided	5,000	11,900	27,800	31,000	35,100	> 35,100
	6	Divided	7,500	18,600	43,200	46,700	53,100	> 53,100
Collector	2	Divided	1,100	1,900	9,400	13,700	14,700	> 14,700
		Undivided	1,100	1,900	9,400	13,700	14,700	> 14,700
	3	Divided	1,100	1,900	9,400	13,700	14,700	> 14,700
		Undivided	1,100	1,900	9,400	13,700	14,700	> 14,700
	4	Divided	2,000	4,400	20,000	28,400	30,000	> 30,000
		Undivided	2,000	4,400	20,000	28,400	30,000	> 30,000
	5	Undivided	2,000	4,400	20,000	28,400	30,000	> 30,000
	6	Divided	3,500	7,000	33,800	43,000	45,200	> 45,200
Local	2	Undivided	900	2300	5,700	12,700	27,700	> 27,700

Threshold values are expressed with regard to segment AADT.

Using the methods outlined above, a number of study corridors were analyzed. The LOS results are depicted in **Figure 6-13**.

Figure 6-13. Level of Service



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

LEVEL OF SERVICE
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

As shown, a number of the study area corridors were found to operate at LOS D or worse. These segments are shown in **Table 6-5**. Henry County was the only county in the study area for which no segments were found to operate at LOS D or worse.

Table 6-5. Roadway Segments with LOS D or Worse – All Counties

County	Roadway	From	To	LOS
Jefferson	US-31E	KY 2053	Spencer County Line	D
	US-60	Gilliland Rd	Shelby County Line	D
	KY 155	KY 1531	Spencer County Line	D
	KY 1531	Johnson Rd	Study Area Boundary	D
	KY 155	KY 148	KY 1531	E
	US-31E	Study Area Boundary	KY 1531	F
	US 60	Study Area Boundary	KY 155	F
Bullitt	KY 245	Chapeze Ln	Nelson County Line	D
	I-65	KY 480	KY 245	D
	KY 61	Near Salt River Crossing		D
	KY 44	East of I-65	Bells Mill Rd	D
	I-65	Study Area Boundary	KY 480	E
	KY 44	Bells Mill Rd	Greenbriar Rd	E
	KY 245	I-65	Chapeze Ln	E
	KY 44	US-31E	Greenbriar Rd	F
	KY 44	Near I-65 Interchange		F
Nelson	KY 245	Bullitt County Line	Study Area Boundary	D
Spencer	KY 155	Jefferson County Line	KY 55	D
Shelby	I-64	KY 55	KY 53	D
	US-60	KY 55	Johnsonville Rd	D
	KY 53	KY 43	US-60	D
	KY 53	Old KY 53 Rd	I-64	E
	KY 53	US-60	Old KY 53 Rd	F
Oldham	I-71	KY 53	KY 393	D
	I-71	KY 393	Study Area Boundary	E

Crash Analysis

This section presents the crash analysis for key roadways in the study area.

Crash records for 2013 through 2017 were obtained for the study area from LOJIC Data services. Excluding interstate crashes, a total of 15,885 crashes occurred during the five year period, including 90 fatalities. **Figure 6-14** shows the geographic distribution of crashes by severity.

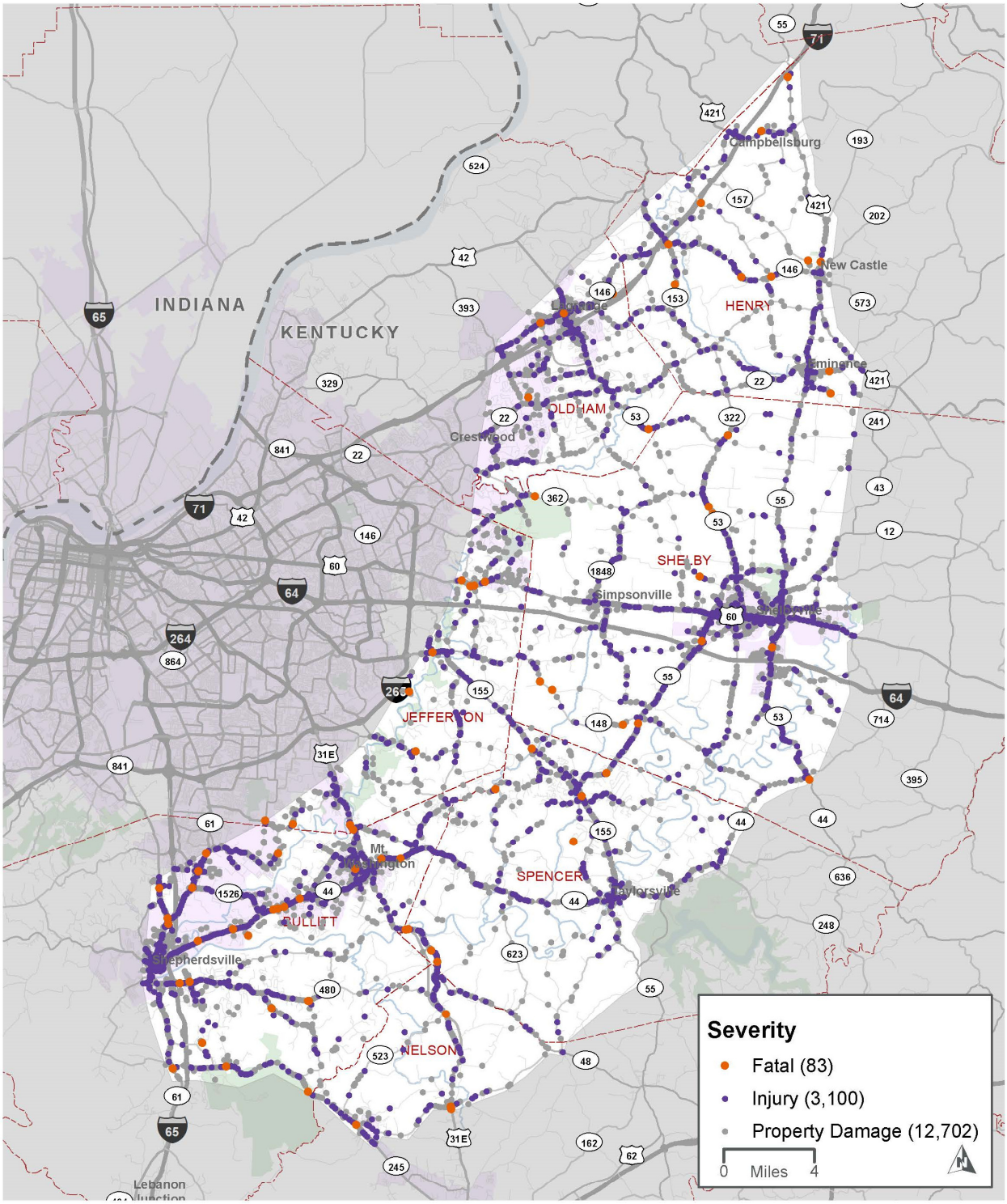
Crash patterns were also observed to determine if there were any “hot spots” where crashes appear to occur more frequently. When interstate crashes are excluded, the main hot spots cluster around the more urban areas of the study area including La Grange, Shelbyville, Mt. Washington, and Shepherdsville. These clusters are shown in **Figure 6-15**. Fatal crashes were similarly examined.

A crash rate analysis was completed for the study area. The analysis compares the calculated crash rates to the statewide critical crash rates for the same highway types. The critical crash rate factors are taken from the Kentucky Transportation Center Research Report entitled *Analysis of Traffic Crash Data in Kentucky (2013-2017)*.

