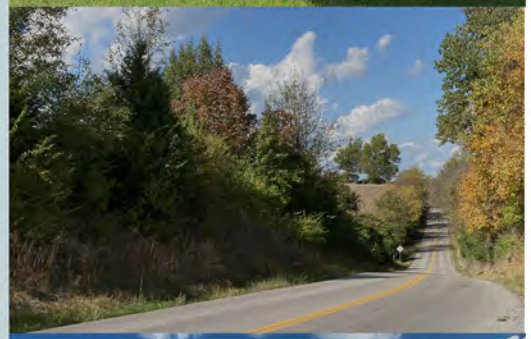

ENVIRONMENTAL ASSESSMENT

Veterans Memorial Parkway (KY 1958) Extension

KTYC Item No. 7-8401.00

US Department of Transportation
Federal Highway Administration

Kentucky Transportation Cabinet,
Division of Environmental Analysis

March 2023

KENTUCKY TRANSPORTATION CABINET

U.S. Department of Transportation
Federal Highway Administration

ENVIRONMENTAL ASSESSMENT

Veterans Memorial Parkway (KY 1958) Extension

From KY 627 (Boonesboro Road) to KY 89 (Irvine Road)
Clark County, Kentucky
KTYC Item No. 7-8401.00

Submitted Pursuant to 42 USC 4332(2)(c) by:

US Department of Transportation
Federal Highway Administration

Mr. Todd A. Jeter
Division Administrator
Federal Highway Administration
330 West Broadway
Frankfort, KY 40601
502-223-6720

Kentucky Transportation Cabinet,
Division of Environmental Analysis

Mr. Daniel R. Peake
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street, 3rd Floor
Frankfort, KY 40622
502-564-7250

TODD A JETER Digitally signed by TODD A JETER Date: 2023.04.24 14:02:35 -04'00' 4/24/2023

Federal Highway Administration Kentucky Division Office — Date

Danny Peake Type text here 3.6.23

Kentucky Transportation Cabinet Division of Environmental Analysis — Date

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VETERANS MEMORIAL PARKWAY EXTENSION

TIME LINE

1997 *The Kentucky Transportation Cabinet established the Winchester Bypass* Advisory Committee (Local Officials, Stakeholders, Property Owners). Nine meetings of this committee are held over a four-year period.*

*As the current project was called at the time.

FIRST STUDY FOR THE PROPOSED VETERANS MEMORIAL PARKWAY EXTENSION BEGINS

2000 *In February, an Environmental Overview is completed for the project. In October, a Public Meeting is held for the SE project presenting Alternative1 (Red) and Alternative 2 (Blue).*

2003 *In May, KYTC prepares a study of alternative routes for the SE project. In June, two Corridor Alternatives (Red and Blue) and three KY 627 Intersection alternatives were recommended for further development.*

2004 *The SE project is identified as a high priority in the Winchester/Clark County Comprehensive Plan.*

2010-2013 *Baseline level technical reviews are completed to assess potential environmental impacts of alternatives under consideration.*

STUDY RESUMES AFTER EIGHT-YEAR PAUSE

2012 *KYTC establishes a new advisory committee for the SE project. Eight committee meetings are held in 2012. In April of 2012, the advisory committee selected three alternative corridors (Red, Blue, and Black) for further development. A Public Meeting is held in August, presenting these alternatives to the public. A Preliminary Line and Grade Meeting is held in October, at which the Red Alternative is dropped from further consideration.*

2013 *A Draft Environmental Assessment for the SE project is completed in June, but because the project was state funded, it was not submitted to FHWA for review. Subsequently, an additional KY 627 Intersection alternative is developed based on traffic demands. The "Reconfigured T-Intersection" is a variation of the Black West Alternative. In July and August, two additional advisory committee meetings are held for the project. In December, a Design Executive Summary identified Blue (East)/Black (West) T-Intersection as the preferred alternative.*

PROJECT RECEIVES FEDERAL FUNDING

2020 *Kentucky's FY 2020-FY 2026 Enacted Highway Plan programs federal dollars for the construction phase of the SE project. KYTC begins updating the 2013 Environmental Assessment, including supplemental baseline studies where appropriate, for the preferred alternative.*

1 Project Description

The Kentucky Transportation Cabinet is proposing construction of the Veterans Memorial Parkway (KY 1958) Extension. This project would complete a four-lane bypass route around the western, southern, and eastern sides of the City of Winchester, in Clark County.

