

APPENDIX C:

ENVIRONMENTAL OVERVIEW



Environmental Overview

Feasibility Study for New Route
Between US 27 and I-75
Fayette, Jessamine, and
Madison Counties, Kentucky
KYTC Item No. 7-249.00

Prepared for
Kentucky Transportation Cabinet
March 20, 2008

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200 Mero Street
Frankfort, KY 40622

March 20, 2008

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Environmental Analysis & Restoration

Executive Summary

The Kentucky Transportation Cabinet is undertaking a feasibility study for a new route between US 27 and I-75 in central Kentucky. The study area being examined for this new route includes portions of three Kentucky counties: Jessamine, Fayette, and Madison counties.

As a subconsultant to PB Americas, Inc., Third Rock Consultants, LLC (Third Rock) has been asked to prepare portions of an environmental overview (EO) to highlight potential environmental concerns within the study area. Third Rock's areas of responsibility for the EO include aquatic resources, threatened and endangered species, air quality, traffic noise, and underground storage tanks and hazardous materials.

Third Rock conducted desktop research and a limited field reconnaissance in an effort to identify potential areas of environmental consideration. For Third Rock's areas of responsibility the following considerations were identified.

Numerous aquatic resources are located within the study area. The Kentucky River traverses the entire study, approximately midway, from northeast to southwest. Major tributaries of the Kentucky River include Tate Creek, South Elkhorn Creek, Silver Creek, Jessamine Creek, Boone Creek, Hickman Creek, and Paint Lick Creek. Hine's Creek, a small tributary to the Kentucky River, has been designated an exceptional water and reference reach by the Kentucky Division of Water.

Similarly, numerous wetlands are shown on National Wetland Inventory mapping throughout the study area. The majority of potentially naturally occurring wetlands occur along South Elkhorn, Silver Creek, and Paint Lick Creek with a few additional wetlands scattered relatively evenly throughout the study area.

The Kentucky River Palisades, a series of steep gorges running approximately 100 miles from Clay's Ferry to Frankfort, is included in the study area. Because the palisades are a unique formation in the region, several nature preserves have been established along the Kentucky River to protect habitat.

The study area lies within an active karst area. Water quality and endangered species habitat is a consideration in such areas.

Threatened and endangered species habitat does exist throughout the study area. Species of concern include Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), and running buffalo clover.

The study area is part of the Bluegrass Intrastate Air Quality Control Region. All counties included in the study area are currently designated in attainment for all transportation related air pollutants. However, if any proposed roadway locations pass through portions of Fayette County, the PM_{2.5} National Ambient Air Quality Standard should be considered.

From a traffic noise impact perspective, numerous sensitive receptors exist in the study area. Nature preserves, state historic sites, along with multiple churches, schools, and cemeteries are potentially sensitive noise receptors. Churches schools, and cemeteries are scattered throughout the study area but are concentrated, along with the residential areas, in the suburban areas in Wilmore, Nicholasville, Richmond, and southern Lexington.

Database information indicates the potential for numerous underground storage tanks and hazardous materials sites throughout the study area with concentrations to be found around the urban areas and along US 27. Sites may include water wells, oil wells, gas wells, and industrial sites among others. Three mapped landfills are also located within the study area. Two landfills are located near the cities of Richmond and Wilmore with the third located along Jacks Creek Pike in Fayette County.

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APPENDIX

APPENDIX A – Natural Resource Agency Information

I. INTRODUCTION

The Kentucky Transportation Cabinet project is a feasibility study for a new route between US 27 and I-75. The study area extends across Jessamine, Fayette, and Madison counties, Kentucky (Exhibit 1, page 11).

Third Rock Consultants, LLC (Third Rock) has been asked to prepare portions of an environmental overview (EO) to highlight potential environmental concerns within the study area. Third Rock's areas of responsibility for the EO include aquatic resources, threatened and endangered species, air quality, traffic noise, and underground storage tanks and hazardous materials. Third Rock prepared its sections using desktop resources supplemented by limited field reconnaissance.

II. ENVIRONMENTAL SETTING

The study area is sizable. Along its westernmost boundary, the study area roughly parallels US 68 to the east from just north of Man O' War Boulevard in Lexington, Fayette County to south of Wilmore in Jessamine County. The easternmost boundary parallels I-75 two to three miles to the east from south of US 60 in Lexington to south of the city of Richmond in Madison County. The northernmost boundary parallels Man O' War Boulevard from US 68 to I-75 within Lexington. The southernmost boundary extends from south of Wilmore, moves in a southeasterly direction, and ends with the area south of the city of Richmond.

The study area is located in the Inner Bluegrass of the Bluegrass Region. This rolling plateau extends south from the Ohio River to Lebanon, Richmond, and Mount Sterling where the topography becomes decidedly more rugged (The Knobs). Elevations in the project area range from approximately 500 feet to 1,300 feet above sea level.



Rolling Farmland

While much of the area is rural, several larger cities including the suburbs of Lexington, all of Nicholasville, and most of Wilmore and Richmond city boundaries are encompassed by the study area boundary. Fayette and Jessamine Counties are well known for raising high quality racehorses. Additional farming in the region includes burley tobacco, corn, barley and wheat. Some small, scattered wooded areas are present especially along southern Jessamine County where steep terrain may inhibit conversion of the land to agricultural use (*e.g.*, along the Kentucky River).

The Inner Bluegrass experiences cold winters and hot, humid summers. January is typically the coldest month, with average maximum and minimum temperatures of 41.1 degrees Fahrenheit (°F) and 24.2°F, respectively; July is usually the hottest month with average maximum and minimum temperatures of 85.9°F and 65.9°F, respectively. Annual precipitation averages approximately 45.31 inches with an annual average growing season of 170 days (>32 degrees, 9 years in 10).

Upper and Middle Ordovician aged members of Lexington Limestone are the predominate rocks outcropping in the study area. Numerous small abandoned limestone quarries are present throughout the area, an indication of the importance of limestone to early settlers for use

in buildings and fences. Currently, only one large active quarry exists in the study area (Elk Lick Falls Road between Athens and Clay's Ferry Bridge). Oil and gas pursuits in the area have been minimal with limited testing indicating a low abundance of these resources. Several faults occur in the area, the largest of which occurs along the Kentucky River.



Cave Below Clays Ferry, Kentucky River

The northern half of the study area (north of the Kentucky River) is located in a region with high karst potential. However, further south in the Inner Bluegrass and across the Kentucky River a transitional zone is reached (Outer Bluegrass) and the possibility for karst decreases (though some potential still remains).

III. AQUATIC RESOURCES

The study area is located entirely in the Lower Fork of Kentucky River sub-basin (HUC# 05100205) in the Kentucky River watershed. In addition to the Kentucky River, the study area encompasses several major tributaries of the Kentucky River, including Tate Creek, South Elkhorn Creek, Silver Creek, Jessamine Creek, Boone Creek, Hickman Creek, and Paint Lick Creek (Exhibit 2, page 12). Streams in this region are generally characterized by a bedrock, boulder, and cobble substrate. Distribution of streams is relatively even throughout the study area with three located to the north and three to the south of the Kentucky River. Smaller

intermittent and ephemeral streams are also abundant. Hine's Creek, a small tributary to the Kentucky River, may warrant special attention as it has been designated an exceptional water and reference reach by the Kentucky Division of Water (KDOW). As an exceptional water, the creek's quality exceeds that which is necessary to support the propagation of fish, shellfish, wildlife, and recreation in and out of water. As a reference reach, Hine's Creek is part of a representative subpopulation of the least impacted streams in a region. As a reference reach, the creek can be used as a chemical, physical, and biological model to ascertain the level of impairment of similar streams in its bioregion. The creek is located immediately south of the Kentucky River and adjacent to the I-75 bridge crossing.