Table 6-6. Statewide Crash Rates by Highway Type Classification (2013-2017)

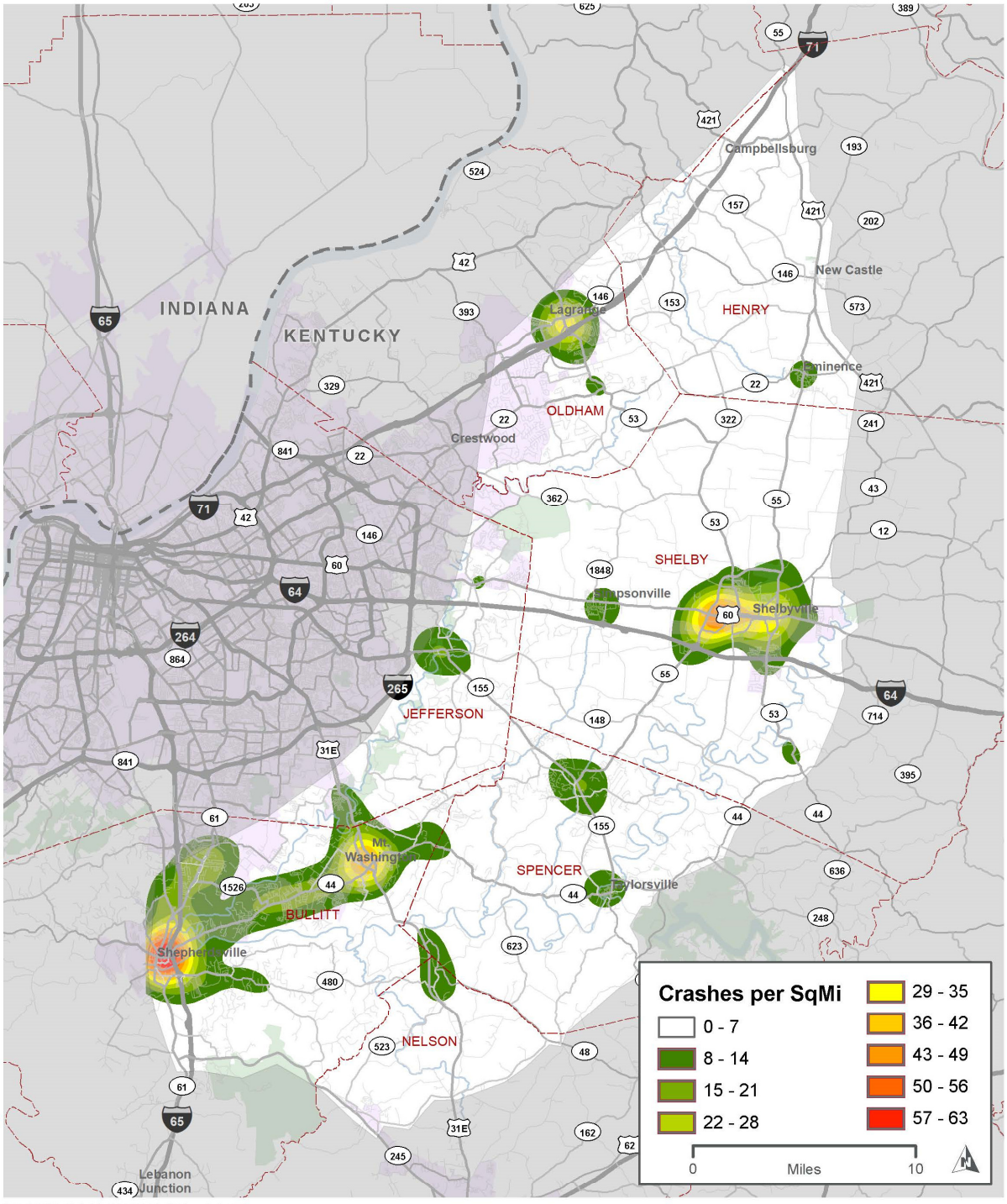
	Rural Crash Rate (Crashes per 100 MVM)			Urban Crash Rate (Crashes per 100 MVM)		
Highway Type	**All**	**Injury**	**Fatal**	**All**	**Injury**	**Fatal**
Two-Lane	267	56	2.8	507	79	1.3
Three-Lane	286	45	1.2	684	96	0.7
Four-Lane Divided	123	24	1.0	419	71	1.3
Four-Lane Undivided	136	31	1.5	578	91	1.1
Interstate	57	10	0.5	123	19	0.4
Parkway	67	13	0.8	110	19	1.1

Figure 6-14. Crash Severity



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

Figure 6-15. Non-Interstate Crash Density



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

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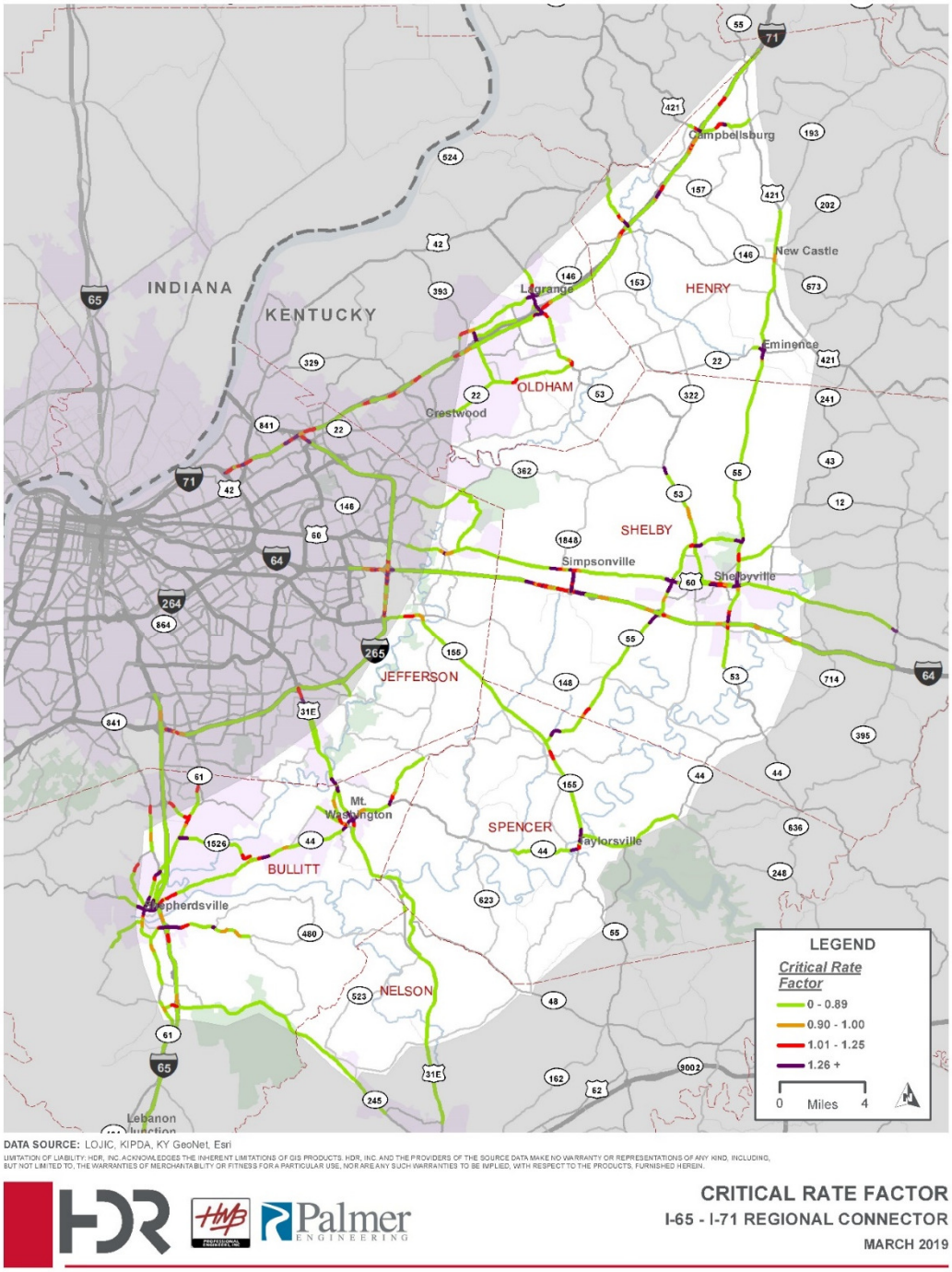
2013 - 2017 NON-INTERSTATE CRASHES
I-65 - I-71 REGIONAL CONNECTOR
MARCH 2019

Detailed analysis was performed on roadway sections in the study area with an ADT of greater than 4,000 to note segments with a Critical Rate Factor (CRF) greater than 0.9. The CRF is essentially a statistically adjusted ratio of a segment's crash rate to the statewide average rate for the same facility type. **Figure 6-16** depicts CRFs for each study corridor. Several of the high-CRF clusters correlate strongly to the "hot spots" previously shown in **Figure 6-15**. The non-interstate, non-interchange portions of these clusters are discussed below.

Figure 6-16. Critical Rate Factors



Cluster 1: Campbellsburg. The curves on US 421 (Campbellsburg Road) west of Campbellsburg exhibit high CRFs, including at least one fatality. Odd-angled intersections may also contribute.

Cluster 2: Eminence / New Castle. US 421 / KY 55 experienced high CRFs in the vicinity of each town's central intersection (one signalized, one all-way flashing-beacon stop-controlled). New Castle included at least one fatality. Notably, these road segments represent areas where very speed rural character is "interrupted" by a low-speed downtown with numerous driveways and intersections.