As it exists today, the bypass route is partially complete. Its western segment—KY 1958 (Bypass Road)—currently extends from I-64 to KY 627 (Boonesboro Road). Its eastern segment—the existing Veterans Memorial Parkway—begins just south of I-64, at KY 627 (Paris Road/North Maple Street) intersection, and extends to KY 89 (Irvine Road). The Parkway Extension project would connect these eastern and western segments (see **Exhibit 1**).

This connection has been under consideration since the 1990s. In 2004 KYTC formed a local Transportation Advisory Committee and with that committee's input conducted a corridor study to develop and assess possible route locations for the road. Early in the study the Committee established five goals for the project: 1) improve traffic flow and safety; 2) balance the growth of the community; 3) manage land use; 4) minimize disruption to existing facilities; and 5) minimize environmental harm. And while not all of those goals were included as elements of the project's Purpose and Need Statement, each remains in place in the current study as desirable project outcomes.

It should be noted in particular that the need for safety improvements was not identified as a project issue and was not included in the Purpose and Need Statement. Nevertheless, KYTC routinely considered the effect each project alternative would have on safety, even though the KYTC Highway Safety Manual and associated Crash Modification Factors were not in widespread use at that time. In general, KYTC concluded that shifting traffic from existing rural routes that were not typically constructed with current standard typical sections and clear zones to a newly designed route that meets modern design standards would result in a net improvement in overall highway safety.

Once the 2004 study was completed, lack of committed funding kept the project from advancing. In 2013, it was reactivated and a draft Environmental Assessment was prepared, based on refinements to