Tate Creek



Silver Creek



Hickman Creek



Boone Creek

Approximately 28 miles of the Kentucky River lie within the study area. The large perennial river crosses the study area, running northeast to southwest, essentially dividing it in half. Of the 14 locks located on the river, Lock and Dam 9 is located within the study area downstream of Valley View. There are relatively few river crossings in the area due to the Kentucky River Palisades, a series of steep gorges running approximately 100 miles from Clay's Ferry to Frankfort. Additionally, because the palisades are a unique formation in the region, many nature preserves have been established along the Kentucky River to protect this habitat.

Few natural wetlands were observed during a windshield reconnaissance conducted in late July 2007. Excluding the two large reservoirs in the study area (Lexington Reservoir No. 4 to the

north and Taylor Fork Lake to the south) 82 percent of the wetlands exhibited on National Wetland Inventory (NWI) mapping were small farm ponds which may have wetland margins (PUBH or PUBHh) (Exhibit 2, page 12). The majority of potentially naturally occurring wetlands occur along South Elkhorn, Silver Creek and Paint Lick Creek with a few additional wetlands scattered relatively evenly throughout the study area. Some naturally occurring wetlands may be found in poorly drained sinkholes and may not have shown up as wetlands on the NWI mapping. Due to the limited scope of the field reconnaissance and the large study area, the vast majority of these wetlands were not field verified and none were delineated. Only those wetlands labeled as forested, scrub shrub, or emergent on NWI mapping are shown as wetland on Exhibit 2 (page 12.)



Lock and Dam 9, KY River



Valley View Ferry Mid River



Open Wetland

Crossings of the Kentucky River and impacts to Hine's Creek warrant special attention. The palisades found along the Kentucky River in the study area make bridge crossings difficult, as relatively deep gorges may require large, tall bridge crossings. Hine's Creek (located immediately south of the Kentucky River and adjacent to the I-75 bridge crossing) has been designated an exceptional water and a reference reach by the KDOW.

Impacts to aquatic resources are likely for any construction activities in the study area. Any new stream crossings or improvements to existing stream crossings may create temporary impacts or permanent alterations that may require US Army Corps of Engineers Section 404 and Kentucky Division of Water Section 401 permits. Impacts to wetlands are also likely with new construction in the study area. Any wetlands to be impacted by a proposed roadway project should be delineated. Wetlands determined to be jurisdictional will need to be verified by the US Army Corps of Engineers (USACE). Elimination of stream or wetland habitat may require mitigation.

The study area lies within an active karst area. The Kentucky Transportation Cabinet, Division of Environmental Analysis has issued a Policy Paper (Design Memorandum No. 12-05, July 27, 2005), which states that best management practices (BMPs) for karst and significant

resource areas must be followed. These BMPs are intended to improve long-term water quality and to protect endangered species such as the Indiana and gray bats, as well as a variety of mussel species.

IV. THREATENED AND ENDANGERED SPECIES

The United States Fish and Wildlife Service (USFWS) lists 4 federally listed species for one or more of the three counties included in the study area. The list includes two mammals, Indiana bat (*Myotis sodalis*) and gray bat (*Myotis grisescens*); one plant species, running buffalo clover (*Trifolium stoloniferum*); and one insect species, American burying beetle (*Nicrophorus americanus*). All are listed as federally endangered. Yet, due to an informal agreement between the USFWS and KYTC, no habitat exists for American burying beetle in Fayette County and no surveys are conducted for the species. A review of the Kentucky Department of Fish and Wildlife Resources' (KDFWR) website (2007) indicated the potential for both the Indiana and gray bat, as well as one bird species, peregrine falcon (*Falco peregrinus*). The peregrine falcon was delisted on August 25, 1999. A review of the Kentucky State Nature Preserves Commission (KSNPC) website (2007) concurred with the listings for the Indiana bat, gray bat, running buffalo clover, and American burying beetle. Species lists generated from agency websites are included in Appendix A.

The Indiana bat (*Myotis sodalis*) formally attained endangered species status on March 11, 1967 (USFWS 1999). A recovery plan was approved March 1, 1999. The historic range for this species consisted of the central and southeastern United States. Within Kentucky, two caves, Bat Cave in Carter County and Coach Cave in Edmonson County, have been designated as critical habitat for the species (USFWS 1976).

Indiana bats hibernate during the winter months in large, cool caves, sinks, and/or mines (hibernacula) where they form tight clusters containing hundreds of individuals. Mines include coal, limestone, as well as other mineral recovery operations. Each spring, the females emerge from these hibernacula and migrate to summer (maternity) habitat consisting of hardwood forests. Maternity colonies are formed in these areas under the exfoliating bark of dead trees or loose bark of living trees. The migration of males is variable. Some males do not migrate, others migrate only a short distance to smaller, warmer caves, and others migrate to the same habitat as females.

Major reasons for the decline in Indiana bat populations include channelization of streams, impoundment of waterways and associated flooding of bottomland forests, deforestation, application of insecticides, destruction or improper gating of winter habitat (*e.g.*, mines, cisterns, and caves), commercialization of caves, and vandalism of cave habitat (Barbour and Davis 1974; USFWS 1999, 2004; Slone and Wethington 2001).

Summer habitat for the Indiana bat is found within the study area. The forests contain significant amounts of mature hardwoods, particularly along the slopes of the Kentucky River, the larger tributaries of the Kentucky River such as Jessamine Creek, Hickman Creek, Paint Lick Creek, Silver Creek, Tate Creek, South Elkhorn Creek, and Boone Creek. Heavily forested areas such as Raven Run Nature Sanctuary and Floracliff State Nature Preserve also provide summer habitat (Exhibit 2, page 12). Rivers and streams, particularly those with enclosed riparian zones, provide foraging corridors for Indiana and gray bats. Winter hibernating habitat for Indiana bat is potentially present in the study area due to karst features.

The gray bat (*Myotis grisescens*) formally attained endangered species status on April 28, 1976. A recovery plan was approved July 8, 1982. It is the largest species of *Myotis* found in the eastern United States. Its historical North American range includes the cave regions of the central and south central United States. Within Kentucky, the species is most common in the cave region of the south central portion of the state.



Indiana Bat Habitat, Forested Slope



Jessamine Creek Bridge at KY 1268

Gray bats occupy caves or cave-like habitats throughout the year and tend to use the same caves each year. Beginning in March, females migrate from cold (42 to 52 °F) hibernacula and enter warm caves (57 to 77 °F) that have deep vertical passages with large rooms and associated stream systems. Such habitats are typically in close proximity to rivers or reservoirs where the bats forage for aquatic insects.

Summer maternity colonies contain a few hundred to many thousands of pregnant females. Adult males and non-reproductive females use other caves during the summer that are in close proximity to maternity caves. Mating begins in September as females migrate back to winter hibernacula, followed by males and juveniles. Most gray bats have begun to hibernate by November.

Major reasons for the decline in gray bat populations include channelization of streams, impoundment of waterways and flooding of adjacent hibernacula and/or nursery sites. Deforestation, application of insecticides, destruction or improper gating of caves, commercialization of caves, and vandalism are also contributing factors of the decline in the gray bat populations (Slone and Wethington 2001; USFWS, TESS 2004).

Roosting habitat for the gray bat is present within the study area. Gray bats frequently use the KY 1268 bridge over Hickman Creek as a roosting site (Exhibit 2, page 12). Near this bridge, but located outside of the study area are several known caves with gray bats, located in or near the Jessamine Creek Gorge, Hickman Creek near Camp Nelson, and Dix River area near Herrington Dam. Due to the karst nature of the study area, the existence of other unknown roosting sites is a possibility.



Hickman Creek at KY 1268 Bridge

Running buffalo clover (*Trifolium stoloniferum*) obtained endangered species status on July 6, 1987. Historically, the species was known from northern Arkansas, southern Missouri, eastern Kansas, southern Illinois, central and southern Indiana, central and southern Ohio, central Kentucky and central and northern West Virginia. There is a very limited timeframe in which the plant can be located and identified.