Cluster 3: South of Buckner and Lagrange. KY 22 experienced a high CRF near the horizontal curve that includes the intersection with KY-393 / Peyton Lane. Slightly to the east, KY 53 experienced a high CRF just north of its intersection with KY 22 (yellow/red-flashing-beacon controlled, with curvature and gas-station access nearby.)

Cluster 4: Shelbyville. Three main roadways (US 60, KY 55, and KY 53) experienced a high CRF along multiple segments through Shelbyville. While US-60 has multiple segments through the urban Shelbyville area with high CRFs, several high-CRF sections of US 60, as well as the high-CRF sections of the other highways, occur either in transition areas or near interchanges to I-64. Additionally, there have been multiple fatal crashes along I-64 and US 60 in the Shelbyville area.

Cluster 5: Simpsonville. US 60 experienced a high CRF through Simpsonville, another rural-to-small-town transition zone. South of Simpsonville, KY 1848 (Buck Creek Road), which also experienced high CRFs, is a high-speed five-lane section with a large amount of truck traffic and nearby freight generators.

Cluster 6: Finchville-Wilsonville. Three segments of KY 55 in this area experienced high CRFs: (1) at the Spencer-Shelby County Line, where a vertical crest curve exists on the two-lane, shoulderless road; (2) at Hochstrasser Road, where the two-lane shoulderless road encounters a horizontal curve and a somewhat hidden intersection; and (3) in the vicinity of Plum Ridge Road (KY 1169), where construction in 2014-2015 resulted in a new traffic signal (so pre-signal and construction-period crashes likely have been resolved).

Cluster 7: Taylorsville. Both KY 55 and KY 44 in Taylorsville experienced high CRFs through Taylorville, a rural-to-small-town transition zone.

Cluster 8: Mt. Washington. KY 44 and US 150/ US 31E, the main thoroughfares through Mt. Washington, both have experienced high CRFs through the downtown and transitioning areas. The segments of KY 44 with high CRF values in the downtown area are locations where the driveway and land-use density is higher, and the roadway cross-section expands to accommodate a center turn lane. The segments of US 150/ US 31E north of Mt. Washington with high CRF values are near two significant curves and the KY 660 unsignalized intersection.

Cluster 9: Mt. Washington - Shepherdsville. KY 1526 (Bells Mill Road) north of KY 44 (Old Mill Road) experienced high CRFs – this segment includes two very sharp curves. KY 44 experienced a high CRF in the area of a horizontal curve near Truman Drive – a segment that

has very recently been widened to provide a center turn lane, which presumably addressed the issue.

Cluster 10: Shepherdsville. The majority of the roadway segments through downtown Shepherdsville (KY 44, KY 61, and Adam Shepherd Parkway) all have experienced high CRF values. Additionally, several segments south of Shepherdsville along KY 480 and I-65 have experienced high CRF values and multiple fatalities.

Cluster 11: Brooks - Fox Chase – Hebron Village. The Brooks, Fox Chase, and Hebron Village areas are in a transitioning area between Louisville and Shepherdsville, which has KY 1526 and KY 61 as the main highways – both of which feature sections of high CRF values. These segments are concentrated around the intersections of the two roadways and the interchange of KY 1526 and I-65.

In summary, the non-interstate, non-interchange crash experience in the study area appears to bear out the notion that the roadway network is inadequate to serve the growing demands placed on it – especially roads providing regional and interstate connectivity. Crashes are occurring on (1) roads with geometric issues – vertical/horizontal curves, narrow lanes, narrow/non-existent shoulders; (2) roads that have transitioned from high to low speeds through small towns or controlled intersections (note CRFs on these segments may appear high because they are compared against rural crash rates – but this emphasizes the point that their presence “interrupting” high-speed rural roads is becoming more and more out-of-character with the types of traffic the region needs to serve; (3) roads with high speeds and appreciable truck volumes.

7

Environmental Executive Summary

7 – Environmental Executive Summary

This Executive Summary is part of an Environmental Overview (EO), which is being completed by the Kentucky Transportation Cabinet (KYTC) to determine the need for and feasibility of a new regional connector between I-65 in Bullitt County and I-71 in Oldham and Henry Counties. The project area crosses seven counties including Bullitt, Jefferson, Nelson, Spencer, Shelby, Oldham, and Henry. The project area encompasses 734 square miles or 469,632 acres and is about 45 miles long and 10 miles wide. The larger EO documents the environmental features currently known to exist within the study area for the I-65 to I-71 Regional Connector (KYTC Item 5-564.00). The EO is a planning level tool intended to be used for conceptual corridor development and determination of project feasibility. The following information summarizes potential environmental issues that may require consideration as part of the feasibility determination of a new regional connector within the study area. **Figure 7-1**, located at the end of the chapter, illustrates these items in the study area.

NATURAL ENVIRONMENT

Ecological

Surface drainage in the study area is primarily within the Salt River watershed, which includes the major streams of Floyds Fork, Bullskin Creek, Clear Creek, Brashears Creek, Plum Creek, Elk Creek, Cox Creek, Cedar Creek and Long Lick. Much smaller portions of the study area are located within the Little Kentucky River and Lower Kentucky River watersheds. Drennen Creek is a large tributary within the Lower Kentucky River watershed.

These large drainages contain designated floodplains located in the lower reaches of most of the above named streams. The Salt River floodplain crosses a large portion of the project area from the west to east direction across both Bullitt and Spencer counties.

Four Exceptional Waters as designated by the Kentucky Division of Water (KDOW) are also located within the study area. Those streams are Cedar Creek, Wilson Creek, Brashears Creek and Guist Creek, which are found in Bullitt, Nelson, Spencer, and Shelby counties.

Wetlands, which are protected by State and Federal regulations, are also found throughout the study area. Wetlands can include farm ponds, marshy areas, or low lying areas in fields that have held water for several years.

Nine federally listed threatened or endangered species have the potential to exist or are known to exist within the study area. The listed species include three bat species, three mussel species, and three plant species. One of the plant species, Kentucky glade cress (*Leavenworthia exigua laciniata),* has critical habitat located within the study area. The plant species is known only from Jefferson and Bullitt counties, but generally has habitat extending into Nelson and Spencer counties. Habitat for other listed species occurs throughout the study area, but particularly occurs around streams and forested areas. For instance, bat habitat priority areas are located throughout the study area and would require special coordination with the US Fish and Wildlife Service.

The study area also contains several locations of managed and ecologically important lands. These lands include the critical habitat locations of Kentucky glade cress at Pine Creek Barrens Nature Preserve and Apple Valley Glades State Nature Preserve. Other important lands include Bernheim Arboretum and Research Forest and Taylorsville Lake Wildlife Management Area. Additional nature preserves, public and private forests and parklands, and stream and wetland mitigation sites are found in the project area.

These ecological resources occur throughout the study area and will require consideration throughout project planning. Impacts to aquatic features may require permits from the US Army Corps of Engineers (USACE) and Kentucky Division of Water (KDOW). Impacts to endangered or threatened species may require coordination and concurrence from the United States Fish and Wildlife Service. Minimizing impacts to these important ecological features is a requirement for permits issued by the agencies. Where unavoidable, and permitted, such impacts may require costly mitigation.

Geology

The study area crosses over three physiographic regions: the Outer Bluegrass, Knobs, and the Inner Bluegrass. All are underlain by limestone, but the Knobs region located in the southwest portion of the study area contains New Albany Shale, an acid bearing shale when exposed to air and water. This shale requires compaction in clay if it is to be used as engineering fill due to its acidic tendencies. It can also negatively affect water quality when it is exposed to air which reduces pH levels and is detrimental to aquatic wildlife.

HUMAN ENVIRONMENT

Air Quality

The study area is in attainment for all transportation criteria air quality pollutants with the exception of the 8-hour Ozone (2015) standard. The Louisville, KY-IN EPA designated area was designated nonattainment for the 8-hour Ozone (2015) standard on June 4, 2018 (83 FR 25776). The designation was marginal and includes areas in Bullitt, Jefferson, and Oldham counties. Because of this, all project segments that are within the study area and located in the nonattainment area will need to be included in the State Implementation Plan (SIP) and in the Transportation Improvement Program (TIP) of the Louisville/Jefferson County KY-IN (KIPDA) Metropolitan Planning Organization (MPO). Inclusion in these plans will demonstrate that these projects conform to the state and local plans to demonstrate progress in reducing ozone.

This study area, and specifically a project within the corridor, would be a “Project with Low Potential Mobile Source Air Toxics (MSAT) Effects”, since the design year traffic would be less than 140,000 to 150,000 AADT. For any regional connector project, a qualitative assessment of the emissions projections would need to be completed.