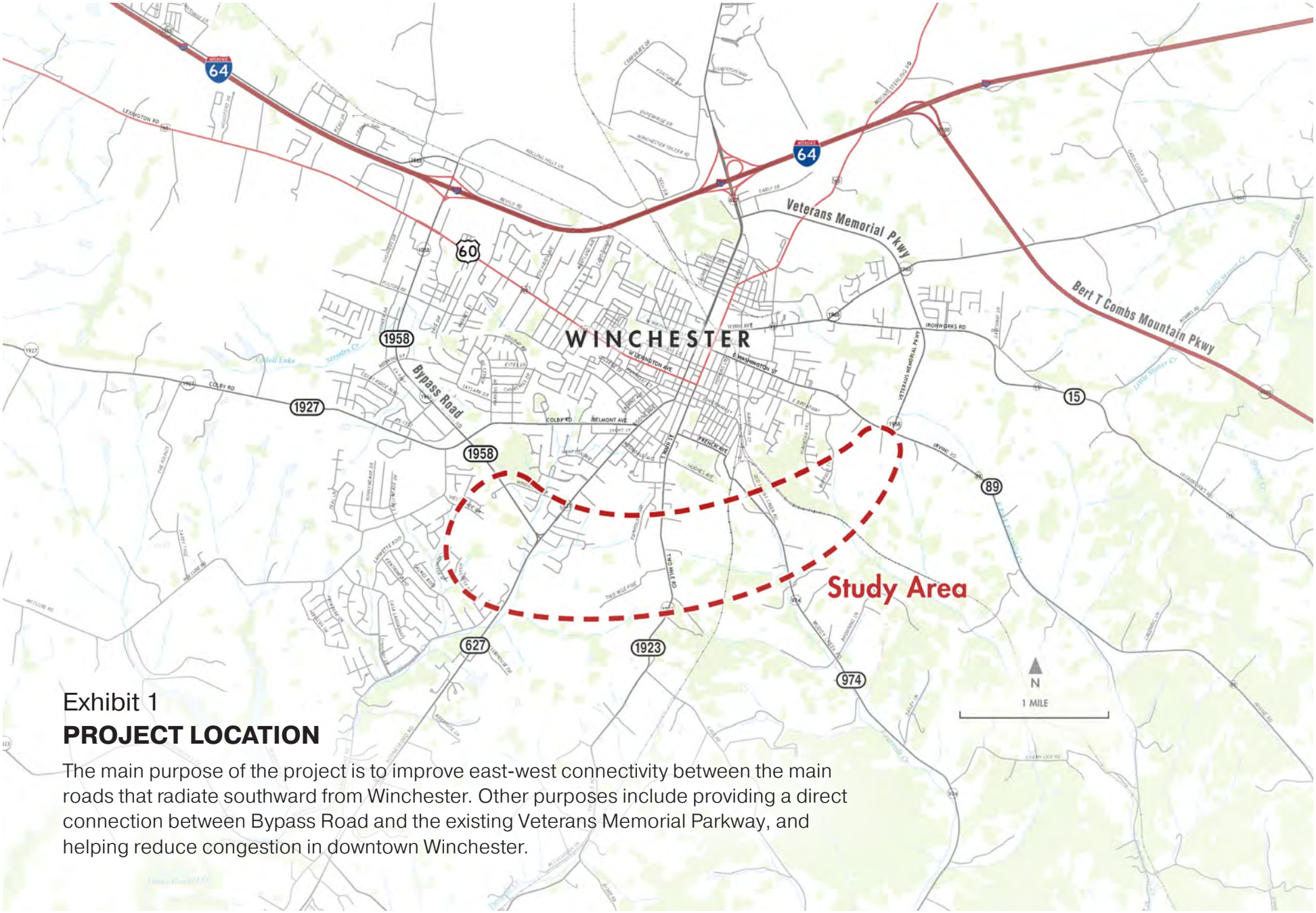


Exhibit 1

PROJECT LOCATION

The main purpose of the project is to improve east-west connectivity between the main roads that radiate southward from Winchester. Other purposes include providing a direct connection between Bypass Road and the existing Veterans Memorial Parkway, and helping reduce congestion in downtown Winchester.

the work done in 2004. Funding issues again prevented the project from being completed, however.

Kentucky's FY 2020-FY 2026 Enacted Highway Plan programed federal dollars for the construction phase of the Veterans Memorial Parkway Extension. As a result, this 2021 Environmental Assessment documents KYTC's re-examination and update of the information prepared in the 2013 Draft Environmental Assessment (**Appendix 1**).

1.1 THE PROJECT'S PURPOSE AND NEED

The main purpose of the project is to improve east-west connectivity between the main roads that radiate from the center of Winchester into the southern half of Clark County. Another purpose is to provide a direct connection to the eastern and western segments of the existing bypass route. The eastern segment provides connections to I-64 and the Bert T. Combs Mountain Parkway; the western segment connect to US 60 and I-64. By joining these existing segments, the project would complete a southern bypass around Winchester.

Improved connectivity is needed because the area south of Winchester lacks modern east-west routes. Most of the existing roads are narrow, winding, and were built before the adoption of modern design standards. Improved connectivity is also needed because through-traffic seeking access to I-64 and US 60 from the south currently must travel through downtown Winchester, causing delays for both local and regional traffic.

Area transportation and land use planners also expect that the project would support anticipated growth in the less-developed area south of Winchester, in keeping with local planning objectives,[1] and discourage uncontrolled and undesired development along US 60 and KY 627.

1.2 LOGICAL TERMINI AND INDEPENDENT UTILITY

The Federal Highway Administration requires that projects have what is known as "logical termini," meaning projects' begin and end points make sense with respect to the surrounding roadway network. Based on the needs described above, KYTC set the project's eastern terminus at KY 89 (Irvine Road), where the existing Veterans Memorial Parkway ends. Because of the greater number of land use constraints in western project area, KYTC defined the western terminus as somewhere along a section of KY 627 (Boonesboro Road) in the vicinity of Bypass Road, allowing development of different alternatives for connecting the new road to the existing bypass route. These begin and end points meet the definition of logical termini because a project built between these locations would most effectively achieve the goal of completing the full bypass route.