Running Buffalo Clover Habitat

Kentucky has the largest number of populations (66) of any of the states in which it is still known to exist. It is presently known in 14 counties (KSNPC 2007; USFWS 2005). It has been closely identified with both the inner and outer Bluegrass regions, with one known exception: a recent record from the western edge of Jackson County.

Running buffalo clover was historically associated with buffalo, buffalo traces and relatively open savannah woodlands. It is typically associated with limestone-based soils. It is dependent on partial shade (often described as filtered sunlight) and periodic disturbance for its continued survival. Disturbance can be soil scouring from run-off or flooding, hoof disturbance by grazing livestock, mowing, and foot, vehicle or logging trails. Plants of this species have also been found on sand and gravel bars of ephemeral streams (Taylor and Campbell 1989). In Kentucky, it is found in both

wooded uplands and on floodplains, the latter predominating. Several discoveries of this species have been made within cemeteries or lawns of historic homes that have been maintained by occasional mowing (Slone and Wethington 2001). Flowering occurs in April and May, with fruit maturing mostly in midsummer.

Running buffalo clover is most often found in areas that have had periodic disturbance over a long period of time. Careful examination of areas such as along old stone fences; roads leading to old historic or abandoned houses; old house sites; log structures; areas around presettlement trees; and family, country cemeteries should be conducted. It has also been found along the banks and gravel bars of small, partially shaded streams.

Some specimens of white clover (*T. repens*) and Alsike clover (*T. hybridum*) that occur in highly disturbed habitats or areas that have been closely mowed or grazed may resemble running buffalo clover in earlier stages of development in the spring. It is difficult to identify with certainty except in a brief period of time just before flowering, during flowering, and a short time after flowering. Therefore, all searches for the occurrence of this species should be made only within these timeframes, which generally occur from late mid-April to mid-June.

The decline in running buffalo clover populations is likely a result of several factors: initial habitat destruction during settlement and subsequent land development, poor dispersal to new habitats from remnant populations, introduction of exotic weed species, excessive grazing and elimination of natural, periodic disturbances such as fire and grazing by native herbivores (bison and deer) (Campbell et al. 1988; Slone and Wethington 2001).

According to the USFWS, running buffalo clover is known from all counties included in the study

area. Partially shaded habitats with some areas that have regular disturbance are located throughout the study area. Upon development of alternatives, a closer examination of the area will need to be performed to look for this species.

Roosting and foraging habitat for Indiana and gray bat is present within the study area. To comply with Section 7 of the Endangered Species Act for Indiana bat, potential impacts to Indiana bat or its habitat may be addressed in one of three ways: (i) a biological assessment may be conducted, (ii) tree cutting may be restricted to the period between Oct. 15 and March 31, or (iii) KYTC may pay for the acquisition of summer maternity habitat (roost trees) under its Programmatic Biological Opinion Agreement with USFWS. Roosting habitat for gray bat and hibernating habitat for Indiana bat may be present due to the extensive karst features in portions of the study area. Upon development of alternatives, closer examination of the area will determine if any caves or sinkholes are present that meet the species' requirement for roosting and/or hibernating.

To comply with Section 7 of the Endangered Species Act, a survey for running buffalo clover may have to be performed. Habitat for running buffalo clover is located throughout the study area. It is probable that alternatives will traverse habitat for this species.

V. AIR QUALITY

The study area is part of the Bluegrass Intrastate Air Quality Control Region. All counties included in the study area are currently designated in attainment for all transportation related air pollutants.

The study area is located in a predominantly rural area; however several large suburbs are included within the study area boundary. The suburbs of Lexington, Nicholasville, and Richmond are all located within the study area (Exhibit 3, page 13).

Sensitive receptors for air pollutants in the study area could include outdoor use areas associated with residences, churches, parks, athletic facilities and schools.

Though Fayette County is designated in attainment status, the National Ambient Air Quality Standard (NAAQS) for the PM_{2.5} three-year average was exceeded for the 2003-2005 data set. Fayette County recorded a three-year average of 15.1 µg/m³ while three-year average NAAQS is 15.0 µg/m³. Despite the fact that Fayette County exceeded the three-year average, the county is still currently designated in attainment for PM_{2.5}.

No formal air quality analysis has been performed for this project or its associated study area. Alternatives that may arise from this Feasibility Study are not expected to have a negative impact on the air quality in the study area. Furthermore, it is not expected that any alternative developed by the planning study will negatively affect the attainment status of any county included within the study area. However, should any alternative pass through portions of Fayette County, the PM_{2.5} NAAQS should be considered.

VI. TRAFFIC NOISE

Vehicle tires, engines, and exhaust propagate noise at levels dependent upon the volume, speed, the percentage of trucks, and the slope of the roadway. These traffic noises are measured in decibels in the A-scale (dBA). The A-scale is designed to best approximate the way noise is heard by the human ear. Due to the logarithmic nature of noise measurements, a 3 dBA increase in the noise level represents a doubling in the noise level, but this increase is barely detectable by the human ear. A 10 dBA increase is perceived as a doubling of the noise level. Noise levels decrease in proportion with the square of the distance from the source such that a 4.5 dBA

decrease is usually achieved when the distance from the roadway is doubled.

A specific noise analysis was not conducted for the study area, but these noise principles were utilized in combination with noise impact criteria to identify noise sensitive receptors in the study area. According to the Federal Highway Administration Policy, Procedures for Abatement of Highway Traffic Noise and Construction Noise, traffic noise impacts occur when the predicted traffic noise levels approach (are within 1 dBA) or exceed the noise abatement criteria (NAC) or when the predicted traffic noise levels substantially exceed (increase by 10 dBA or more) the existing noise level. The NAC is defined as 67 dBA for residential areas and 72 dBA for commercial areas.

Traffic noise concerns in the study area were identified through an examination of topographical and aerial mapping. The proposed study area consists largely of rural and scattered receptors on variably rolling to hilly topography of the Inner Bluegrass ecoregion. These hills provide topographical barriers to noise propagation. Heavily wooded areas that would decrease traffic noise impacts are rare throughout the study area except along the Kentucky River in southern Jessamine, southeast Fayette, and western Madison counties. Raven Run and Floracliff State Nature Preserve could potentially be noise sensitive receptors in the area. White Hall and Boone Station State Historic Sites could also be potentially sensitive noise receptors. Multiple churches, schools, and cemeteries are scattered throughout the study area but are concentrated, along with the residential areas, in the suburban areas in Wilmore, Nicholasville, Richmond, and southern Lexington (Exhibit 3, page 13). Each of these locations could represent noise sensitive receptors depending on the horizontal alignment.



White Hall State Historic Site

One of the most effective means of reducing overall traffic noise impacts is the selection of horizontal and vertical alignments that minimize impacts. Other noise mitigation methods include purchasing noise buffer zones, traffic management, and noise barriers. Although noise barriers are frequently considered as a noise abatement option, they are usually only feasible in high-density residential areas in close proximity to the alignment. Based on noise propagation principles, traffic noise is not usually a serious problem for receptors more than 500 feet from heavily traveled freeways or more than 100 to 200 feet from lightly traveled roads.

Neither existing nor predicted traffic forecasts are currently available for this project, but it is expected that traffic levels would increase. In future traffic noise analyses, actual and predicted traffic levels could be modeled to predict the impact of any new roadway.