Noise

A new roadway such as a regional connector would be a Type I project under Federal Highway Administration (FHWA) guidelines as it would be "the construction of a new highway on new location." Subsequently, a noise analysis would be required. Numerous medium and high-density neighborhoods located throughout the study area would be identified as noise sensitive areas where impacts are mostly likely to occur.

Impacts occur where projects create sound levels that are at or above the Noise Abatement Criteria (NAC) level for that activity category. For noise sensitive land uses that are within approximately 500 feet of a new roadway, including residences, churches, parks, and schools, the constructed project would likely create sound levels that are at or above the NAC level and could result in highway traffic noise impacts. Where highway traffic noise impacts are identified, it is necessary to evaluate the mitigation of the noise through structural noise barriers, and while an evaluation cannot occur and outcomes be determined until alternatives for a specific project are designed and modeled, the likelihood of noise barriers meeting the reasonable and feasible criteria is likely high for a new regional connector.

Socioeconomic

Socioeconomic considerations for the study area include primarily those related to Environmental Justice (EJ) populations, farmlands, community facilities and services, and land use. EJ populations have been identified throughout the study area. Of the 42 census tracts comprising the study area, 26 have percentages of minority or low-income populations that exceed the average percentages of the county in which they are located. Of these 26 census tracts, seven have populations that have higher percentages of both low-income and minority populations. Further identification and analysis of EJ populations will occur as the study develops and as corridors are identified.

Prime farmland soils are located throughout the study area along with their associated farming activities. Conversion of farmland and impacts to prime farmland soils may require coordination with the US Department of Agriculture, Natural Resources Conservation. Agricultural Districts are also located within the study area. Districts are administered by the Kentucky Division of Conservation. All counties in the study area except Spencer County have areas enrolled in this program with the concentration of these properties being in Shelby and Henry counties. Within the Agricultural District program, the land enrolled is protected from annexation and condemnation unless mitigation is provided.

Hazardous Materials / Underground Storage Tanks

Database research and preliminary field investigations were performed to identify sites and *"*areas" within the study area that have the potential of containing underground storage tanks and/or hazardous materials (UST/HAZMAT). The research and investigations resulted in the identification of one landfill in the study area, two quarries, several major industrial parks, and numerous UST sites. Other facilities are located on the periphery of the study area, as well.

Major UST sites and multiple site areas and auto/truck travel centers are present at all interchange areas along I-65, I-64, and I-71. Additionally, UST sites and areas are scattered throughout all the towns and cities in the study area, particularly in the downtown areas and

along main county roads and US highways. Similarly, several major industrial parks and areas are present within the study area, particularly in the larger towns and cities and along the Interstates and US Highways. Such UST and HAZMAT sites should be considered during project planning and avoided if possible.

Cultural Historic (Architectural)

A cultural historic overview was completed of the study area to identify previously recorded cultural historic sites and particularly those sites that are listed or eligible for listing in the National Register of Historic Places (NRHP). Historic resources are protected under Section 106 of the National Historic Preservation Act. In addition, under the Department of Transportation Act of 1966, as amended in 1983, cultural historic sites are considered Section 4(f) resources if listed on or eligible for listing on the NRHP. Impacts to properties either listed or eligible for listing should be avoided if possible.

Data acquired from the Kentucky Heritage Council (KHC) indicated that the study area includes 124 cultural historic sites individually listed in the NRHP, 13 historic districts encompassing 478 contributing resources listed in the NRHP, 164 sites that have been determined to meet the NRHP criteria, three sites pending listing in the NRHP, one suggested NRHP-eligible group, and 1,730 previously surveyed sites with undetermined NRHP status. KHC's data also includes 221 "coded" properties for which no survey data is available and 92 "entry" properties for which data has not yet been entered in to the system.

Of specific importance among the resources identified in the study area, the data indicated the location of one National Historic Landmark, the Whitney M. Young, Jr. Birthplace (SH 175). The site, which is in Shelby County just west of Simpsonville, KY, is of particular importance to avoid. National Historic Landmarks are of higher level consideration than NRHP listed sites and require additional consultation.

The review also included a windshield survey of the study area locations with the highest potential to contain intact historic farmsteads meriting large NRHP boundaries. This review was concentrated in the eastern portion of the study area in Henry, Shelby, and Spencer counties, where previous surveys indicated a large number of NRHP-listed and eligible sites that were recorded 20-30 years ago, when documentation primarily focused on the primary residence and not the farmstead as a whole.

Archaeology

Archaeological resources fall under the same regulations as cultural historic resources and impacts to such resources should be avoided if possible. As such, an archaeological overview was conducted for the study area, and the research indicated that 327 previous archaeological surveys and seven Phase II/III investigations have been completed within a portion of the study area. Over 550 sites have been previously identified in the study area, with a higher frequency of prehistoric sites having been identified than historic sites. However, a historic map review indicated historical archaeological sites are highly probable throughout the study area. Prehistoric archaeological materials are expected to be encountered throughout the study area, but additional prehistoric sites, particularly NRHP-eligible sites, are expected within the stream valleys. Wide floodplains and terraces of stream valleys, particularly at confluences, are

expected to be more prevalent locations of prehistoric archaeological materials and more likely to be eligible for NRHP listing as well.

A search for mapped cemeteries was also included in the review. Sixteen cemetery locations had been previously documented as archaeological sites. Additional cemeteries would be expected to be found throughout the study area.

Section 4(f) / Section 6(f) - Parks

In addition to the Section 4(f) considerations noted above regarding properties either listed on or eligible for listing on the NRHP, 43 mapped parks are located in the study area, and these public properties would be considered Section 4(f) resources. Most park locations are concentrated in or around the various cities within the study areas, although some are mapped outside of the urban areas and may be more of a consideration for a new connector. Two large parks / park systems are located at the western and eastern boundaries of the study area. The Parklands of Floyds Fork is a large park system currently covering over 4,000 acres along Floyds Fork in southeastern Jefferson County within the study area. Taylorsville Lake State Park is located just outside the eastern boundary of the study area and is a large park that includes Taylorsville Lake Wildlife Management Area, covering more than 9,000 acres. Furthermore, of the 43 mapped parks, 17 are also subject to consideration under Section 6(f) of the Land and Water Conservation Fund Act (LWCF). Section 6(f) prohibits the conversion of property acquired or developed with Section 6(f) grants to a non-recreational purpose without the approval of the National Park Service. Any direct impact to these resources either by right-of-way or easement should be avoided if possible.

Table 7-1 provides additional information about particular resource areas described above.

Table 7-1. Environmental Constraints Summary

Environmental Category	General Consideration	Key / Primary Concerns
Natural Environment		
Streams	Surface drainage primarily within Salt River watershed 11 major drainage features (streams)	KY Division of Water Exceptional Use Waters: • Cedar Creek • Wilson Creek • Brashears Creek • Guist Creek
Wetlands	In all study area counties	Farm ponds, marshy areas, low-lying fields
Threatened & Endangered Species	9 federally listed species with 1 species having critical habitat	• Critical habitat for KY glade cress • Known Indiana bat and northern long-eared bat priority locations in Bullitt, Jefferson, Nelson, and Spencer counties
Managed & Ecologically Important Lands	Several managed lands providing conservation and critical habitats	• Pine Creek Barrens NP and Apple Valley Glades State NP - KY glade cress habitat • Bernheim Arboretum and Research Forest • The Parklands of Floyds Fork • KY Department of Fish & Wildlife Resources Fee-In-Lieu-Of (FILO) sites
Geology	New Albany Shale in southwestern portion of study area	Acidic tendencies of New Albany Shale – can affect water quality
Human Environment		
Air Quality	Transportation criteria pollutants "Project with Low Potential MSAT Effects"	Bullitt, Jefferson, and Oldham counties designated as nonattainment for 8-hour Ozone
Noise	Noise sensitive land uses	Medium to high density residential areas within 500 feet of a new roadway
Environmental Justice ***Minority % > County %*** ***Low-income % > County %***	15 census tracts 17 census tracts	Census tracts with both minority and low-income % > county's %: • 3 census tracts in Bullitt County • 1 census tract in Henry County • 2 census tracts in Shelby County • 1 census tract in Oldham County
Community Facilities and Services	57 schools Other community facilities located in all study area counties	Schools, hospitals, government buildings, religious institutions, public parks, trails
Land Use	All counties have land use plans as part of Comprehensive Plans	Predominantly rural study area, zoned agricultural and low-density housing
Farmland	41 prime farmland soil classifications ("All Areas are Prime Farmland") Agricultural Districts	45% of farmland soils are "All Areas are Prime Farmland" classification Agricultural Districts, with concentration in Shelby and Henry counties
Hazardous Materials/USTs	1 landfill 2 quarries Major industrial parks Numerous UST sites	• Williams Landfill Area • Bullitt County Stone Quarry • Quality Crushed Stone Quarry Area
Historic Structures	124 individually listed NRHP sites 13 historic districts encompassing 478 contributing resources 164 sites meeting NRHP criteria	National Historic Landmark – Whitney M. Young, Jr. Birthplace Potential for intact historic farmsteads meriting large NRHP boundaries
Archaeological Sites	327 previous archaeological surveys 7 Phase II/III Over 550 previously identified sites 464 mapped cemeteries with 16 cemeteries identified as archaeological sites	Particular potential for sites within wide floodplains and terraces of stream valleys Potential for additional cemeteries that are archaeological sites
Section 4(f) Properties / Section 6 (f) Properties (Parks)	4(f) resources - 43 parks and NRHP listed and NRHP eligible sites 6(f) resources - 17 parks	All public parks and all NRHP listed and NRHP eligible sites are 4(f) resources Parks having received 6(f) funds require additional coordination