The FHWA also requires that a project have "independent utility," meaning that the project can stand alone, serving a distinct purpose

1 Clark County/Winchester Comprehensive Plan (2018-2038), pp. 75.

or function without the need for other projects. The current project would meet the independent utility requirement because it would function on its own as a useful transportation facility, without requiring any additional construction projects.

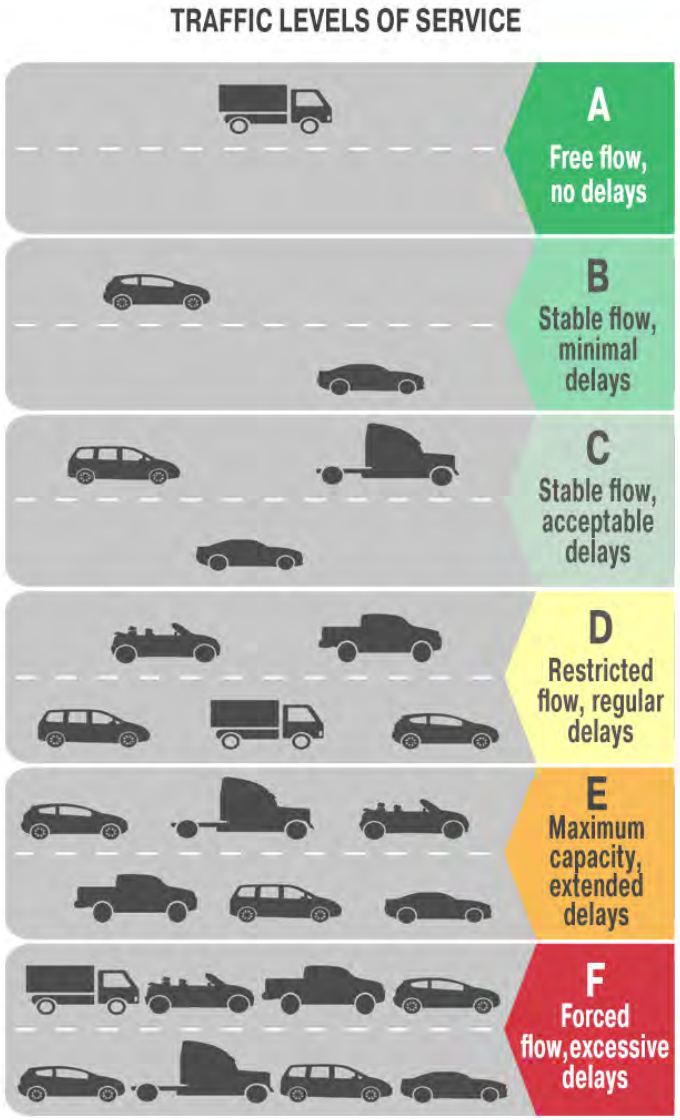
1.3 TRAFFIC ANALYSIS

As part of the project's 2013 study, KYTC conducted an analysis of area traffic volumes[2] to verify the required lane configurations for the proposed project and to estimate the effect the project would have on area traffic patterns (see **Appendix 2**). This analysis was based on segments between major intersecting roadways (on a path representing the proposed project), and at the project termini. These segments, and the existing and forecasted traffic volumes along each, are illustrated on **Exhibit 2**.

With respect to the traffic service the proposed project would provide, the traffic volumes forecasts indicate the project would operate at Level of Service A in 2045 (the "design year" for the project). As shown on the illustration (right), Level of Service A corresponds to conditions in which vehicles can move freely, with no conflicts from other vehicles.

1.4 CONSISTENCY WITH LOCAL AND STATE PLANS

The proposed project is included in the Kentucky Transportation Cabinet's Six-Year Highway Plan (Fiscal Year 2020–2026), with $36.08 million allocated for construction, beginning in 2024. The project is also included as a "key issue" in the 2018-2038 Winchester/Clark County Comprehensive Plan.



