Appendix C

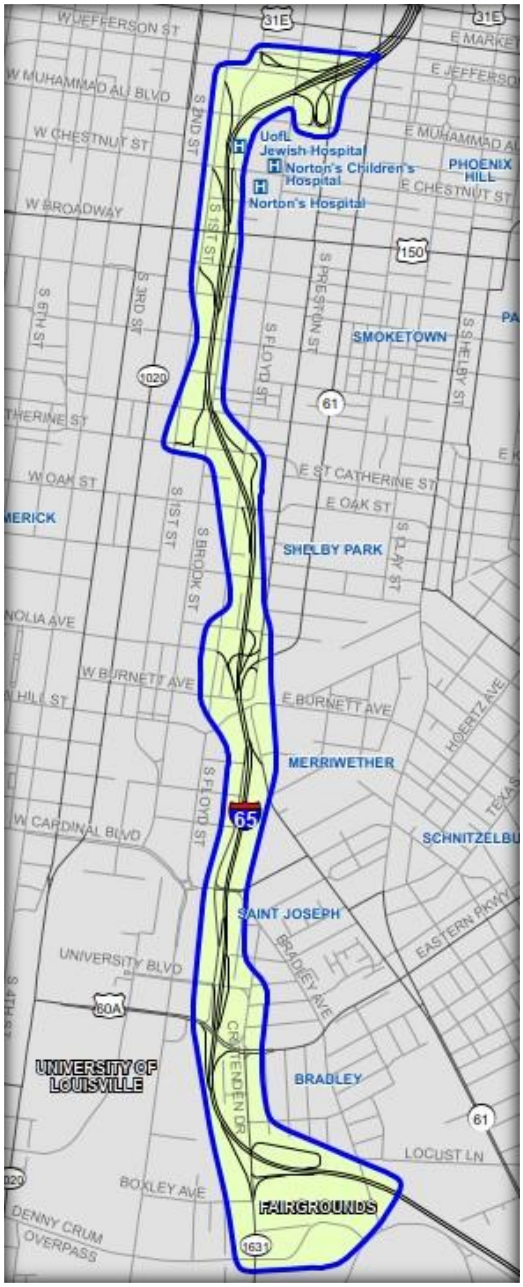
Environmental Overview

Jefferson County

I-65 Corridor Planning Study

From I-264 to Downtown Louisville

Item No. 5-569.00



Prepared for:

KENTUCKY TRANSPORTATION CABINET

KIPDA
Kentuckiana Regional Planning and Development Agency

In Partnership with:

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October 2021

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Acronyms & Abbreviations

ACS	American Community Survey
APE	Area of Potential Effects
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
KDOW	Kentucky Division of Water
KYTC	Kentucky Transportation Cabinet
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NO2	Nitrous Oxide
NPL	National Priorities List
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O3	Ozone
Pb	Lead
PM10	Particulate matter of 10 microns or less
PM2.5	Particulate matter of 2.5 micron or less
ROW	Right-of-way
RTP	Regional Transportation Plan
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
TIP	Transportation Improvement Plan
TRI	Toxic Release Inventory
UDWQ	Utah Division of Water Quality
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish & Wildlife Service
UST	Underground Storage Tank

EXECUTIVE SUMMARY

This report provides an overview of potential impacts to the human and natural environments anticipated for the study area for the I-65 Corridor Study (MP 131-136) in Jefferson County. The I-65 Corridor Study was initiated by the Kentucky Transportation Cabinet (KYTC) and the Kentuckiana Regional Planning Organization (KIPDA) to identify short-term and long-term improvement concepts that the Kentucky Transportation Cabinet may use for further development and implementation. The study area, shown in Figure 1, includes an approximate half-mile buffer radius surrounding the existing centerline of the I-65 study area.

The following is a summary of potential environmental concerns identified as part of the study:

- The Old Louisville Historic District is within the study area along with NRHP eligible properties
- Noise - adjacent land use is primarily residential
- Environmental Justice - Minority Populations/Low-income

1.0 ENVIRONMENTAL RED FLAG OVERVIEW

AECOM Technical Services, Inc. has prepared this Environmental Red Flag Overview as part of the I-65 Corridor Study (KYTC Item No 5-569.00) for the Kentucky Transportation Cabinet (KYTC). This environmental overview identifies issues likely to require consideration during preliminary design and NEPA evaluation of concepts advanced to project development identified as part of this study. It summarizes the results of several environmental investigations, based primarily upon literature, archival, known database, and map research. Limited amounts of fieldwork were conducted, consisting mainly of windshield surveys to confirm identified sites, and visually identify previously unknown sites. This environmental red flag overview does not provide a detailed analysis/assessment of any potential impacts. The study area is depicted in Figure 1.

1.1 PROJECT DESCRIPTION

In partnership with the Kentuckiana Planning and Development Agency (KIPDA), the Kentucky Transportation Cabinet (KYTC) initiated a corridor study for Interstate 65 (I-65) through downtown Louisville: from north of the I-264 interchange near milepoint (MP) 131 to Jefferson Street near MP 136.

The corridor study examines transportation needs related to safety and mobility, identifying practical, affordable solutions to address current needs.

The study's funding information in KYTC Project Manager's Toolbox is as follows:

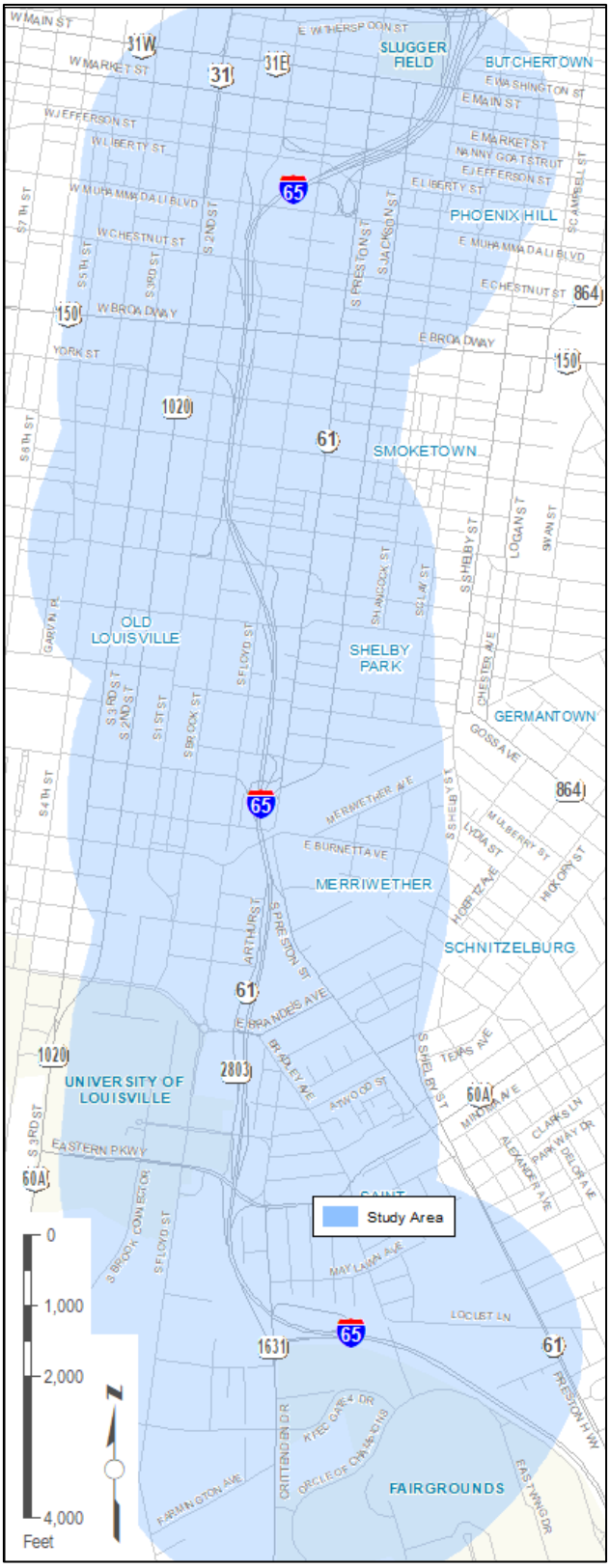
ITEM No.	DESCRIPTION	FUNDING	PHASE	YEAR	AMOUNT
05-569.00	OPERATIONAL AND ACCESS STUDY FOR I-65 CORRIDOR FROM I-264 (HENRY WATTERSON EXPRESSWAY) TO BROADWAY (US 150) IN DOWNTOWN LOUISVILLE (MP 131 TO MP 136) (2018BOP).	PL	Planning	2019	$500,000

1.2 PROJECT GOALS

The Kentucky Transportation Cabinet (KYTC) is conducting a planning study to identify long, medium, and short-term opportunities for:

- Increasing safety
- Improving local and regional mobility – by reducing congestion, streamlining traffic flow, and/or improving wayfinding – for passenger cars and freight trucks
- Optimizing usability of existing infrastructure
- Exploring opportunities to address bicycle and pedestrian needs and deficiencies through the various interchanges
- Developing practical, affordable solutions that are sensitive to the surrounding environmental and community needs

Figure 1. Study Area



1.3 PHYSIOGRAPHY AND TOPOGRAPHY

The project corridor is in Jefferson County, Kentucky. Jefferson County is situated in the New Providence Shale Member of the Mississippian Age Borden Formation.

The subject area is located within the Bluegrass Section of the Interior Low Plateaus physiographic province (USGS, 2020), a gently rolling plain of the eastern United States.

The United States Geological Survey 7.5-minute topographic maps of the New Albany, Indiana, Jeffersonville, Indiana, Louisville West, Kentucky, and Louisville East, Kentucky quadrangles indicate that the project area elevations range from 440 to 500 feet (USGS 2019). Surface topography in the subject area gradually rises in elevation as you travel to the north along I-65, with heavily developed areas throughout the subject area, including both residential and commercial properties. The study area includes man-made surface water flow influences (e.g. storm water drains, swales, and drainage ditches), which captures and diverts flow through the combined sewer system. The average annual precipitation in the study area is approximately 44 to 48 inches. The average annual runoff in undeveloped areas is approximately 15 to 20 inches (Lloyd and Lyke, 1995).

1.4 GEOLOGY AND SOILS

Based on review of the Geologic Quadrangle Map of Jeffersonville, New Albany, and Charlestown, and Geologic Quadrangle Map of Louisville West and Lanesville, the northern portion of I-65 from Muhammad Ali Boulevard to the vicinity of East Lee Street is predominantly underlain by Quaternary Age glacial outwash deposits. Occasional areas of artificial fill likely associated with original construction of I-65 and surrounding developments is indicated on the geologic maps along the corridor of the project area. The outwash deposits are composed of intermixed and interbedded sand, gravel, silt and clay with thickness ranging from 55 to 115 feet. From the area of East Lee Street south to the vicinity of Audubon Park, the site is underlain by Quaternary Age loess and eolian sand deposits. These deposits are predominantly silt with sand as minor constituents, calcareous where fresh, and a thickness of at least 42 inches. A thicknesses of about 5 and 12 feet was observed farther east. The Geologic Quadrangle Map of Louisville East indicates the southern portion of the project area extending from Audubon Park to the Watterson Expressway is underlain

by Sellersburg and Jeffersonville Limestones of Middle to Upper Devonian Age. The limestones include Beechwood Limestone Member, Silver Creek Limestone Member, and Jeffersonville Limestone. Generally, the limestone is fossiliferous with occasional chert bands, with thickness of 10 to 40 feet. The Beechwood limestone member is light to light greenish gray and weathers moderate yellowish brown to dark yellowish orange. Silver Creek limestone member is dolomitic, silty, color is light bluish gray; olive gray; and light greenish gray, and weathers pale yellowish brown; grayish yellow; and yellowish orange. Jeffersonville limestone member is olive; brownish; and medium to light gray in color, and weathers pale yellowish brown to very light gray and light yellowish gray.

The Kentucky Geologic Map Service online mapping was reviewed for geologic hazards including landslides, underground mines, and karst potential. Landslides were not mapped within the project area. Karst features and sinkholes are commonly associated with limestone and similar rocks susceptible to dissolution exposed to water. Sinkholes and karst features were not present within southern end of the project area. Sellersburg and Jeffersonville limestones are located within the portion north of I-65/I-264 Interchange, with the closest sinkhole mapped approximately 1.2 miles east of I-65. Limestones within this portion of the project area are classified as “intense”. Underground mining was not indicated within the project area.

Geotechnical structure reports near downtown Louisville, within the northern portion of the project, indicate friction piles extending into dense sand layers are recommended for moderate to heavily loaded structures and spread footings are recommended for lightly loaded structures. Borings completed near Muhammad Ali Boulevard typically encountered clay soils and fill material within the upper five feet, underlain by sand to boring termination depth. Bedrock was not encountered within the explored depths. The clay soils were visually described as being brown in color, moist in terms of natural moisture content, medium stiff to stiff in consistency, and containing varying amounts of sand and gravel. The fill material was described as consisting of a mixture of cobbles, boulders, concrete and brick remnants. Portions of the project area are located in downtown Louisville, and it is not uncommon to encounter man-made fill and debris from previous construction. The sand encountered in

the borings were visually described as being brown to gray in color, varying from fine- to medium-grained, and loose to dense. In general, the relative density of the upper 20 to 25 feet of the sand deposits can be described as loose. Below a depth of about 25 feet the sands grade into more dense sands and gravels.