Figure 7-1. Environmental Constraints

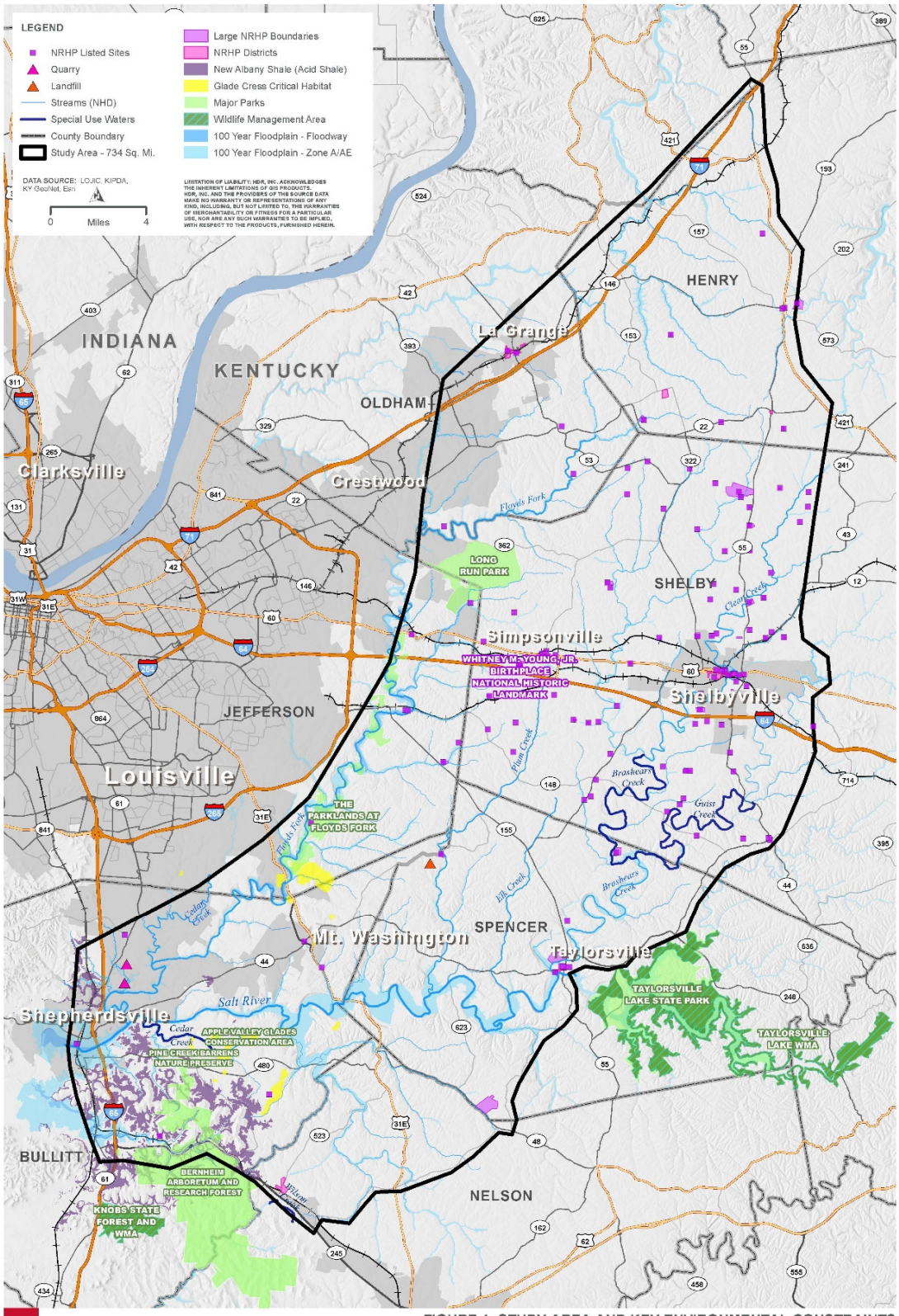


FIGURE 1: STUDY AREA AND KEY ENVIRONMENTAL CONSTRAINTS
65-71 REGIONAL CONNECTOR
MARCH 2019

8

Summary of Prior and Related Studies

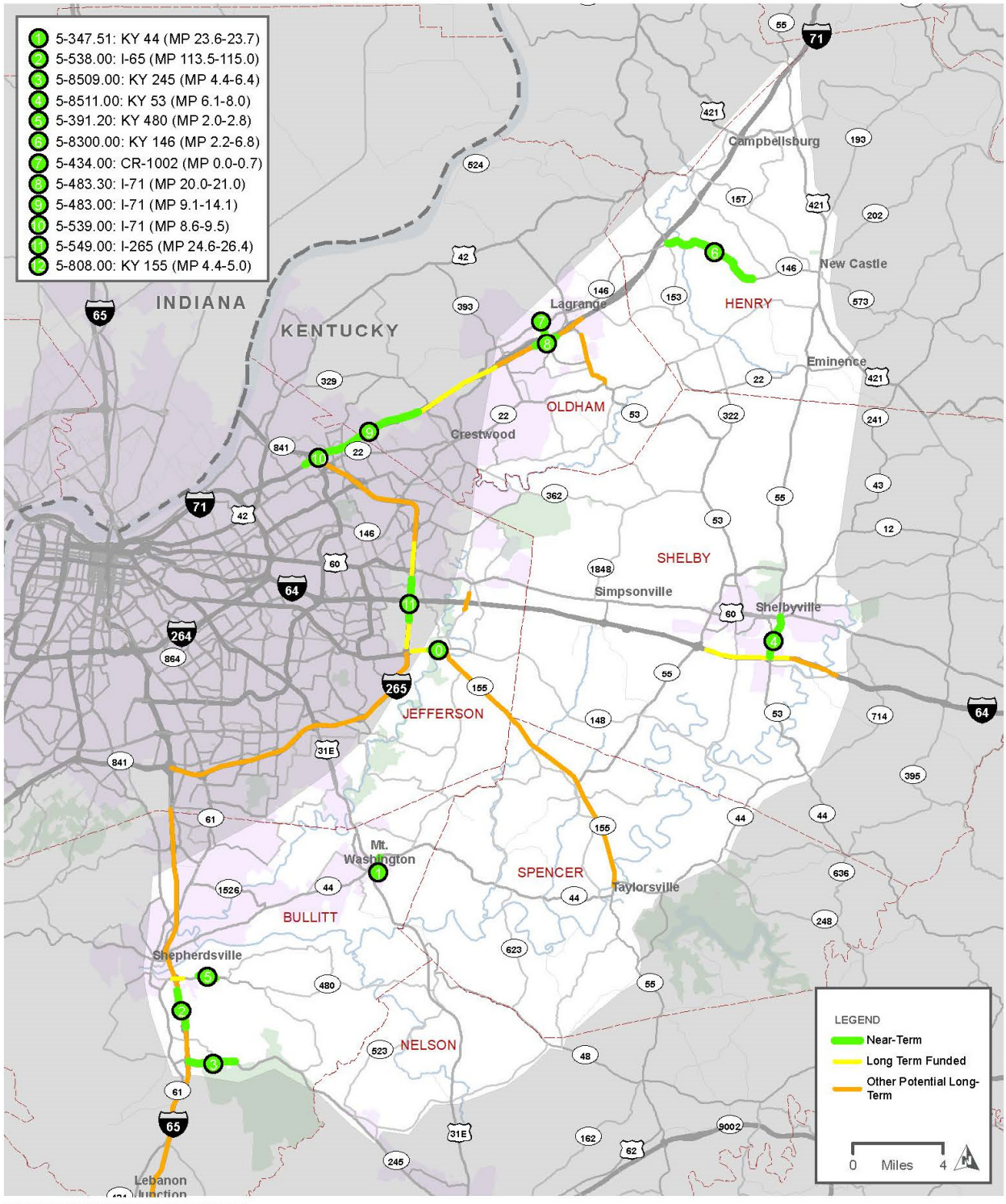
8 – Summary of Prior and Related Studies

The transportation system in the Greater Louisville area has been steadily evolving over the past century with the spread of suburban development outward from the Louisville city core. In Kentucky, visionary construction and reconstruction of the Watterson Expressway (I-264) and construction of the Snyder Freeway (I-265) combined with the original interstate system routes of I-64, I-65, and I-71 provide both major radial routes and major circumferential loops around the city. As this backbone system evolved, suburban community development flourished. The recent completion of the Louisville Bridges project modernized the convergence of I-64, I-65, and I-71 in downtown Louisville and extended I-265 via a new bridge over the Ohio River east of the downtown area. As a result of enhanced access provided by the Louisville Bridges transportation investment, another round of Louisville area growth is occurring and I-265 is experiencing an increase in traffic demand.