2 Forecast updated in 2021.

Exhibit 2

Traffic Data

TRAFFIC ANALYSIS SEGMENTS

TRAFFIC VOLUMES PER SEGMENT

		2020	2024	2045
A	ADT	11,900	n/a	16,000
	Truck DHV	n/a	350	450
	AADTT	n/a	3,100	3,960
1	ADT	n/a	7,900	10,000
	Truck DHV	n/a	80	90
	AADTT	n/a	630	770
2	ADT	n/a	6,700	8,600
	Truck DHV	n/a	60	80
	AADTT	n/a	530	660
3	ADT	n/a	6,700	8,600
	Truck DHV	n/a	60	80
	AADTT	n/a	530	660
B	ADT	4,300	n/a	9,900
	Truck DHV	n/a	40	80
	AADTT	n/a	380	760

ADT = Average Daily Traffic
DHV = Design Hourly Volumes
AADTT = Average Annual Daily Truck Traffic

Note: This data was first collected in 2013 and was updated in 2021.

2 Proposed Alternatives

Identifying and analyzing alternatives is the key to ensuring that project decisions are made in an informed, objective manner.[1] For the proposed Veterans Memorial Parkway Extension Project, KYTC identified and assessed a variety of options for meeting the project's purposes. These "Build Alternatives" included different route locations for a new road, along with concepts for meeting the project purpose that would not require building a new road. The alternative of not pursuing the project—the No Build Alternative—was also examined. As described in the paragraphs below, some of these alternatives have been dropped from further consideration because they would not achieve the project's purpose or would be less advantageous than other similar options.

2.1 ALTERNATIVE CONCEPTS CONSIDERED

KYTC explored various transportation concepts that would not require building a new roadway to see if they could meet the project's purposes. These included public transportation, multimodal concepts, transportation demand management, and transportation systems management.

Public Transportation

Public Transportation alternatives included implementation or expansion of paratransit services, bus routes, bus rapid transit, and passenger rail service. With the exception of paratransit, these options can provide high-capacity, energy-efficient movement along densely traveled routes. They also serve high-density areas by offering an option for automobile owners who cannot or do not wish to drive, as well as service to those without access to an automobile.

The purposes of the current Veterans Memorial Parkway Expansion project are to improve east-west connectivity between the main roads that radiate from the center of Winchester and to provide a direct connection to the existing eastern and western segments of the bypass route (as described previously). These purposes would not be met through implementation or expansion of public transit options. Also, given that Winchester and Clark County are not high-density areas, most public transit options would not be financially feasible. For these reasons, KYTC has concluded that public

1 Federal Highway Administration. Transportation Decisionmaking. https://www.environment.fhwa.dot.gov/nepa/trans_decisionmaking.aspx

transportation options would not meet the purposes of the project and have dropped them from further consideration.

Multimodal Concepts

Multimodal concepts improve mobility by providing different modes of travel, beyond just vehicular travel, or combining vehicular travel with other modes. Examples include accommodating walking and bicycling, or, as discussed above, transit options. The "Complete Streets" concept has emerged as a way to examine and, when appropriate, accommodate the travel needs of people of all ages and abilities, regardless of whether they are traveling as drivers, pedestrians, bicyclists, or public transportation riders.

Although the Veterans Memorial Parkway Expansion project was developed prior to the 2022 implementation of KYTC's Complete Streets policy, the concepts and practices that are formalized in the policy have been in use for many years in the development of KYTC projects. These include factors such as safety, ADA requirements, public input, functional classification, traffic volume and posted speed, context and setting, and accommodating the anticipated needs of transit, bicyclists and pedestrians. Each of these was considered in the development of alternative design concepts for the current project.

As defined in KYTC's Complete Streets, Roads, and Highways Manual, the current project would be a rural highway and would therefore require minimal bicycle and pedestrian accommodations. The project will have indirect impacts on existing multimodal infrastructure in and around Winchester. The Winchester-Clark County Active Transportation Plan (2016) inventories existing sidewalks and sidewalk gaps. A section of KY 627 (Boonesboro Road) within the study area is identified in the plan as one of these gaps.