The geotechnical structure reports within the vicinity of the Watterson Expressway and I-65 interchange typically included recommendations for foundations bearing on bedrock, with bridges typically utilizing spread footings and/or point bearing piles. The overall site topography was observed to be primarily flat to gently sloping. The majority of the roadway alignments along I-65 and I-264 appeared to be built near original grade with minor grading. More substantial grading was evident at interchange and bridge locations. The majority of the interchanges and bridges were constructed by raising the new roadways with fill over roadways and railroads that were previously constructed. The exception being the I-65 / I-264 Interchange, which was constructed predominately with cuts to lower I-264 below I-65. Bedrock in the area of this interchange appeared to consist primarily of limestone with a relatively shallow overburden comprised of fat clay and lean clay soils. The bedrock appeared to mostly be cut near-vertical with only minor degradation/weathering of the cut faces and with minor accumulation of fallen rock material at the cut bottoms. Fills were also apparent along I-65, north of the I-65 / I-264 Interchange. The fill slopes in the project area were judged to be graded at 2 horizontal to 1 vertical (2H:1V).

The subsurface conditions indicated in the reviewed reports are in general accordance with reviewed geologic mapping within project area.

Project grading information was not available at the time of this report. Excavations for roadways and foundations in the portion of the project north of Audubon Park are anticipated to encounter sand, gravel, silt, and clay associated with outwash and loess deposits, and existing fill materials. Excavations south of Audubon Park and near the I-65/I-264 interchange will likely encounter existing fill materials, residual soils, and limestone bedrock.

Site specific design will be required for rock cut slopes in the area. Cut slopes in the area are typically near vertical in limestone encountered in the area.

California Bearing Ratio (CBR) values typically range from 2 to 6 for soils used as pavement subgrade in the area. CBR values should be confirmed with a site-specific laboratory testing program prior to design. Undercutting of limestone bedrock and placement of approved structural fill is common in the area to provide uniform subgrade conditions.

1.5 HYDROGEOLOGY

The Louisville Limestone of Silurian age and the Jeffersonville and Sellersburg Limestones of Devonian age are exposed in parts of Jefferson County including south-central area (Edwin A. Bell (1966). *Summary of Hydrologic Conditions of the Louisville Area, Kentucky*. Geological Survey Water-Supply Paper 1819-C), where the southernmost portion of the project site is located. The Silurian-Devonian aquifer is mapped in the study area and likely serves as a regional source for groundwater (Lloyd and Lyke, 1995) in bedrock. Groundwater in the Silurian-Devonian aquifer is generally stored in fractures, open pore spaces, and along bedding planes in limestone bedrock. A surficial aquifer system is present within the soils above bedrock. Water well records from monitoring wells shown mapped within the study area report uppermost groundwater between 3 and 13.5 feet below the ground surface (KGS 2014). Based on information provided by the Kentucky Geological Survey (KGS) and local topography, uppermost groundwater is likely encountered within 15 feet of the ground surface within the study area. Uppermost groundwater flow likely follows local topography, generally north/northwest.

2.0 NATURAL ENVIRONMENT

2.1 SURFACE WATER RESOURCES

No streams were identified in the study area, which includes one mile out from the I-65 centerline.

2.2 FLOODPLAINS

The Federal Emergency Management Agency (FEMA) website was reviewed for information regarding floodplains within the proposed corridors. Published information and GIS risk data was searched to identify potential floodplain encroachments within Jefferson County and the project area. The area within one mile of the corridor was reviewed and does not contain any flood hazard boundaries.

2.3 WETLANDS AND PONDS

No wetlands or ponds were identified in the study area, which includes one mile out from the I-65 centerline.

2.4 GROUNDWATER RESOURCES AND PUBLIC WATER SUPPLIES

There are 31 identified wells within the study area. Among the wells identified, 29 are listed as active monitoring wells, one as a plugged monitoring well, and the remaining well is of unknown status and use. Five wells located northwest of the intersection of South Park Road and Minor Lane may be impacted by the proposed alternatives. Several water and sewer lines are present within the area and will require further evaluation during Phase I design. The water and sewer lines are under the jurisdiction of the Louisville Water Company and Metropolitan Sewer District, respectively.

2.5 THREATENED AND ENDANGERED SPECIES

The U.S. Fish and Wildlife Service (USFWS) lists fourteen endangered species and three threatened species that may be present within Jefferson County and are shown below in Table 1. The USFWS's Information for Planning and Conservation (IPaC) website was used to obtain an official list of species that may occur within the vicinity of the proposed project.

Table 1. Endangered and Threatened Species, Jefferson County, Kentucky

Group	Common Name	Scientific Name	Status
Birds	Least tern	Sterna antillarum	Endangered
Clams	Pink mucket (pearlymussel)	Lampsilis abrupta	Endangered
Clams	Rough pigtoe	Pleurobema plenum	Endangered
Clams	Orangefoot pimpleback (pearlymussel)	Plethobasus cooperianus	Endangered
Clams	Ring pink (mussel)	Obovaria retusa	Endangered
Clams	Fat pocketbook	Potamilus capax	Endangered
Clams	Spectaclecase (mussel)	Cumberlandia monodonta	Endangered
Clams	Rayed Bean	Villosa fabalis	Endangered
Clams	Clubshell	Pleurobema clava	Endangered
Clams	Fanshell	Cyprogenia stegaria	Endangered
Clams	Snuffbox mussel	Epioblasma triquetra	Endangered
Clams	Rabbitsfoot	Quadrula cylindrica	Threatened
Flowering Plants	Kentucky glade cress	Leavenworthia exigua laciniata	Threatened
Flowering Plants	Running buffalo clover	Trifolium stoloniferum	Endangered
Mammals	Indiana bat	Myotis sodalis	Endangered
Mammals	Gray bat	Myotis grisescens	Endangered
Mammals	Northern Long-Eared Bat	Myotis septentrionalis	Threatened

Source: USFWS https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=21111

Although the species is present in Jefferson County, this project is not within an Indiana Bat habitat colony. Section 7 coordination will be required during project development of advanced improvements.