Foreseeing the continuing evolution of growth outward toward the counties surrounding the Louisville Metropolitan area, the Kentucky Transportation Cabinet (KYTC) has studied many of the feeder routes to Louisville over the past 15 years. Each of the major radial interstate routes in the area is expected to experience traffic increases necessitating future investment. Interstate 65 is projected to need another lane in each direction from Lebanon Junction in Bullitt County to I-265 in Jefferson County. Interstate 64 has been widened to six lanes from I-265 in Jefferson County to KY 55 in Shelby County and widening is expected to continue eastward to the existing rural six-lane section east of Shelbyville. Interstate 71 is being designed to accommodate six lanes from I-265 northeastward to KY 393 in Oldham County with plans to carry that six-lane section all the way to KY 53 at LaGrange soon. As **Figures 8-1 through 8-3** illustrate that these interstate routes are a critical feature of KYTC's efforts to successfully maintain vehicular and freight access to Metropolitan Louisville.

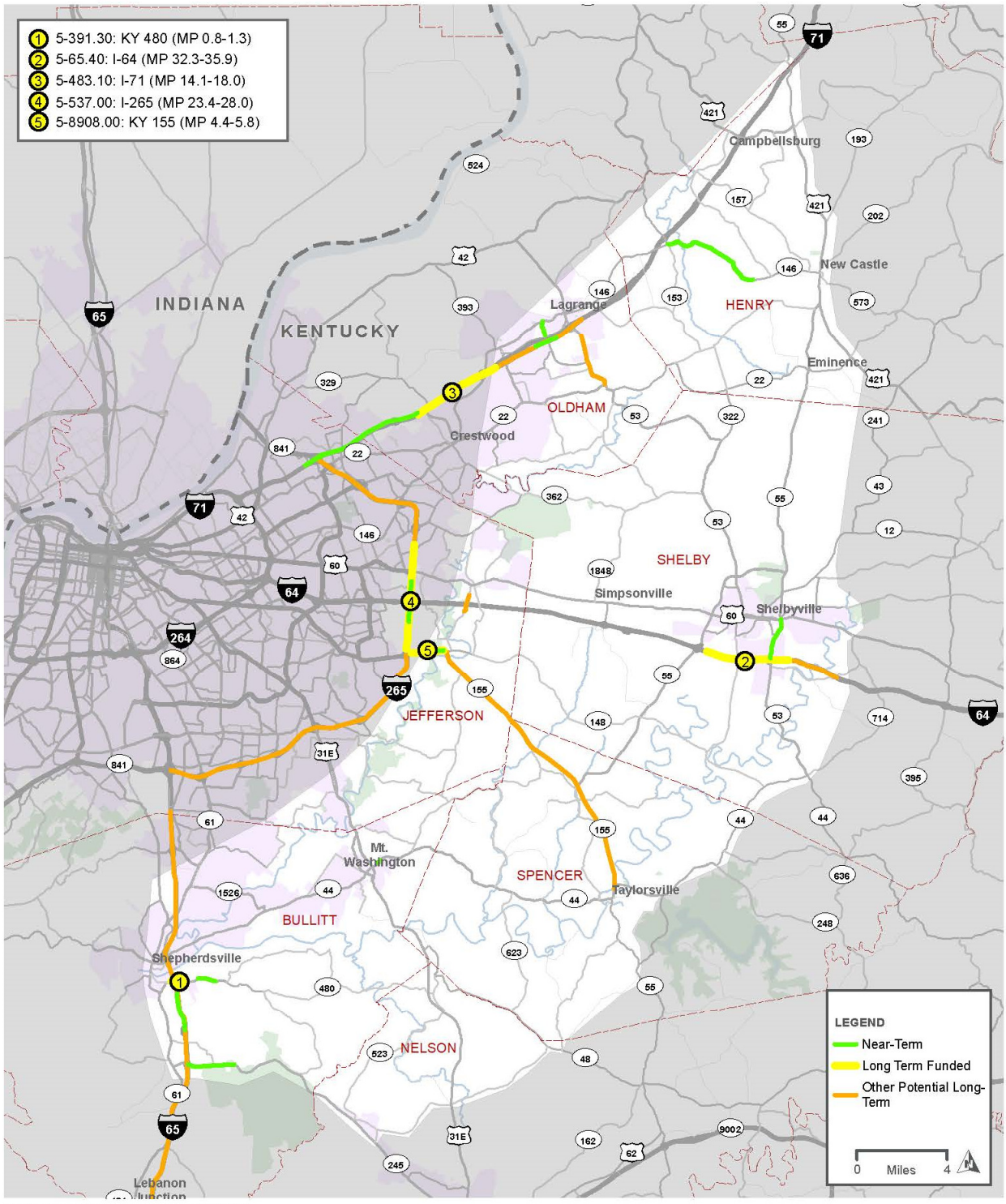
In addition to studies of the interstate routes themselves, KYTC has also conducted interchange studies and made interchange improvements throughout the area. Also illustrated on **Figures 8-1 through 8-3**, these studies demonstrate a clear emergence of differing types of access needs in Louisville's outlying counties. To the south, Bullitt County is attracting substantial economic growth along I-65 south of Shepherdsville. KYTC is developing an interchange improvement project at I-65 and KY 480, anticipating that a double-crossover diamond design along KY 480 will more safely accommodate the I-65 Interchange area traffic. Approximately one mile south of KY 480, KYTC is working with Bullitt County and the City of Shepherdsville to construct a new I-65 interchange serving KY 61 to the west and the Cedar Grove Business Park to the east. The primary function of this new interchange is to provide secondary access to Cedar Grove Business Park and its burgeoning development.