The plan also identifies existing and planned rural and urban bicycle routes, most of which fall outside of the project study area. Both the Winchester-Clark County 2016 Active Transportation Plan and Clark County 2018-2038 Winchester Comprehensive Plan identify a proposed future shared use path within the project footprint. The project's design alternatives accommodate this path by including an 11-foot berm along both sides of the reconstructed KY 627. The proposed 12-foot (10-foot paved) shoulders along the rural portions of the new route will provide a refuge for bicyclists and pedestrians.

Due to the lack of east-west connectivity around Winchester, existing traffic utilizes parts of downtown Winchester as a cut-through, increasing congestion and hazards for pedestrians and cyclists utilizing the facilities available to them in downtown. By 2045 the new alignment is anticipated to service between 8,600 and 10,000 motorists per day, including 80-90 trucks. Removing these vehicles from the existing network is anticipated to improve the safety of the roadways within the existing and planned downtown multimodal infrastructure.

Winchester/Clark County provides limited transit services through the Kentucky River Foothills Development Council. There is currently

one bus route utilizing a 90-minute loop. No stops are included in the project area. However, this project could provide new route opportunities and increase operational efficiency of the route.

Transportation Demand / System Management

Transportation Demand Management is an attempt to achieve a more efficient use of transportation resources by taking steps to reduce the need, or "demand," for use the roadway system. Typically, TDM improvements do not involve major capital investments and instead focus on techniques such as staggered work hours, encouraging the use of flex time at large employment centers, and establishing ride-sharing and other kinds carpooling options. While these techniques can be viable options in some areas, they would not achieve the purposes established for the Parkway Extension project because they rely on the existing network and would not provide the required connectivity. KYTC has concluded that TDM would not meet the project's purposes and has dropped it from further consideration.

Transportation System Management typically consists of low-cost, minor transportation improvements to increase the capacity or operational efficiency of an existing facility. There are two main types: operational and physical. Examples of operational improvements include traffic law enforcement, access control, signal coordination, turn prohibitions, speed restrictions, and signal phasing or timing changes. Examples of physical improvements include adding turn lanes, intersection realignments, improved warning and information signs, and new traffic signals or stop signs. Because the purposes of the project are to improve east-west connectivity between the main roads south of Winchester, and to provide a direct connection to the existing eastern and western segments of the Winchester bypass route, KYTC has determined that TSM would not meet the purposes of the project and has dropped it from further consideration.

2.2 ROADWAY ALTERNATIVES

Alternative corridors for the proposed project were first identified in the early 2000s and have been refined or eliminated at various points since then.

Early Development of Alternatives (2000-2003)

In 2000, KYTC established two roadway alternatives—designated as Red and Blue—as part of an Environmental Overview prepared for the proposed project. A public meeting was held in October of that year to present the Overview's findings at that time.

In 2003, KYTC began a more detailed study, establishing three concepts for the project's intersection with KY 627 (Boonesboro Road). These concepts reflected attempts by KYTC and the study's Citizen's Advisory Committee to avoid or minimize community and environmental impacts to the greatest practical extent while still achieving the project purpose. The key impact categories included relocations, utilities, streams and floodplains, and avoiding the bisecting of larger farm tracts.

More Recent Updates (2012-2013)

In 2012, in anticipation of preparing the Environmental Assessment, KYTC established a new advisory committee. In April of that year, the advisory committee, along with the project team, came together to select three alternative corridors (Red, Blue, and Black) for further development. These corridors (**Exhibit 3**, top map) were presented to the public in August of 2012.