3.0 HUMAN ENVIRONMENT

3.1 SOCIAL AND ECONOMIC RESOURCES

Cemeteries – 20 Cemeteries are found within the study area.

Churches/House of Worship – 42 places of worship have been identified within the study area.

Day Care – 27 Day Care facilities are located within the study area.

Fire Departments and Emergency Services – The Louisville Metro Fire Department has two stations within the study area. Louisville MetroSafe is located within the study area.

Hospitals – Seven hospitals are identified within the study area.

Law Enforcement – Louisville Metro Police has four facilities within the study area.

Schools, Institutions, and Learning Centers – 19 schools are located within the study area, including three higher education facilities (universities/colleges).

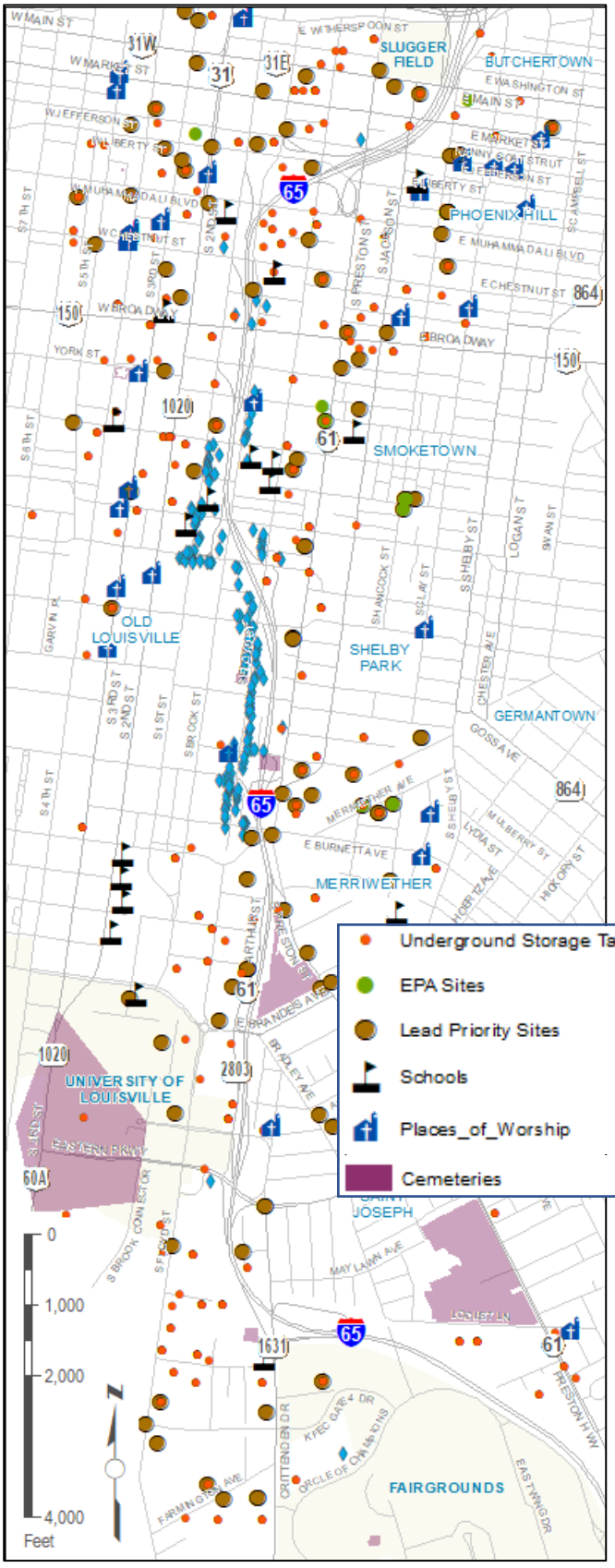
Industrial Parks –There are no industrial parks within the study area.

Federal Facilities –No federal facilities are located within the study area. However, the US Courthouse is located on Broadway between 6th and 7th Streets. The Federal Building is located directly behind the Courthouse.

Golf Courses – No golf courses are located within the study area.

The resources identified above are not anticipated to be directly impacted by proposed improvements. Short-term impacts such as traffic

Figure 2. Human Considerations



detours may occur. Further evaluation will be required if concepts move into project development.

3.2 ARCHAEOLOGICAL AND CULTURAL HISTORIC RESOURCES

Information was requested from the Kentucky Heritage Council and Office of State Archeology regarding resources within the study area.

3.2.1 Archaeological Resources

A request for site information within the study corridor was sent to the Kentucky Office of State Archaeology (OSA). The following is a summary of information provided by the OSA.

- Multiple Phase II/III sites are within the study corridor – most of these sites were associated with the Louisville Bridges (Lincoln Bridge) project.
- There are no preliminary sites within the study area.

I-65 was constructed within the study area on fill or structure. Areas within the right of way were likely disturbed by previous construction activities. Further coordination regarding archaeological resources will be required in project development.

The information listed above was obtained from documentation from the Office of State Archaeology under Project Registration #FY21-11061 for this project.

3.2.2 Cultural Historic Resources

A request for site information within the study corridor was sent to the Kentucky Heritage Council (KHC). The following is a summary of information provided by the KHC.

- National Register Historic Districts - 4

  Old Louisville Residential District

  District #1

  Preston-St. Catherine Street Historic District

  First Street District
- KHC Historic Resources - 188

  162 - NR District Contributing

  7 - NRHP Listed

  1- Part of a National Register Complex

  1 - NR Eligible

  17 - NR Status undetermined

- KHC Large National Register Sites -14
- KHC Easement Properties - 1

The study corridor has significant NRHP Historic Districts and Individually listed properties. Section 106 review and coordination will be required in project development.

The information listed above was obtained from the Full Site Check data from the Site Identification Program requested from the Kentucky Heritage Council (KHC) for the I-65 Scoping Study through Project Registration #: FY21-4067. This document is available upon request.

3.3 SECTION 4(F) AND SECTION 6(F) FACILITIES

The study corridor includes National Register Historic Districts, National Register Historic Properties and several park facilities. 4(f) considerations may need to be addressed in project development.