VII. UNDERGROUND STORAGE TANKS / HAZARDOUS MATERIALS

A limited site reconnaissance was conducted on July 31, 2007. The intent of the site reconnaissance was to identify underground storage tank (UST) and hazardous material concerns along major roads within the study area. The UST and hazardous material concerns for this project are similar to that of any other proposed highway development. Active and

abandoned UST sites can be expected along any major roadway within the study area. Numerous convenience stores and gas stations with UST potential are located in the developed areas near the cities of Wilmore, Richmond and Nicholasville. The area along Man O' War Boulevard in southern Fayette County also represents potential UST concerns. Furthermore, several country stores and automotive repair facilities are present throughout the study area that could represent UST potential. As alternatives are developed and designed, further investigation would be needed to determine the location of USTs.

The limited field reconnaissance was supplemented by a database search. Multiple databases were utilized, including the Kentucky Division of Waste Management's Statewide UST Database as well as the Environmental Protection Agency's database concerning information about Resource Conservation and Recovery Act Information (RCRA) and Superfund sites.

Hazardous waste information is contained in the Resource Conservation and Recovery Act Information (RCRAInfo) database. RCRAInfo is a national management and inventory system regarding hazardous waste handlers. Facilities or individuals that generate, transport, treat, store, or dispose of hazardous waste are generally required to provide information about their activities to state environmental agencies. Approximately 150 RCRA sites are potentially located within the study area.

Superfund sites are uncontrolled hazardous waste sites identified by the federal government that require cleanup activities. Superfund facilities are listed on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database. The database search resulted in the identification of 3 Superfund sites located within

the study area. The RCRA and Superfund sites are shown on Exhibit 3, page 13.

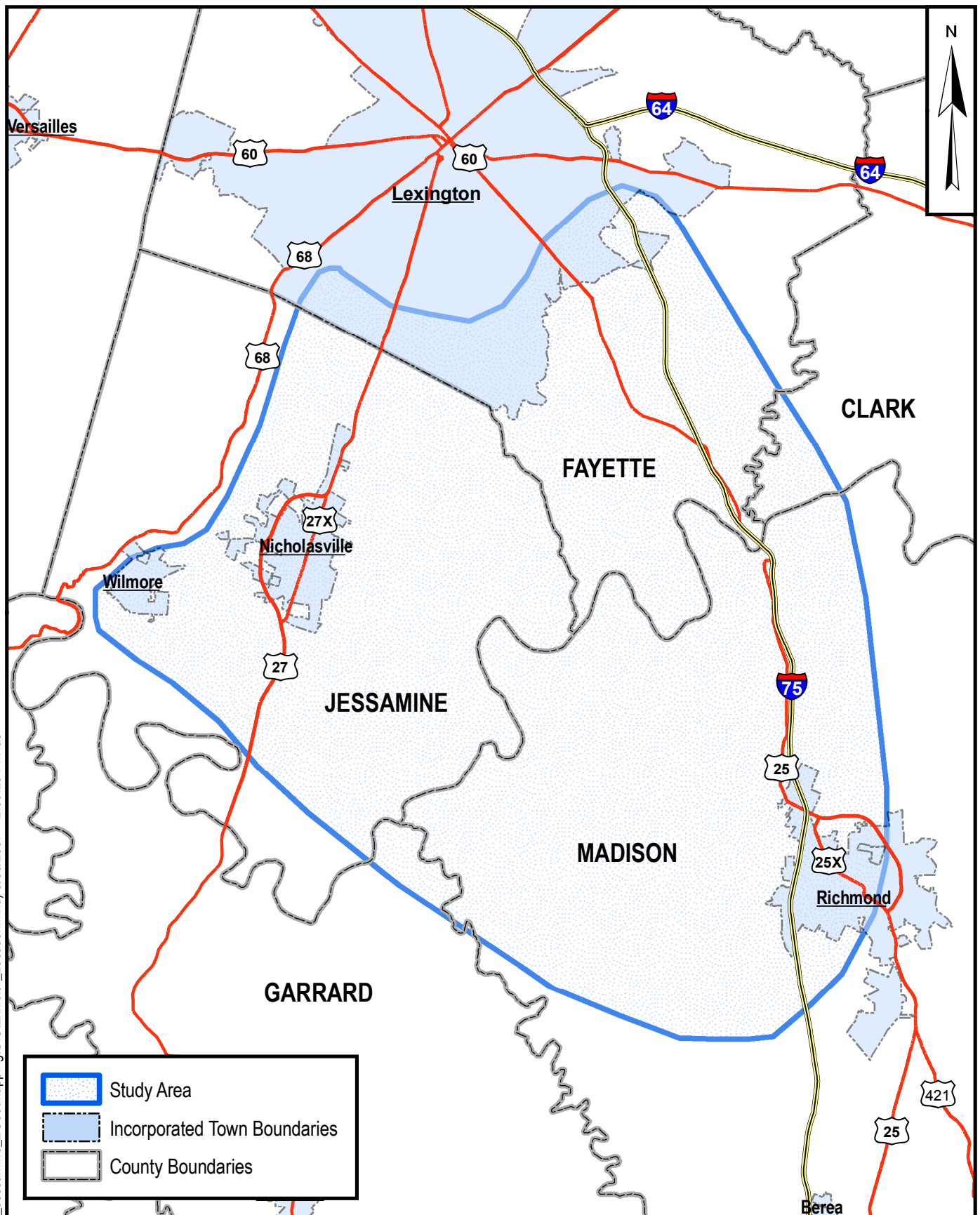
Due to the substantial size of the study area, the UST database search resulted in the identification of approximately 500 potential UST sites. The UST sites were identified based on geographic coordinates and address information. The location of UST sites with geographic coordinates are shown on Exhibit 3, page 13. Each UST site may represent multiple tanks.

The presence of oil, gas, and water wells should be expected throughout the entire study area. Information provided by the Kentucky Geological Survey suggests that approximately 568 water wells are potentially located within the study area (Exhibit 3, page 13). Additional information further suggests that at least 19 oil and gas wells are potentially located within the study area (Exhibit 3, page 13). Many of these wells are abandoned and not identifiable in the field. Should any alternative pass through the study area, the possibility of encountering a well is likely.

Three mapped landfills are located within the study area (Exhibit 3, page 13). Two landfills are located near the cities of Richmond and Wilmore. One additional landfill is located on Jacks Creek Pike in Fayette County. Though not conclusive, there is a possibility that historic waste disposal sites or additional landfills are located near any of the small communities within the study area. Once alternatives are developed, additional research should be conducted to examine the possibility of such historic landfills.