After receiving comments on those roadway alternatives and their potential impacts from local governments, regulatory agencies, and the public, KYTC made the decision to drop the Red corridor from further consideration, based on its low public support, its high utility relocation and land acquisition costs, and because it would create an undesirable staggered intersection on Boonesboro Road. It was also at this time that the two remaining corridors—Blue and Black—were divided into two segments (labeled East and West) at a point approximately one-half mile east of Boonesboro Road. This was done so that one corridor could cross over to another, creating combinations of corridors. The eastern portion of the Black corridor was also dropped at this time because of its high relocation costs. As a result, only one corridor location—the Blue East corridor—remained from the eastern project terminus to the dividing point east of Boonesboro Road. It was felt that this one corridor best avoided or minimized all categories of impact, compared to the Red and Black segments. From the alternative's dividing point to the western project terminus, two corridors remained for further evaluation: Blue West and Black West (**Exhibit 3**, bottom map). These combinations of alternatives were assessed in several baseline level technical reviews, the results of which formed the basis for the project's 2013 Environmental Assessment.

Exhibit 3
ALTERNATIVES STUDIED PREVIOUSLY

2012 Blue, Red, and Black Alternatives

2013 Alternatives for More Detailed Study

After working with the committee, and after receiving public input, KYTC made the decision to eliminate the western segment of the Blue corridor because it would result in greater impacts and had no substantial advantage over the Black West segment. As a result, the one alternative for further analysis was the combination of Blue East and the Black West segments, with variations where the project would connect to Boonesboro Road. Two such variations were developed—an Offset "T" Intersection and a Reconfigured "T" Intersection. It was agreed that traffic turning movements would need to be further analyzed before a decision could be made about which of these variations would be preferable.

In 2013, a traffic forecast for turning movements on KY 627 and Bypass Road was completed and the two Black West variations were analyzed and compared. After discussions with the project's advisory group and local officials, it was agreed that the Reconfigured "T" Intersection should be developed further and the Offset "T" Intersection should be dropped. In further developing the Reconfigured "T" Intersection, a horizontal curve was placed between Boonesboro Road and Bypass Road (KY 1958) to create a new through movement to help alleviate congestion associated with the existing Boonesboro Road/Bypass Road intersection (see **Exhibit 4**).

2.3 PREFERRED ALTERNATIVE

In December 2013, KYTC prepared a Design Executive Summary identifying the Blue East/Black West/Reconfigured "T" Intersection (urban segment) as the project's Preferred Alternative. The Blue East Alternate was recommended because it would cause fewer disruptions to property owners and would have a lower impact on existing utilities. The Black West Alternate (Reconfigured "T" Intersection) was recommended because it would achieve an acceptable level of traffic service while also achieving cost savings because it would not require the construction of interchanges and would require less right-of-way acquisition.

The Preferred Alternative would be built almost entirely with a rural typical cross section, with an access spacing interval of 1,200 feet. An urban typical section would be used for the "T" Intersection area, where access would be restricted to 600-foot intervals (see **Exhibit 5**).

2.4 NO-BUILD ALTERNATIVE

The No-Build Alternative is defined as all reasonably foreseeable transportation improvements that will be implemented within the design year of the proposed project, excluding the proposed project itself. This alternative is further defined as including maintenance and short-term minor restoration activities (such as resurfacing or safety improvements) intended to maintain the continued operation of the existing roadway network. The No-Build Alternative will remain under consideration for the duration of the project's environmental assessment process.