According to the Land Water and Conservation Map (LWCF); 3 LWCF resources within the project environmental corridor utilized Funds. The resources are as follows:

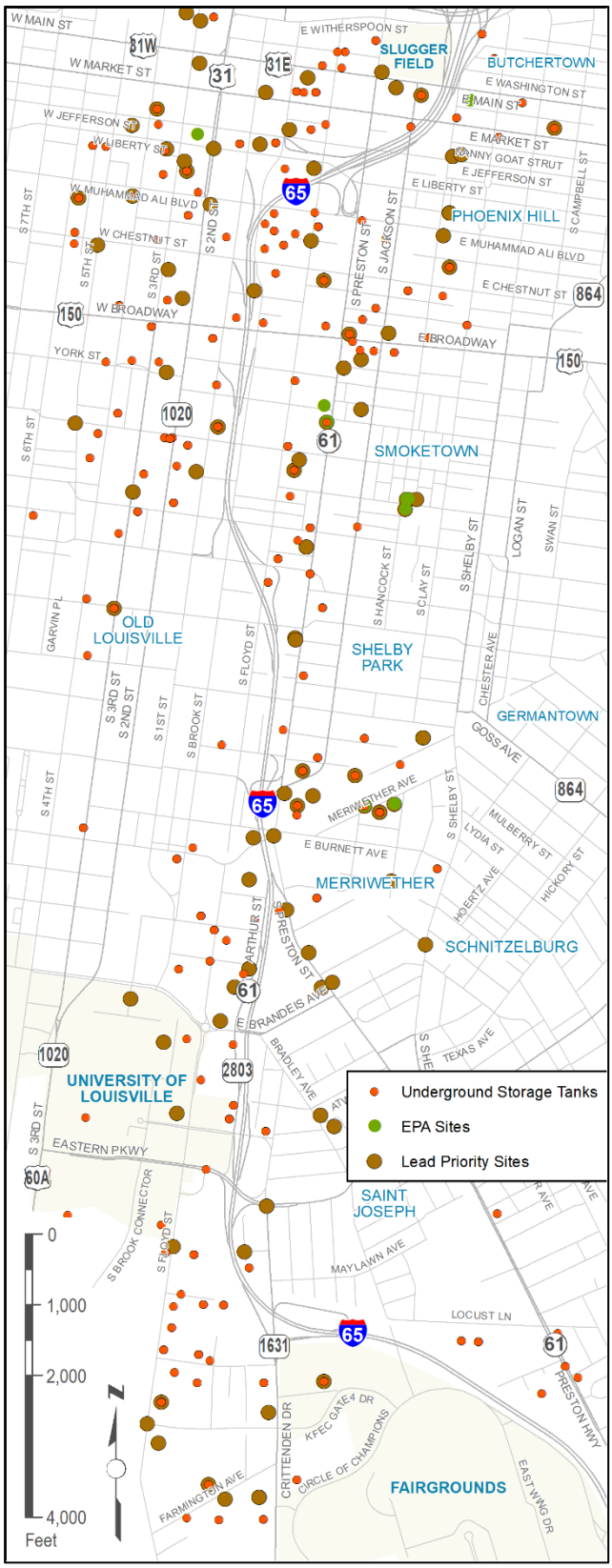
- Stansbury Park (1972)
- Central Park (1972)
- Tom Thumb Pools (1983)

These resources are not anticipated to be impacted by the proposed improvements. Therefore, 6(f) considerations are not likely during future project development.

3.4 HAZARDOUS MATERIALS

A review of environmental databases identified underground storage tanks, Environmental Protection Agency (EPA) sites, and lead priority sites nearby the I-65 Corridor, they are shown in Figure 3 to the right. Within a half-mile buffer, 494 underground storage tank (UST) site locations are present with 46 of them listed as active sites. In addition, 10 EPA sites have been identified with three considered cleanup sites and the rest in assessment. Lead priority sites have been identified within one mile of the project area. 108 lead priority sites were found, 80 of them are closed, 8 are managed, and 20 are currently active. Further investigation will be necessary during project development.

Figure 3. Underground Storage Tanks & EPA Sites



3.5 AGRICULTURE

No land has been identified within the study area, according to the United States Department of Agriculture's (USDA) Prime and Unique Farmland data. The study area is urban.

3.6 MINING

There are no identified mining activities within the study area.

3.7 AIR QUALITY AND NOISE

3.7.1 Air Quality

Pollutants impacting air quality are generated by a wide variety of sources and enter the air, water, and soil through different types of media. Table 2 contains standards for six principal pollutants, based on The Clean Air Act of 1990, which sets standards for national ambient air quality standards.

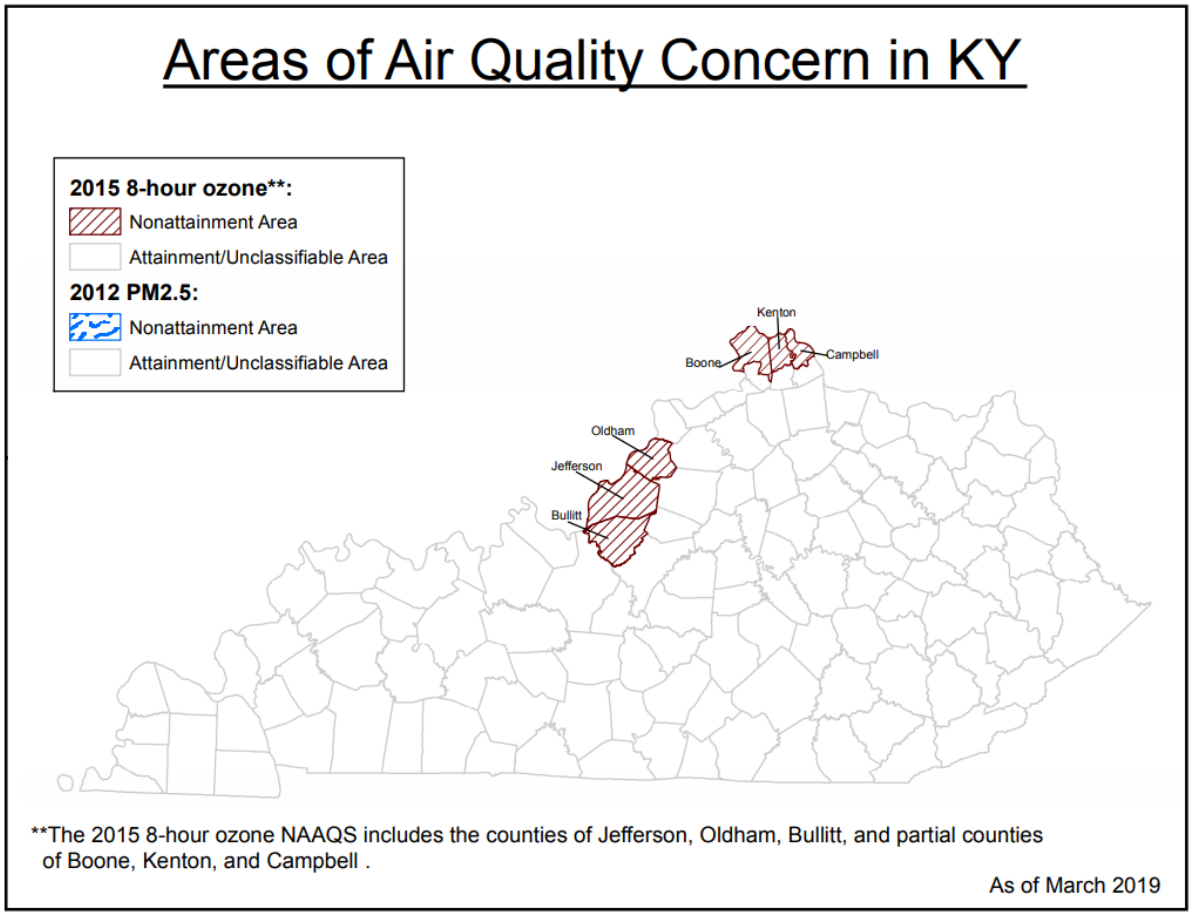
Table 2. National Ambient Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)	primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