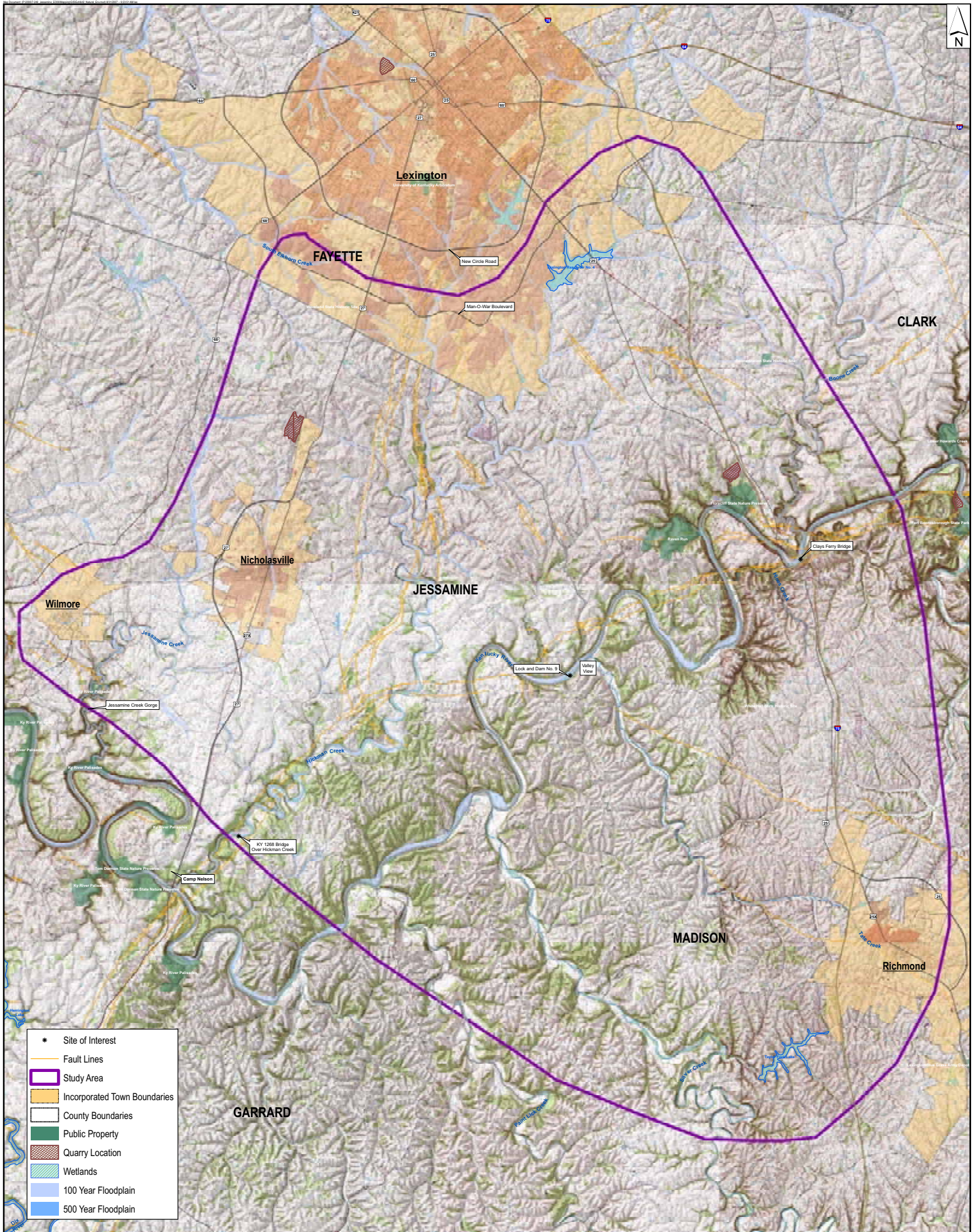
Hazardous material and waste activities associated with industrial facilities can be expected throughout the study area. Industrial development is present along US 27 in Jessamine County, near the city of Nicholasville. There is also scattered industrial development near the city of Richmond in Madison County.

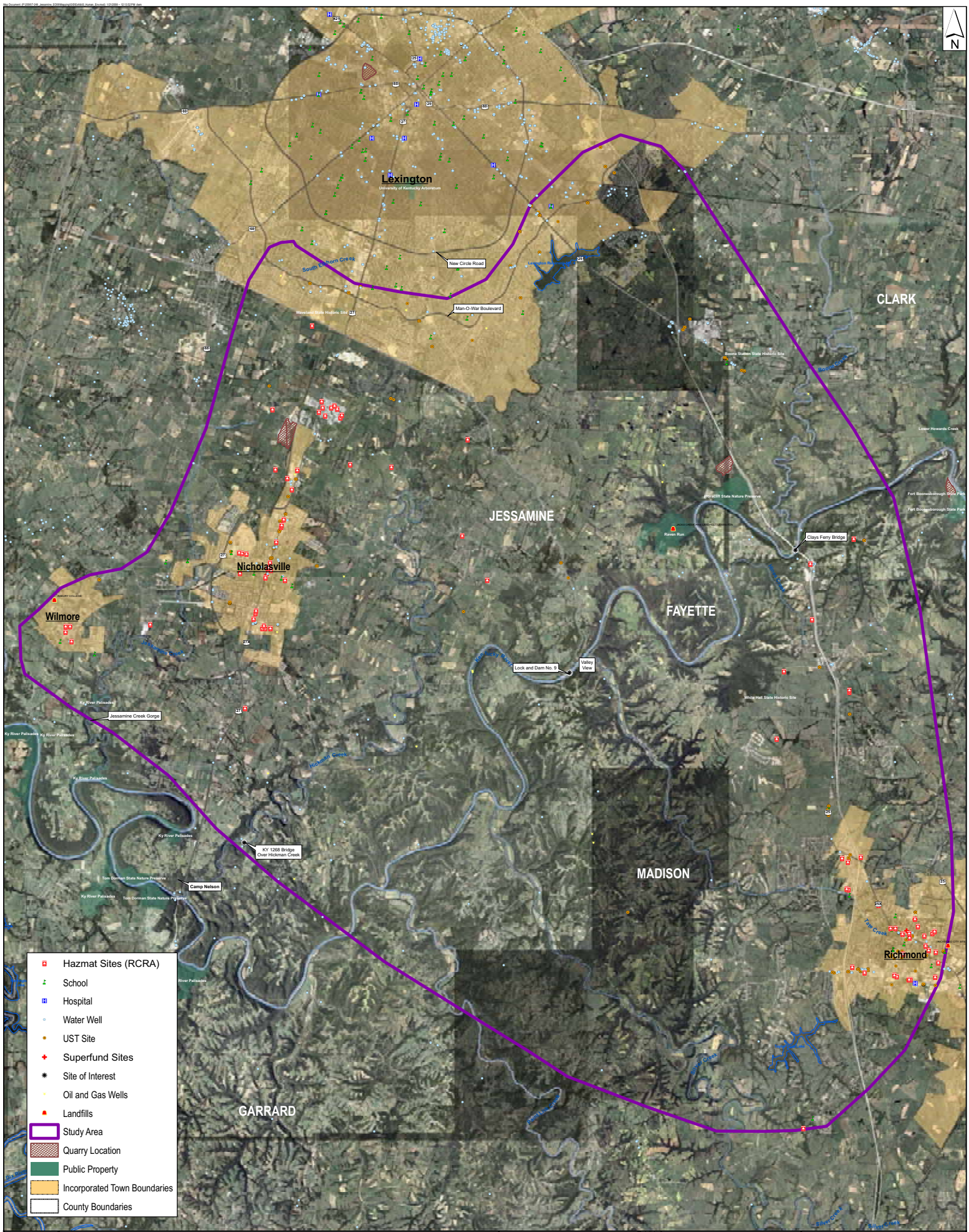
The majority of the industrial development in Madison and Fayette Counties is located outside of the study area and beyond the area of influence.



County Road mapping was obtained from the Kentucky Transportation Cabinet. County and city boundaries downloaded via the Kentucky GeoNet.

Exhibit 1
Study Area
Environmental Overview
New Route Between US 27 and I-75
KYTC Item No. 7-249.00
Fayette, Jessamine and Madison Counties





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APPENDIX

APPENDIX A – NATURAL RESOURCE AGENCY INFORMATION



U.S. Fish & Wildlife Service
Kentucky Ecological Services Field Office

U.S. Fish & Wildlife Service
3761 Georgetown Rd.
Frankfort, KY 40601
Phone: 502-695-0468
Fax: 502-695-1024

Endangered, Threatened, & Candidate
Species in FAYETTE County, KY

Group	Species	Common name	Legal* Status	Known** Potential	Special Comments
Mammals	<i>Myotis sodalis</i>	Indiana bat	E	K	
	<i>Myotis grisescens</i>	gray bat	E	P	
Plants	<i>Physaria lesquerella</i>	globe bladderpod	C	K	
	<i>Trifolium stoloniferum</i>	running buffalo clover	E	K	
Insects	<i>Nicrophorus americanus</i>	American burying beetle	E	K	

NOTES:

* Key to notations: E = Endangered, T = Threatened, C = Candidate, CH = Critical Habitat

**Key to notations: K = Known occurrence record within the county, P = Potential for the species to occur within the county based upon historic range, proximity to known occurrence records, biological, and physiographic characteristics.