Figure 8-1. Near-Term Projects



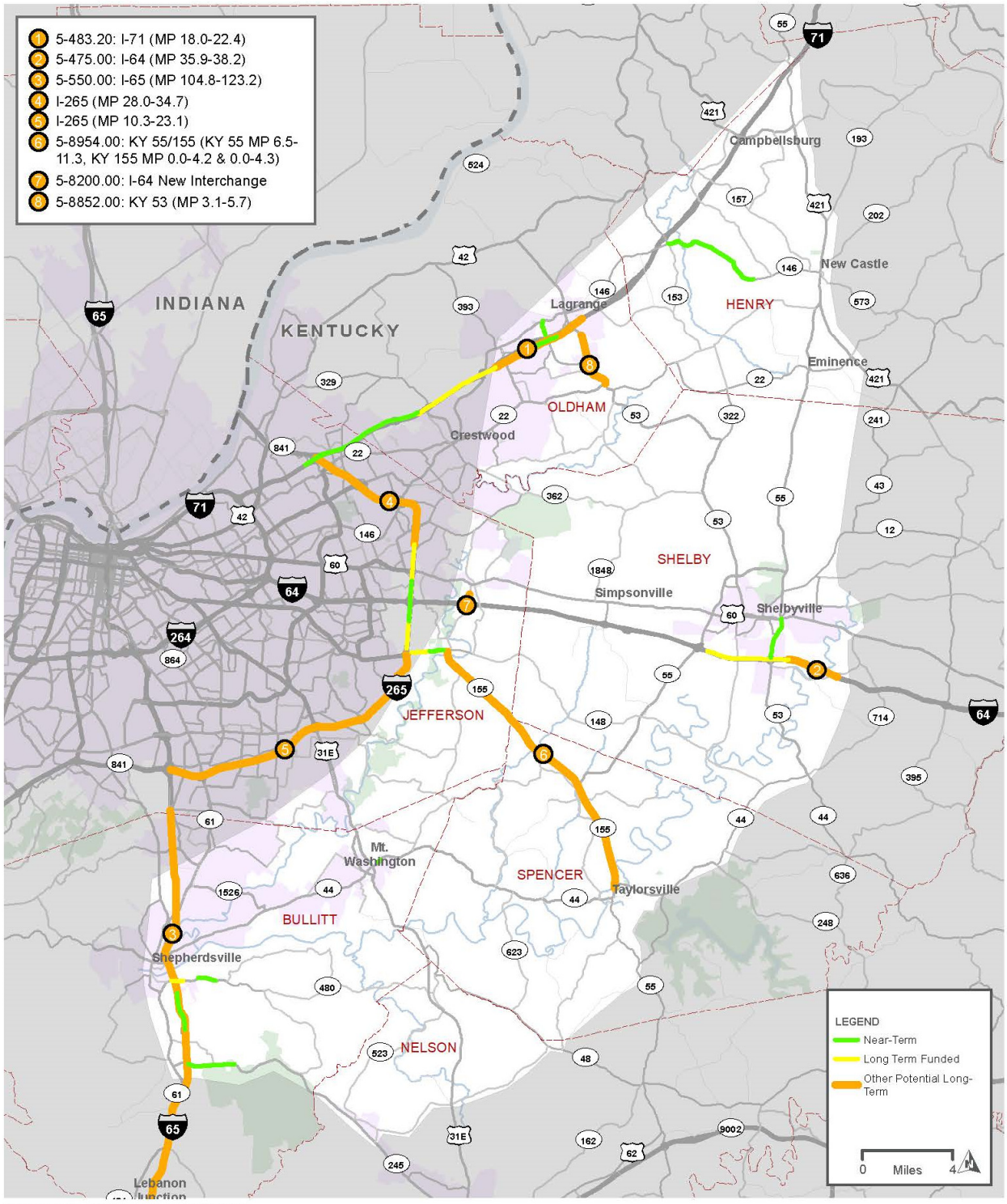
DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

Figure 8-2. Future Projects



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

Figure 8-3. Potential Projects



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

Other major interchange work anticipated by KYTC in the primary study area is a new I-64 interchange between I-265 and the Simpsonville Interchange. The residential development along I-64 in eastern Jefferson County has been dramatic in recent years and the resulting traffic congestion along Taylorsville Road (KY 155) and Shelbyville Road (US 60) has been equally dramatic. New access to I-64 in the vicinity of Gilliland Road/Echo Trail has been recommended for further study to address this need. Also within the Primary Study Area for this project, the I-71/KY 393 Interchange at Buckner was recently reconstructed to north of Commerce Drive providing much-needed additional capacity in the KY 393 Interchange area. These improvements will be continued to existing KY 393 north of Buckner providing much-improved access to I-71 for northern Oldham County. Further to the east, a new interchange at LaGrange Parkway (KY 2857) is considered essential to providing direct access to the Oldham Reserve Business Park and secondary access to the City of LaGrange via Commerce Parkway and Allen Lane. The I-71/LaGrange Parkway interchange is included in KYTC's Biennial Highway Plan and is expected to be let to construction in Fiscal Year 2020. This project will be designed to dovetail with the longer-range plan for widening I-71 to six-lanes through the project area.

Interstate 265 traverses the western edge of the multi-county study area and decisions about improvements within that corridor will be affected by the ultimate decisions about the viability of a new outer connection between Bullitt County and Oldham County. The entire I-265 Corridor from I-65 to I-71 needs traffic congestion relief and has ranked "high" in KYTC's SHIFT Program Statewide Projects priority listing. Past KYTC studies have prioritized segments and recommended improvements at interchanges all along the route. Active design projects are underway at the I-265/I-64 Interchange and the I-265/I-71 Interchange as well as for the widening of priority sections of mainline I-265 from Taylorsville Road to I-71 with continuing emphasis on the corridor expected.

Given the sheer number of potential projects that have been identified from across the state since the early 2000s, KYTC undertook an ambitious statewide project reevaluation and funding prioritization process in 2016. Completed in late 2017, KYTC's SHIFT (Strategic Highway Investment Formula for Tomorrow) Program reevaluated all potential projects, scored them according to safety, asset management implications, economic growth potential, congestion reduction, and benefit/cost perspectives to prioritize them for funding on a statewide and regional basis. The SHIFT Program contained 14 projects from the study area in its "Statewide" list, with 8 of those prioritized in the Top 20 such needs. Similarly, SHIFT's "North Region" project listing contained 35 projects from the study area with 5 of those in the Top 25 regional needs. Having reassessed all of KYTC's Louisville area needs in concert with the new funding metric, the projects shown in **Table 8-1** were found to be high priority needs:

Table 8-1. SHIFT Scores for Study Area Projects

County/Scoring	Route	Milepoints	Description	SHIFT Score
Jefferson/Statewide	I-265	23.4-34.7	6-Lane Priority Section of I-265 between Taylorsville Road and I-71	81.8
Bullitt/Statewide	I-65	104.8-123.2	Widen I-65 to 8 lanes from KY 61 in Lebanon Junction to I-265	79.7
Jefferson/Statewide	I-71	8.5-10.0	Provide CD Lane on SB I-71 to facilitate ramp movements to and from I-265	78.9
Oldham/Statewide	I-71	11.3-14.1	6-lane Priority Section of I-71 Between I-265 and KY 329	73.8
Shelby/Statewide	I-64	32.3-35.9	6-lane I-64 from KY 55 Interchange east to 0.74 mi. east of the KY 53 Interchange	72.4
Oldham/Statewide	I-71	14.1-18.0	6-lane I-71 from KY 329 to KY 393	72.2
Jefferson/Statewide	I-265	10.3-17.3	Improve Safety and Reduce Congestion on I-265 from I-65 east to US 31E/150	72.2
Oldham/Statewide	I-71	18.0-22.4	6-lane I-71 from KY 393 east to KY 53 including a new interchange at MP 20.6 (LaGrange Parkway)	71.2
Shelby/Regional	KY 53	6.1-8.0	4-lane KY 53 from I-64 north to US 60	85.7
Bullitt/Regional	KY 44	22.8-23.3	Reconstruct KY 44 from US 31EX to US 31E/150 Bypass in Mt. Washington	83.6
Bullitt/Regional	KY 44	13.1-15.1	Reconstruct KY 44 from I-65 to Chimney Rock Drive in Shepherdsville	83.2
Bullitt/Regional	KY 245	4.4-6.4	Widen KY 245 from Bernheim Forest to the Community College	78.8
Henry/Regional	KY 146	2.2-6.8	Reconstruct KY 146 from KY 153 to east of Safety Kleen	69.7
Jefferson/Regional	I-265	23.3-26.5	Reconstruct I-265/I-64 Interchange; Eliminate cloverleaf ramps and construct fly-over ramps	75.2

In addition to the studies and prioritization work done by KYTC, there have also been numerous projects recommended through the metropolitan and local planning processes. The KIPDA Metropolitan Planning Organization's (MPO's) "Horizon 2035 Metropolitan Transportation Plan" includes 35 projects within the project's study boundary. The KIPDA priorities align well with the KYTC priorities listed above, but there are several additional projects that are proposed for interstate system feeder routes like the widening of KY 22 and KY 53 in Oldham County, the widening of KY 155 (Taylorsville Road) from I-265 to KY 148 in Jefferson County, and the widening of KY 480 (Cedar Grove Road) in Bullitt County. Local comprehensive plan updates for Bullitt, Spencer, Shelby, Henry, and Oldham Counties yielded additional smaller projects designed to establish local system connections to the major routes covered by the KYTC and KIPDA planning and prioritization processes. Most notably, Page 7-20 of Bullitt County's Comprehensive Plan transportation priorities called for the construction of a new interchange at Cedar Grove Business Park and the improvement of the I-65/KY 480 Interchange as that county's top two projects. Bullitt County wants KY 44 to be widened between Shepherdsville and Mount Washington, but understands the costs of such a project as right-of-way and utility relocation is very expensive in the existing corridor. Accordingly, Bullitt County has been keenly interested in other connections in proximity to KY 44, including the construction of a new 65-71