Table 2. National Ambient Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb [(4)]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Figure 4. Areas of Air Quality Concern in KY



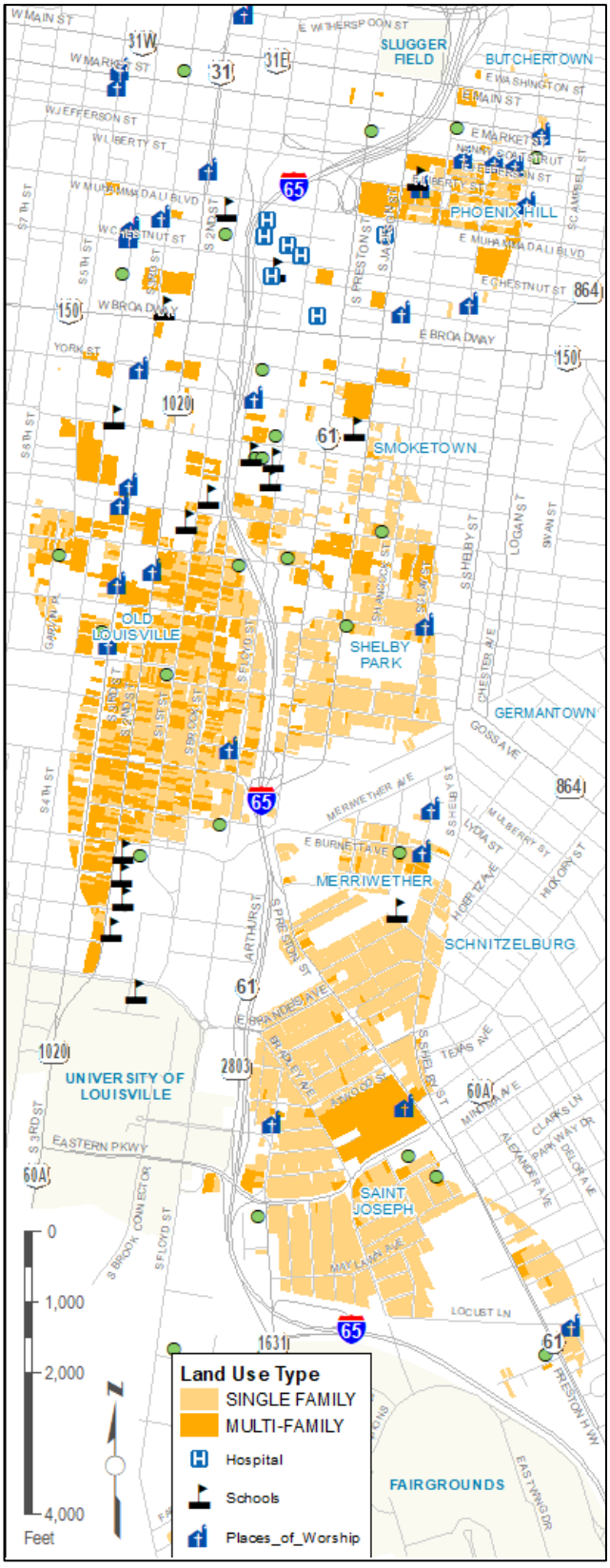
Map from: https://transportation.ky.gov/Planning/Pages/Air-Quality.aspx

Jefferson County is designated nonattainment for 8-Hour Ozone (2015), as per the 1990 Clean Air Act Amendments. The project is not currently listed in the Kentuckiana Planning and Development Agency (KIPDA) FY 2014-FY 2017 Transportation Improvement Program or in KIPDA's Long-Range Metropolitan Transportation Plan – Horizon 2035, Adopted in August 2014. Further advancement of this project would require more detailed analysis and interagency review, and would be dependent on the alternatives selected to move forward.

3.7.2 Noise

Highway noise impacts are a quality of life consideration along Interstate highways. I-65 was constructed pre-NEPA, therefore noise was not considered at that time. Within the study area, urban neighborhoods, hospitals, schools, churches, and daycare facilities are present. These receptors within the 1-mile environmental overview buffer area have been identified in Figure 5. Future phases of any concept recommended for further development may require a technical evaluation of existing and future noise impacts based on a KYTC Noise Policy for Type I projects. Projects meeting Type I criteria will be evaluated to determine if noise abatement measures are feasible and reasonable according to the Policy.

Figure 5. Noise Receptors



3.8 SOCIOECONOMIC DATA AND ENVIRONMENTAL JUSTICE

3.8.1 What is Environmental Justice?

The US Environmental Protection Agency (US EPA) Office of Environmental Justice (EJ) defines EJ as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies."

Further, it describes fair treatment: "Fair treatment means that no group of people, including racial, ethnic, or socio-economic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, and local and tribal programs and policies."

The National Environmental Justice Advisory Council (NEJAC) suggestions for meaningful public involvement include: 1) encourage public participation in all aspects of environmental decision making, 2) encourage active community participation, 3) institutionalize public participation, 4) recognize community knowledge, and 5) utilize cross-cultural formats and exchanges.

While exact thresholds or benchmarks have not been established and there is no further guidance on what "elevated" percentages of disadvantaged populations mean, for the purpose of this study "disproportionately high and adverse effect on a minority or low-income population" mean an adverse effect that

1) Is predominately borne by a minority population and/or low-income population, or

2) Will be suffered by the minority population and/or low-income population and is appreciable more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

3.8.2 Definitions

USDOT Order 5610.2 on EJ issued in the April 15, 1997 Federal Register, defines what constitutes low-income and minority population.