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Endangered, Threatened, & Candidate
Species in JESSAMINE County, KY

Group	Species	Common name	Legal* Status	Known** Potential	Special Comments
Mammals	<i>Myotis grisescens</i>	gray bat	E	K	
	<i>Myotis sodalis</i>	Indiana bat	E	K	
Plants	<i>Trifolium stoloniferum</i>	running buffalo clover	E	K	
	<i>Physaria lesquerella</i>	globe bladderpod	C	K	

NOTES:

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**Key to notations: K = Known occurrence record within the county, P = Potential for the species to occur within the county based upon historic range, proximity to known occurrence records, biological, and physiographic characteristics.



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Endangered, Threatened, & Candidate
Species in MADISON County, KY

Group	Species	Common name	Legal* Status	Known** Potential	Special Comments
Mammals	<i>Myotis sodalis</i>	Indiana bat	E	P	
	<i>Myotis grisescens</i>	gray bat	E	P	
Plants	<i>Trifolium stoloniferum</i>	running buffalo clover	E	K	
	<i>Physaria lesquerella</i>	globe bladderpod	C	K	
Insects	<i>Pseudanopthalmus pholeter</i>	Greater Adams cave beetle	C	K	
	<i>Pseudanopthalmus cataryctos</i>	Lesser Adams cave beetle	C	K	

NOTES:

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Species
Information
KDFWR
Maps
WMA Maps
Download
GIS Data
Links

Species Information

Federal Threatened, Endangered, and Candidate Species observations for selected counties

Linked life history provided courtesy of [NatureServe Explorer](#).

Records may include both recent and historical observations.

[US Status Definitions](#) [Kentucky Status Definitions](#)

List Federal Threatened, Endangered, and Candidate Species observations in 3 selected counties.

Selected counties are: FAYETTE, JESSAMINE, MADISON.

7 species are listed.

Page 1 of 1

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status	WAP	Reference
Myotis grisescens	Gray Myotis	Mammalia	FAYETTE	LE	T	Yes	Reference
Myotis grisescens	Gray Myotis	Mammalia	JESSAMINE	LE	T	Yes	Reference
Myotis grisescens	Gray Myotis	Mammalia	MADISON	LE	T	Yes	Reference
Myotis sodalis	Indiana Bat	Mammalia	FAYETTE	LE	E	Yes	Reference
Myotis sodalis	Indiana Bat	Mammalia	JESSAMINE	LE	E	Yes	Reference
Falco peregrinus	Peregrine Falcon	Aves	FAYETTE	PS: LE	E	Yes	Reference
Falco peregrinus	Peregrine Falcon	Aves	JESSAMINE	PS: LE	E	Yes	Reference

**Report of
Endangered, Threatened, and Special Concern
Plants, Animals, and Natural Communities
for Fayette County, Kentucky**

**Kentucky State Nature Preserves
Commission
801 Schenkel Lane
Frankfort, KY 40601
(502) 573-2886 (phone)
(502) 573-2355 (fax)**

www.naturepreserves.ky.gov

Kentucky State Nature Preserves Commission

Key for County List Report

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STATUS

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USES: U.S. Fish and Wildlife Service status:

blank = none C = candidate LT = listed as threatened LE = listed as endangered
SOMC = Species of Management Concern

RANKS

GRANK: Estimate of element abundance on a global scale:

G1 = Critically imperiled	GU = Unrankable
G2 = Imperiled	G#? = Inexact rank (e.g. G2?)
G3 = Vulnerable	G#Q = Questionable taxonomy
G4 = Apparently secure	G#T# = Intraspecific taxa (Subspecies and variety abundances are coded with a 'T' suffix; the 'G' portion of the rank then refers to the entire species)
G5 = Secure	GNR = Unranked
GH = Historic, possibly extinct	GNA = Not applicable
GX = Presumed extinct	

SRANK: Estimate of element abundance in Kentucky:

S1 = Critically imperiled	SU = Unrankable	Migratory species may have separate ranks for different population segments (e.g. S1B, S2N, S4M): S#B = Rank of breeding population S#N = Rank of non-breeding population S#M = Rank of transient population
S2 = Imperiled	S#? = Inexact rank (e.g. G2?)	
S3 = Vulnerable	S#Q = Questionable taxonomy	
S4 = Apparently secure	S#T# = Intraspecific taxa	
S5 = Secure	SNR = Unranked	
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County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky
Kentucky State Nature Preserves Commission

County	Taxonomic Group	Scientific name	Common name	Statuses	Ranks	# of Occurrences				
						E	H	F	X	U
Fayette	Vascular Plants	<i>Elymus svensonii</i>	Svenson's Wildrye	S / SOMC	G3 / S3	1	0	0	0	0
Fayette	Vascular Plants	<i>Juglans cinerea</i>	White Walnut	S / SOMC	G3G4 / S3	0	1	0	0	0
Fayette	Vascular Plants	<i>Lesquerella globosa</i>	Globe Bladderpod	E / C	G2 / S1	0	2	1	2	0
Fayette	Vascular Plants	<i>Lonicera prolifera</i>	Grape Honeysuckle	E /	G5 / S1	0	1	0	0	0
Fayette	Vascular Plants	<i>Malvastrum hispidum</i>	Hispid Falsemallow	T /	G3G5 / S2?	2	1	0	0	0
Fayette	Vascular Plants	<i>Oenothera triloba</i>	Stemless Evening-primrose	T /	G4 / S1S2	0	1	0	0	0
Fayette	Vascular Plants	<i>Onosmodium hispidissimum</i>	Hairy False Gromwell	E /	G4G5T4 / S1	1	1	0	0	0
Fayette	Vascular Plants	<i>Prenanthes crepidinea</i>	Nodding Rattlesnake-root	T /	G4 / S2	1	0	0	0	0
Fayette	Vascular Plants	<i>Sagina fontinalis</i>	Water Stitchwort	T /	G3 / S2	1	0	0	1	0
Fayette	Vascular Plants	<i>Salix amygdaloides</i>	Peach-leaved Willow	H /	G5 / SH	0	1	0	0	0
Fayette	Vascular Plants	<i>Schizachne purpurascens</i>	Purple Oat	T /	G5 / S2	1	0	0	0	0
Fayette	Vascular Plants	<i>Trifolium reflexum</i>	Buffalo Clover	E /	G3G4 / S1S2	0	1	0	0	0
Fayette	Vascular Plants	<i>Trifolium stoloniferum</i>	Running Buffalo Clover	T / LE	G3 / S2S3	3	1	0	4	0
Fayette	Vascular Plants	<i>Viburnum molle</i>	Softleaf Arrowwood	T /	G5 / S3?	1	0	0	0	0
Fayette	Vascular Plants	<i>Viburnum rafinesquianum</i> var. <i>rafinesquianum</i>	Downy Arrowwood	T /	G5T4T5 / S2	1	1	0	0	0
Fayette	Vascular Plants	<i>Viola walteri</i>	Walter's Violet	T /	G4G5 / S2	1	0	0	0	0
Fayette	Insects	<i>Nehalennia irene</i>	Sedge Sprite	E /	G5 / S1	0	1	0	0	0
Fayette	Insects	<i>Nicrophorus americanus</i>	American Burying Beetle	H / LE	G2G3 / SH	0	1	0	0	0
Fayette	Insects	<i>Pseudanopthalmus horni</i>	Garman's Cave Beetle	S / SOMC	G3 / S2S3	1	2	2	0	0
Fayette	Insects	<i>Satyrrium favonius ontario</i>	Northern Hairstreak	S /	G4T4 / S2	0	1	0	0	0
Fayette	Amphibians	<i>Rana pipiens</i>	Northern Leopard Frog	S /	G5 / S3	0	4	0	1	0
Fayette	Breeding Birds	<i>Ammodramus henslowii</i>	Henslow's Sparrow	S / SOMC	G4 / S3B	1	0	0	0	0
Fayette	Breeding Birds	<i>Chondestes grammacus</i>	Lark Sparrow	T /	G5 / S2S3B	1	0	0	0	0
Fayette	Breeding Birds	<i>Cistothorus platensis</i>	Sedge Wren	S /	G5 / S3B	0	1	0	0	0
Fayette	Breeding Birds	<i>Dolichonyx oryzivorus</i>	Bobolink	S /	G5 / S2S3B	1	0	0	0	0
Fayette	Breeding Birds	<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	T /	G5 / S2B	1	2	0	0	0
Fayette	Breeding Birds	<i>Passerculus sandwichensis</i>	Savannah Sparrow	S /	G5 / S2S3B,S2S3 N	3	0	0	0	0