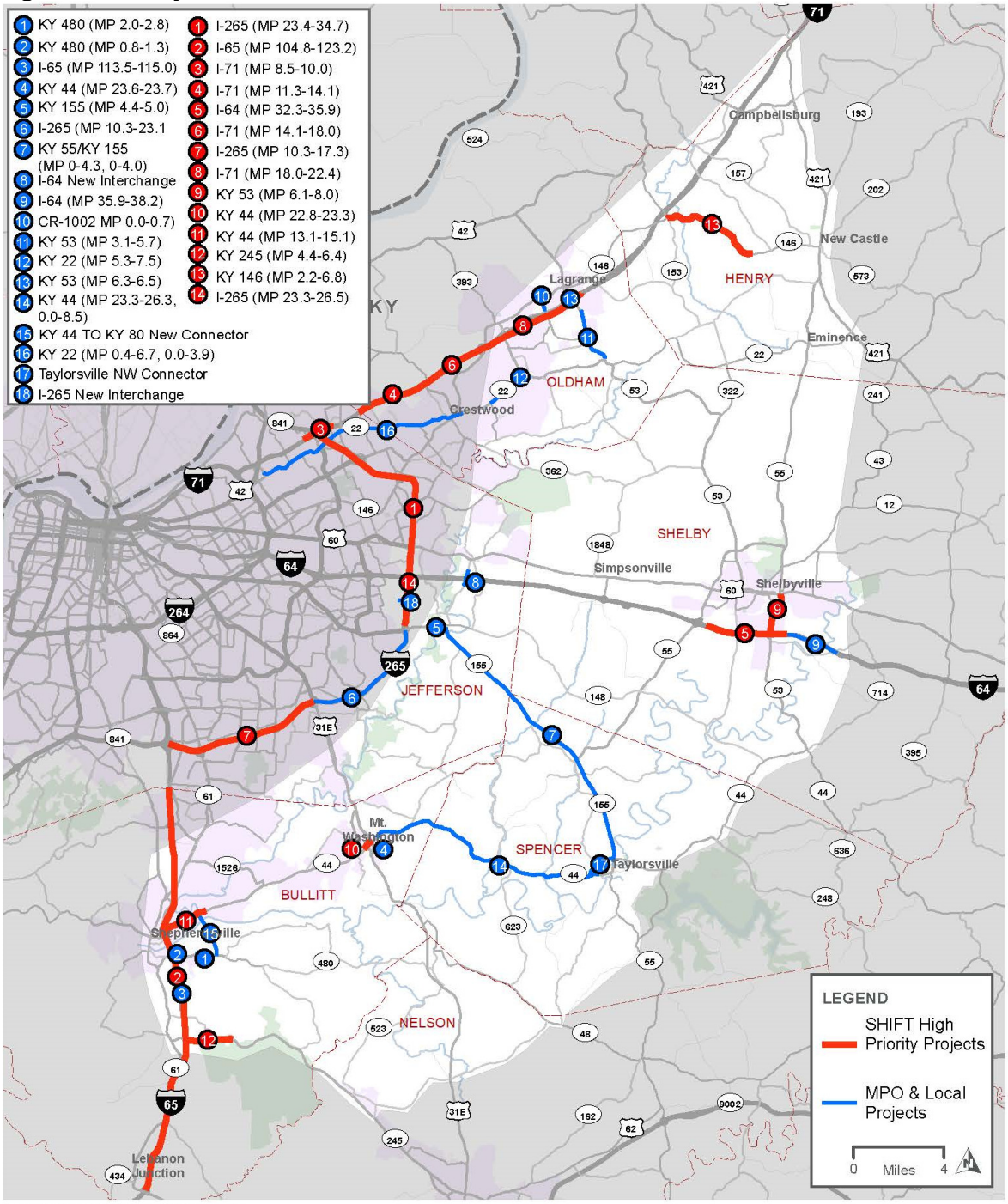
Regional Connector. **Figure 8-4** provides an illustrative map showing the larger projects in the Study Area. These more localized projects are shown in **Table 8-2**, below.

Table 8-2. MPO and Local Projects Studied in the Study Area

County	Route	Milepoints	Source Document	Description
Bullitt	KY 480	2.0-2.8	KIPDA TIP, Page 40	Widen Cedar Grove Road from Cedar Grove Elementary School to Valley View Drive
Bullitt	KY 480	0.8-1.3	KIPDA TIP, Page 41 and Chapter 7 of the 2015 Bullitt Co. Comprehensive Plan	Improve KY 480 at I-65 including turn lanes and ramp modifications
Bullitt	I-65	113.5-115.0	KIPDA TIP, Page 48 and Chapter 7 of the Bullitt County Comprehensive Plan	New I-65 interchange at Cedar Grove Business Park
Bullitt	KY 44	23.6-23.7	KIPDA LRP, Page 239 and KYTC 6YP, Item 5-347.51	Construct Turn Lanes at Bullitt East High School
Jefferson	KY 155	4.4-5.0	KIPDA TIP, Page 51	Reconstruct Taylorsville Road Pope Lick Creek Bridge and Intersection
Jefferson	I-265	10.3-23.1	KIPDA LRP, Page 197	Improve Safety and Reduce Congestion on I-265 from I-65 to Taylorsville Road (KY 155), includes I-265/I-65 Interchange
Spencer, Jefferson	KY 55 KY 155	0.0-4.3 0.0-4.0	KYTC 6YP, Item 5-8954	Construct a “2+1” Roadway (Alternating Passing Bays) from Taylorsville to KY 148
Jefferson, Shelby	I-64	----	KIPDA LRP, Page 150	Constructs a new I-64 Interchange east of I-265 and west of Simpsonville
Shelby	I-64	35.9-38.2	KYTC 6YP Item 5-475	Widen I-64 to 6 lanes from the KY 1790 Overpass east to the existing 6-lane Section
Oldham	CR-1002	0.0-0.7	KIPDA TIP, Page 42	Construct Rail Underpass on Allen Lane west of LaGrange
Oldham	KY 53	3.1-5.7	KIPDA LRP, Page 249	Improve KY 53 from KY 22 north to Zhale Smith Road
Oldham	KY 22	5.3-7.5	KIPDA TIP, Page 38	Reconstruct KY 22 from Abbott lane to KY 393 and east to Centerfield Drive
Oldham	KY 53	6.3-6.5	KIPDA TIP, Page 43	CMAQ Improvements at KY 53/I-71 Interchange in LaGrange
Bullitt, Spencer	KY 44	23.3-26.3 0.0-8.5	KYTC DNA Study	KY 44 Corridor Study from Mt. Washington to Taylorsville
Bullitt	New	----	KYTC DNA Study and Chapter 7 of the Bullitt County Comprehensive Plan	KY 44 to KY 480 Connector Study with new bridge over Salt River east of Shepherdsville
Jefferson, Oldham	KY 22	0.4-6.7 0.0-3.9	KYTC DNA Study	KY 22 Scoping Study; Herr Lane to KY 329B
Spencer	New	----	KYTC DNA Study	Taylorsville Northwest Connector Intermediate Planning Study
Jefferson	New	----	KYTC DNA Study	Construct new interchange at I-265/Rehl Road (located between Taylorsville Road and I-64 Interchanges on I-265)

The projects listed in **Tables 8-1 and 8-2** are shown in **Figure 8-4**. As shown there are numerous regionally significant projects that have been studied and awaiting funding.

Figure 8-4. Project Locations



DATA SOURCE: LOJIC, KIPDA, KY GeoNet, Esri

Recognizing the regional transportation system needs identified by KYTC, KIPDA, and the affected counties, it is also important to overlay these traditional planning priorities with the needs associated with statewide freight planning. Not only is the interstate highway system integral to moving people, goods, and services within the Greater Louisville Area, but that system also carries tremendous responsibility for goods and freight movement across the midsection of America. Located midway between Nashville and Indianapolis in the I-65 Corridor, midway between Nashville and Cincinnati in the I-65/I-71 Corridor, and midway along the I-64 Corridor between St. Louis and the I-81 freight corridor in Virginia, Louisville is a crossroads for freight traffic in the eastern United States. The 2017 Kentucky Freight Plan (KFP) identified I-65, I-265, I-64, and I-71 as critical freight corridors. The KFP contained a priority list of freight projects most essential to freight operations in the state and recommended improvements to the I-265/I-71 Interchange as one of the most significant such projects in Kentucky, once again underscoring the fact that the importance of I-265 and its connectivity to I-71 are key to Kentucky's future economic viability.

In summary, there have been many highway improvements constructed in the study area during the past 15 years, but there is still the need for additional improvements. With those projects accomplished and multiple other studies and prioritization efforts having been completed, continued regional planning efforts will be important to supporting continued growth in the Louisville Area. The subject of this study, the viability of the 65-71 Regional Connector, will help solidify future regional transportation investment decisions. Understanding the need for, feasibility of and benefits of a new corridor will enable KYTC, KIPDA and local governments to focus on the future investments that are truly the most impactful and regionally transformative.

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