Low-Income is defined as a person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines.

Minority is defined as a person who is: (1) Black, (2) Hispanic, (3) Asian American, or (4) American Indian and Alaskan Native.

Low-Income Population is defined as any readily identifiable group of low-income persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient persons who will be similarly affected by a proposed DOT program, policy, or activity.

Minority Population is defined as any readily identifiable group of minority persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient persons who will be similarly affected by a proposed DOT program, policy or activity.

Elderly Population is defined as people aged 65 and over.

Disabled Population is defined as people with hearing, vision, cognitive, ambulatory, self-care, or independent living difficulty. For the purposes of this analysis, the disabled population only includes individuals between 20 and 64 years old.

Limited English Proficiency (LEP) is defined as people with limited or zero ability to speak English. For the purposes of this analysis, the LEP population only includes individuals 5 years and older.

Census Tract is a small, relatively permanent statistical subdivision of a county or statistically equivalent entity delineated for data presentation purposes by a local group of census data users or the geographic staff of a regional census center in accordance with Census Bureau guidelines. Tracts generally contain between 1,000 and 8,000 people. Tract boundaries are delineated with the intention of being stable over many decades, so they generally follow relatively permanent visible features. They may also follow governmental unit boundaries and other invisible features in some instances; the boundary of a state or county is always a census tract boundary.

Block Group is a statistical subdivision of a Census Tract. A block group is generally defined to contain between 600 and 3,000 people and is used to present data and control block numbering. A block group covers a contiguous area.

3.8.3 Socioeconomic Data

Socioeconomic data for the Jefferson County and Census Tract Block Groups within the environmental analysis study area (1-mile) were obtained to determine potential Environmental Justice Issues. Figure 6 identifies the Census Block Groups and Census Tracts from the Census Bureau American Community Survey 2015-2019. Table 3 provides a summary of the Census Block Groups within the Study Area in comparison to the United States, Kentucky, and Jefferson County.

3.8.4 Minority Populations

The percentage of persons that are Minority in the United States (23.7%) is higher than that of the state of Kentucky (12.5%). The Minority population in Jefferson County (28.2%) is more than that of the state of Kentucky and of the United States. 18 of the 36 Block Groups have higher Minority population than the country, state, and county. 11 of the 36 Block Groups have lower Minority population than the country, state, and county.

3.8.5 Poverty Populations

The percentage of persons that live in poverty in the United States (13.4%) is lower than that of the state of Kentucky (16.3%). The percentage of persons below the poverty rate in Jefferson County (14.0%) is less than that of the state of Kentucky but higher than that of the United States. 23 of the 36 Block Groups have higher percentages of persons living in poverty than the country, state, and county. 13 of the 36 Block Groups have lower percentages of persons living in poverty than the country, state, and county.

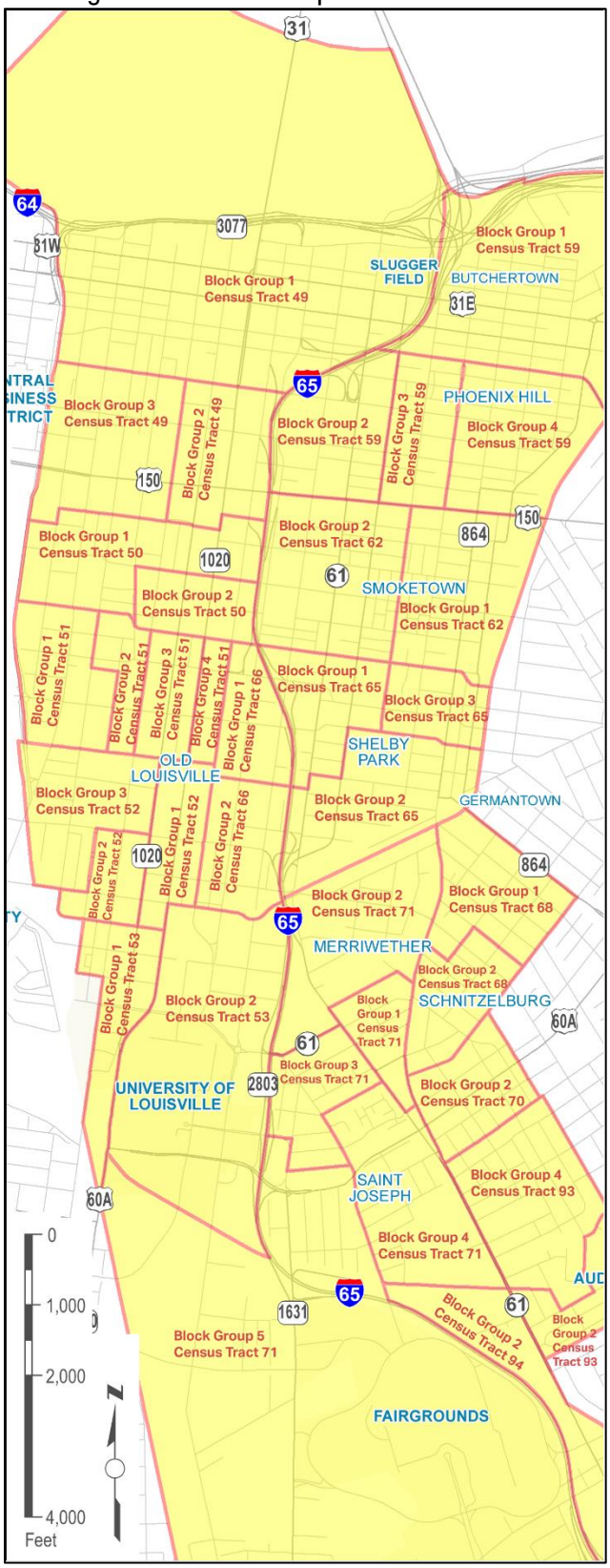
3.8.6 Elderly Populations

The percentage of persons that are elderly in the United States (16.5%) is slightly lower than that of the state of Kentucky (16.8%). The percentage of elderly persons in Jefferson County (16.7%) is slightly lower than that of the state of Kentucky and slightly higher than that of the United States. 9 of the 36 Block Groups have higher percentages of elderly populations than the country, state, and county. 27 of the 36 Block Groups have lower percentages of elderly populations than the country, state, and county.

3.8.7 Disabled Populations

The percentage of disabled persons in the United States between the ages of 20 and 64 (10.4%) is lower than that of the state of Kentucky (16.8%). The percentage of disabled persons under the age of 65 in Jefferson County (13.3%) is less than that of the state of Kentucky and more than that of the United States. 19 of the 36 Block Groups have higher percentages of disabled populations than the country, state, and county. 6 of the 36 Block Groups have lower percentages of disabled populations than the country, state, and county.