County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky
 Kentucky State Nature Preserves Commission

County	Taxonomic Group	Scientific name	Common name	Statuses	Ranks	# of Occurrences				
						E	H	F	X	U
Fayette	Breeding Birds	<i>Riparia riparia</i>	Bank Swallow	S /	G5 / S3B	1	0	0	0	0
Fayette	Breeding Birds	<i>Tyto alba</i>	Barn Owl	S /	G5 / S3	1	1	0	0	0
Fayette	Mammals	<i>Mustela nivalis</i>	Least Weasel	S /	G5 / S2S3	1	0	0	0	0
Fayette	Mammals	<i>Myotis sodalis</i>	Indiana Bat	E / LE	G2 / S1S2	0	1	0	0	0
Fayette County Total:						24	25	3	8	0

**Report of
Endangered, Threatened, and Special Concern
Plants, Animals, and Natural Communities
for Jessamine County, Kentucky**

**Kentucky State Nature Preserves
Commission
801 Schenkel Lane
Frankfort, KY 40601
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www.naturepreserves.ky.gov

Kentucky State Nature Preserves Commission

Key for County List Report

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RANKS

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G1 = Critically imperiled	GU = Unrankable
G2 = Imperiled	G#? = Inexact rank (e.g. G2?)
G3 = Vulnerable	G#Q = Questionable taxonomy
G4 = Apparently secure	G#T# = Intraspecific taxa (Subspecies and variety abundances are coded with a 'T' suffix; the 'G' portion of the rank then refers to the entire species)
G5 = Secure	GNR = Unranked
GH = Historic, possibly extinct	GNA = Not applicable
GX = Presumed extinct	

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County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky
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County	Taxonomic Group	Scientific name	Common name	Statuses	Ranks	# of Occurrences				
						E	H	F	X	U
Jessamine	Vascular Plants	<i>Deschampsia cespitosa</i>	Tufted Hairgrass	E /	G5 / S1S2	2	0	0	0	0
Jessamine	Vascular Plants	<i>Elymus svensonii</i>	Svenson's Wildrye	S / SOMC	G3 / S3	5	0	0	0	0
Jessamine	Vascular Plants	<i>Lesquerella globosa</i>	Globe Bladderpod	E / C	G2 / S1	1	3	2	1	0
Jessamine	Vascular Plants	<i>Malvastrum hispidum</i>	Hispid Falsemallow	T /	G3G5 / S2?	0	5	1	0	0
Jessamine	Vascular Plants	<i>Onosmodium hispidissimum</i>	Hairy False Gromwell	E /	G4G5T4 / S1	0	1	0	0	0
Jessamine	Vascular Plants	<i>Paxistima canbyi</i>	Canby's Mountain-lover	T / SOMC	G2 / S2	1	0	0	0	0
Jessamine	Vascular Plants	<i>Perideridia americana</i>	Eastern Yampah	T /	G4 / S2	1	0	1	0	0
Jessamine	Vascular Plants	<i>Phlox bifida ssp. stellaria</i>	Starry-cleft Phlox	E / SOMC	G5?T3 / S1	5	0	0	0	0
Jessamine	Vascular Plants	<i>Sagina fontinalis</i>	Water Stitchwort	T /	G3 / S2	2	0	1	1	0
Jessamine	Vascular Plants	<i>Schizachne purpurascens</i>	Purple Oat	T /	G5 / S2	5	0	0	0	0
Jessamine	Vascular Plants	<i>Trifolium stoloniferum</i>	Running Buffalo Clover	T / LE	G3 / S2S3	1	0	0	0	0
Jessamine	Vascular Plants	<i>Trillium nivale</i>	Snow Trillium	E /	G4 / S1	2	0	0	0	0
Jessamine	Vascular Plants	<i>Viburnum molle</i>	Softleaf Arrowwood	T /	G5 / S3?	3	1	0	0	0
Jessamine	Vascular Plants	<i>Viburnum rafinesquianum var. rafinesquianum</i>	Downy Arrowwood	T /	G5T4T5 / S2	0	1	0	0	0
Jessamine	Vascular Plants	<i>Viola septemloba var. egglestonii</i>	Eggleston's Violet	S /	G4 / S3	0	1	0	0	0
Jessamine	Vascular Plants	<i>Viola walteri</i>	Walter's Violet	T /	G4G5 / S2	2	0	0	0	0
Jessamine	Freshwater Mussels	<i>Fusconaia subrotunda</i>	Longsolid	S /	G3 / S3	1	0	0	0	0
Jessamine	Freshwater Mussels	<i>Plethobasus cyphus</i>	Sheepnose	E / C	G3 / S1	1	0	0	0	0
Jessamine	Insects	<i>Callophrys irus</i>	Frosted Elfin	T /	G3 / S1	0	1	0	0	0
Jessamine	Insects	<i>Pseudanophthalmus abditus</i>	Concealed Cave Beetle	T /	G3T3 / S2	0	0	1	0	0
Jessamine	Insects	<i>Pseudanophthalmus solivagus</i>	A Cave Obligate Beetle	S /	G1G2 / S1S2	0	1	0	0	0
Jessamine	Amphibians	<i>Cryptobranchus alleganiensis alleganiensis</i>	Eastern Hellbender	S / SOMC	G3G4T3T4 / S3	0	1	0	0	0
Jessamine	Amphibians	<i>Rana pipiens</i>	Northern Leopard Frog	S /	G5 / S3	0	3	0	1	0
Jessamine	Breeding Birds	<i>Accipiter striatus</i>	Sharp-shinned Hawk	S /	G5 / S3B,S4N	1	0	0	0	0
Jessamine	Breeding Birds	<i>Ammodramus henslowii</i>	Henslow's Sparrow	S / SOMC	G4 / S3B	2	0	0	0	0
Jessamine	Breeding Birds	<i>Anas discors</i>	Blue-winged Teal	T /	G5 / S1S2B	1	0	0	0	0
Jessamine	Breeding Birds	<i>Chondestes grammacus</i>	Lark Sparrow	T /	G5 / S2S3B	0	2	0	0	0

County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky
 Kentucky State Nature Preserves Commission

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Jessamine	Breeding Birds	<i>Dolichonyx oryzivorus</i>	Bobolink	S /	G5 / S2S3B	2	0	0	0	0
Jessamine	Breeding Birds	<i>Tyto alba</i>	Barn Owl	S /	G5 / S3	2	0	0	0	0
Jessamine	Mammals	<i>Myotis grisescens</i>	Gray Myotis	T / LE	G3 / S2	5	0	0	1	0
Jessamine	Mammals	<i>Myotis leibii</i>	Eastern Small-footed Myotis	T / SOMC	G3 / S2	1	0	0	0	0
Jessamine	Mammals	<i>Myotis sodalis</i>	Indiana Bat	E / LE	G2 / S1S2	0	1	0	0	0
Jessamine	Communities	<i>Calcareous sub-xeric forest</i>		/	GNR / S5	2	0	0	0	0
Jessamine County Total:						48	21	6	4	0

**Report of
Endangered, Threatened, and Special Concern
Plants, Animals, and Natural Communities
for Madison County, Kentucky**

**Kentucky State Nature Preserves
Commission
801 Schenkel Lane
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G5 = Secure	GNR = Unranked
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GX = Presumed extinct	

SRANK: Estimate of element abundance in Kentucky:

S1 = Critically imperiled	SU = Unrankable	Migratory species may have separate ranks for different population segments (e.g. S1B, S2N, S4M): S#B = Rank of breeding population S#N = Rank of non-breeding population S#M = Rank of transient population
S2 = Imperiled	S#? = Inexact rank (e.g. G2?)	
S3 = Vulnerable	S#Q = Questionable taxonomy	
S4 = Apparently secure	S#T# = Intraspecific taxa	
S5 = Secure	SNR = Unranked	
SH = Historic, possibly extirpated	SNA = Not applicable	
SX = Presumed extirpated		

COUNT DATA FIELDS

OF OCCURRENCES: Number of occurrences of a particular element from a county. Column headings are as follows:

E - currently reported from the county
H - reported from the county but not seen for at least 20 years
F - reported from county & cannot be relocated but for which further inventory is needed
X - known to have extirpated from the county
U - reported from a county but cannot be mapped to a quadrangle or exact location.

The data from which the county report is generated is continually updated. The date on which the report was created is in the report footer. Contact KSNPC for a current copy of the report.

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed, and new species of plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

KSNPC appreciates the submission of any endangered species data for Kentucky from field observations. For information on data reporting or other data services provided by KSNPC, please contact the Data Manager at:

Kentucky State Nature Preserves Commission
801 Schenkel Lane
Frankfort, KY 40601
(502) 573-2886 (phone)
(502) 573-2355 (fax)
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County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky
Kentucky State Nature Preserves Commission

County	Taxonomic Group	Scientific name	Common name	Statuses	Ranks	# of Occurrences				
						E	H	F	X	U
Madison	Vascular Plants	<i>Bolboschoenus fluviatilis</i>	River Bulrush	E /	G5 / S1S2	0	0	0	1	0
Madison	Vascular Plants	<i>Bouteloua curtipendula</i>	Side-oats Grama	S /	G5 / S3?	1	0	0	0	0
Madison	Vascular Plants	<i>Carex hystericina</i>	Porcupine Sedge	H /	G5 / SH	0	1	0	0	0
Madison	Vascular Plants	<i>Castanea pumila</i>	Allegheny Chinkapin	T /	G5 / S2	1	0	0	0	0
Madison	Vascular Plants	<i>Dodecatheon frenchii</i>	French's Shooting Star	S /	G3 / S3	0	0	1	0	0
Madison	Vascular Plants	<i>Dryopteris carthusiana</i>	Spinulose Wood Fern	S /	G5 / S3	0	0	1	0	0
Madison	Vascular Plants	<i>Elodea nuttallii</i>	Western Waterweed	T /	G5 / S2?	1	0	0	0	0
Madison	Vascular Plants	<i>Gentiana flavida</i>	Yellow Gentian	E /	G4 / S1S2	1	0	0	0	0
Madison	Vascular Plants	<i>Heteranthera limosa</i>	Blue Mud-plantain	S /	G5 / S2S3	0	0	0	1	0
Madison	Vascular Plants	<i>Juglans cinerea</i>	White Walnut	S / SOMC	G3G4 / S3	0	1	0	0	0
Madison	Vascular Plants	<i>Lesquerella globosa</i>	Globe Bladderpod	E / C	G2 / S1	0	1	1	0	0
Madison	Vascular Plants	<i>Malvastrum hispidum</i>	Hispid Falsemallow	T /	G3G5 / S2?	1	0	0	0	0
Madison	Vascular Plants	<i>Oenothera triloba</i>	Stemless Evening-primrose	T /	G4 / S1S2	0	1	0	0	0
Madison	Vascular Plants	<i>Paxistima canbyi</i>	Canby's Mountain-lover	T / SOMC	G2 / S2	1	0	0	0	0
Madison	Vascular Plants	<i>Ranunculus ambigens</i>	Waterplantain Spearwort	S /	G4 / S3	0	0	0	1	0
Madison	Vascular Plants	<i>Salix amygdaloides</i>	Peach-leaved Willow	H /	G5 / SH	0	2	0	0	0
Madison	Vascular Plants	<i>Spiranthes magnicamporum</i>	Great Plains Ladies'-tresses	T /	G4 / S2	1	0	0	0	0
Madison	Vascular Plants	<i>Symphoricarpos albus</i>	Snowberry	E /	G5 / S1	1	0	0	0	0
Madison	Vascular Plants	<i>Trifolium stoloniferum</i>	Running Buffalo Clover	T / LE	G3 / S2S3	26	0	2	15	0
Madison	Vascular Plants	<i>Viburnum molle</i>	Softleaf Arrowwood	T /	G5 / S3?	1	0	0	0	0
Madison	Vascular Plants	<i>Viburnum rafinesquianum</i> var. <i>rafinesquianum</i>	Downy Arrowwood	T /	G5T4T5 / S2	1	1	0	0	0
Madison	Vascular Plants	<i>Vitis labrusca</i>	Northern Fox Grape	S /	G5 / S2S3	0	1	0	0	0
Madison	Insects	<i>Pseudanophthalmus catoryctos</i>	Lesser Adams Cave Beetle	E /	G1 / S1	1	0	0	0	0
Madison	Insects	<i>Pseudanophthalmus pholeter</i>	Greater Adams Cave Beetle	E /	G1 / S1	1	0	0	0	0
Madison	Amphibians	<i>Cryptobranchus alleganiensis alleganiensis</i>	Eastern Hellbender	S / SOMC	G3G4T3T4 / S3	0	1	0	0	0
Madison	Amphibians	<i>Rana pipiens</i>	Northern Leopard Frog	S /	G5 / S3	4	1	0	0	0
Madison	Reptiles	<i>Eumeces anthracinus</i>	Coal Skink	T /	G5 / S2	1	0	0	0	0

County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky
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County	Taxonomic Group	Scientific name	Common name	Statuses	Ranks	# of Occurrences				
						E	H	F	X	U
Madison	Breeding Birds	<i>Aimophila aestivalis</i>	Bachman's Sparrow	E / SOMC	G3 / S1B	0	0	0	2	0
Madison	Breeding Birds	<i>Ammodramus henslowii</i>	Henslow's Sparrow	S / SOMC	G4 / S3B	1	0	0	0	0
Madison	Breeding Birds	<i>Chondestes grammacus</i>	Lark Sparrow	T /	G5 / S2S3B	0	1	0	0	0
Madison	Breeding Birds	<i>Thryomanes bewickii</i>	Bewick's Wren	S / SOMC	G5 / S3B	1	0	0	0	0
Madison	Breeding Birds	<i>Tyto alba</i>	Barn Owl	S /	G5 / S3	3	0	0	0	0
Madison	Mammals	<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	S / SOMC	G3G4 / S3	1	0	0	0	0
Madison	Mammals	<i>Mustela nivalis</i>	Least Weasel	S /	G5 / S2S3	3	0	0	0	0
Madison	Mammals	<i>Myotis grisescens</i>	Gray Myotis	T / LE	G3 / S2	0	0	0	1	0
Madison	Mammals	<i>Ursus americanus</i>	American Black Bear	S /	G5 / S2	1	0	0	0	0
Madison	Communities	<i>Appalachian mesophytic forest</i>		/	GNR / S5	2	0	0	0	0
Madison	Communities	<i>Bluegrass mesophytic cane forest</i>		/	GNR / S2	1	0	0	0	0
Madison	Communities	<i>Calcareous mesophytic forest</i>		/	GNR / S5	1	0	0	0	0
Madison	Communities	<i>Limestone prairie</i>		/	GNR / S1					
Madison County Total:						57	11	5	21	0



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