Figure 6. Block Groups and Census Tracts



3.8.8 Limited English Proficiency Populations

The percentage of limited English proficiency persons in the United States age 5 and older (4%) is higher than that of the state of Kentucky (0.6%). The percentage of limited English proficiency persons 5 and older in Jefferson County (1.2%) is more than that of the state of Kentucky and less than that of the United States. 0 of the 36 Block Groups have higher percentages of limited English proficiency populations than the country, state, and county. 28 of the 36 Block Groups have lower percentages of limited English proficiency populations than the country, state, and county.

Table 3 on the on page 26 provides data related to minority, elderly, low-income, disabled, and low English proficiency populations by Block Groups and Census Tracts within the study area. Figure 6, on page 24 displays the Block Groups and Census Tracts spatially throughout the study area.

Table 3. Census Tract Block Groups within the Study Area

	Total Population for Minority and 65 and Over	Minority	65 and Over	*Population for Poverty Data	Poverty	**Total Population for Disabled Data	Disabled	***Total Population for LEP	LEP
Unites States	328,239,523	23.7%	16.5%	316,715,051	13.4%	188,592,291.0	10.4%	12,926,141	4%
Kentucky	4,467,673	12.5%	16.8%	4,326,675	16.3%	2,525,460.0	16.8%	44,679	0.6%
Jefferson	776,757	28.2%	16.7%	750,585	14.0%	446,738.0	13.3%	13,373	1.2%
Block Group and Census Tract	Total Population for Minority and 65 and Over	Minority (B02001)	65 and Over (B09020)	*Population for Poverty Data	Poverty (B17021)	**Total Population for Disabled Data	Disabled (B23024)	***Total Population for LEP	LEP (B16004)
Block Group 1, Census Tract 49	2901	48.9%	4.6%	762	26.0%	585	29.6%	2901	0.41%
Block Group 2, Census Tract 49	1008	38.3%	14.5%	1008	35.3%	836	21.8%	1008	1.2%
Block Group 3, Census Tract 49	502	71.7%	32.1%	502	61.0%	281	29.9%	502	0%
Block Group 1, Census Tract 50	736	68.6%	9.1%	736	12.5%	477	12.8%	683	0%
Block Group 2, Census Tract 50	1170	48.5%	41.3%	890	55.4%	354	42.1%	1084	0%
Block Group 1, Census Tract 51	540	37.8%	8.7%	540	35.6%	434	23.5%	540	0.74%
Block Group 2, Census Tract 51	629	43.4%	38.0%	629	51.5%	390	38.2%	629	0%
Block Group 3, Census Tract 51	1313	22.0%	32.5%	1256	28.7%	678	54.3%	1199	0%
Block Group 4, Census Tract 51	316	5.1%	14.9%	316	7.3%	269	26.8%	316	0%
Block Group 1, Census Tract 52	985	9.3%	17.0%	985	35.4%	755	15.8%	985	0%
Block Group 2, Census Tract 52	1096	46.9%	9.3%	1096	30.0%	907	9.0%	1072	0%
Block Group 3, Census Tract 52	1058	35.0%	13.6%	1058	19.1%	697	9.5%	976	2.4%
Block Group 1, Census Tract 53	2717	28.4%	0.5%	1421	50.7%	1236	10.8%	2688	0%
Block Group 2, Census Tract 53	697	25.3%	0.0%	0	0.0%	0	0.0%	697	2.6%
Block Group 1, Census Tract 59	827	13.1%	16.9%	743	24.4%	513	17.9%	777	0%
Block Group 2, Census Tract 59	2005	66.3%	12.1%	1624	68.3%	1312	66.2%	1993	1.3%
Block Group 3, Census Tract 59	670	91.2%	15.2%	670	15.1%	410	27.1%	670	0%
Block Group 4, Census Tract 59	1411	67.4%	3.6%	1411	36.4%	1015	23.3%	1243	0%
Block Group 1, Census Tract 62	859	66.4%	3.6%	859	9.9%	567	34.2%	837	0%
Block Group 2, Census Tract 62	1538	77.0%	5.8%	1526	40.0%	986	22.1%	1352	0.7%
Block Group 1, Census Tract 65	1391	66.3%	4.5%	1369	60.0%	797	27.2%	1201	0%
Block Group 2, Census Tract 65	1099	40.9%	9.0%	1099	22.5%	851	21.3%	1058	1.0%
Block Group 3, Census Tract 65	551	58.3%	9.6%	551	38.8%	350	28.3%	507	0%
Block Group 1, Census Tract 66	794	17.4%	12.2%	785	25.0%	680	22.8%	794	0%
Block Group 2, Census Tract 66	1031	15.1%	10.9%	1031	34.4%	811	16.5%	975	0%
Block Group 1, Census Tract 68	1251	12.2%	11.4%	1251	11.3%	969	4.2%	1217	0%
Block Group 2, Census Tract 68	925	10.2%	10.1%	925	14.4%	682	4.7%	836	0%
Block Group 2, Census Tract 70	816	9.1%	11.6%	816	18.6%	594	12.1%	777	0%
Block Group 1, Census Tract 71	399	3.8%	12.8%	399	10.5%	319	2.2%	399	0%
Block Group 2, Census Tract 71	1180	21.2%	8.1%	1150	29.8%	845	10.1%	1025	0%
Block Group 3, Census Tract 71	1041	9.8%	9.1%	1041	6.4%	786	18.6%	995	0%
Block Group 4, Census Tract 71	1320	20.5%	4.8%	1320	6.4%	1072	8.5%	1269	1.4%
Block Group 5, Census Tract 71	659	5.2%	25.3%	659	35.7%	458	8.1%	659	0%
Block Group 2, Census Tract 93	1368	5.0%	12.4%	1352	3.3%	1014	11.4%	1257	0.6%
Block Group 4, Census Tract 93	1521	8.0%	19.4%	1521	7.6%	903	11.7%	1396	0%
Block Group 2, Census Tract 94	1064	1.1%	16.9%	1064	15.9%	794	9.2%	1035	0%

Data universe only includes population for whom poverty status is determined
**Data universe only includes population between 20 to 64 years for whom poverty status is determined*
***Data universe only includes populations 5 years and over*

3.9 ADDITIONAL ITEMS OF CONCERN

3.9.1 Permits

The following permits are likely to be required for the route:

- General Permit for Stormwater Discharges Associated with Construction Activities (KYR10)

Construction cannot begin until permits are issued by regulatory agencies.

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