Exhibit 4

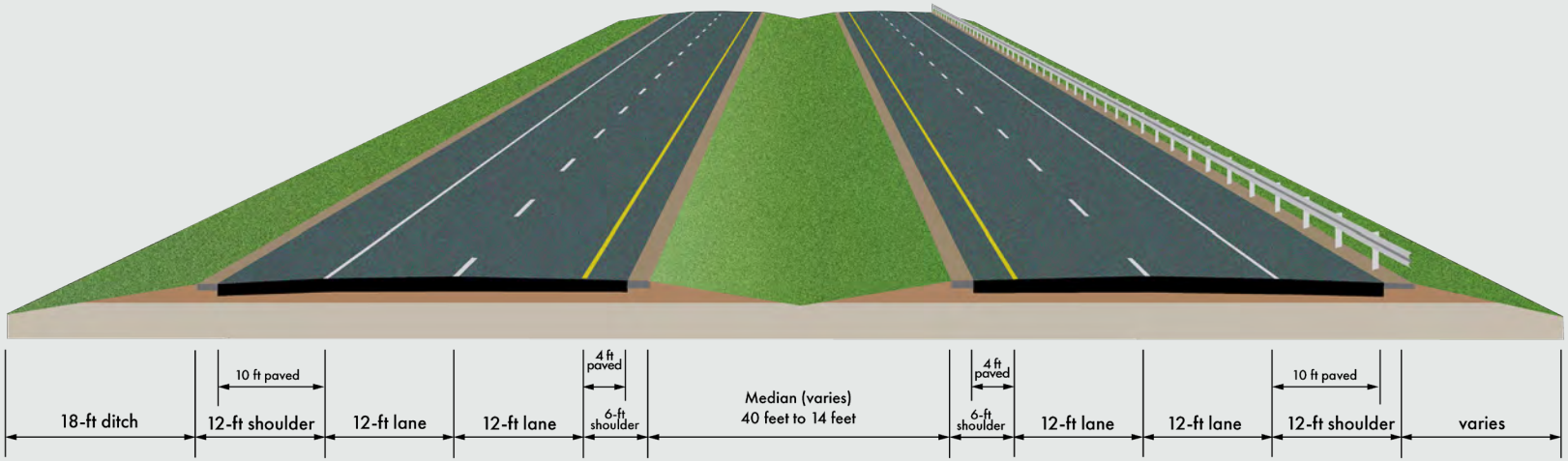
PREFERRED ALTERNATIVE

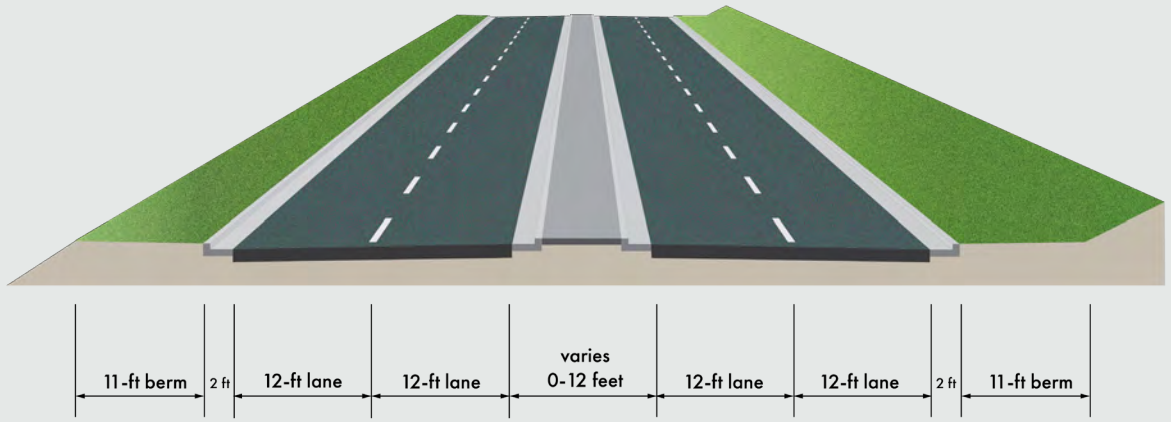
The Preferred Alternative incorporates segments from two alternatives studied previously: the Blue corridor and the Black corridor.
The general path of the Preferred Alternative is shown here; the actual roadway would be narrower than this generalized illustration.

Exhibit 5

PROPOSED TYPICAL CROSS SECTIONS

A rural cross section (top) would be used for the majority of the project, with two 12-foot lanes, a grass median, and paved outside shoulders. In the "T" Intersection portion of the project (along KY 627/Boonesboro Road), an urban design would be used (bottom). It would have curbs and gutters and a narrower overall roadway width and would also include 11-foot berms on both sides of the roadway to accommodate a future multi-use path.





3 Environmental Consequences

The environmental consequences of the Blue East, Blue West, and Black West alternatives were previously documented in KYTC's June 2013 Environmental Assessment. This chapter updates that effort by identifying and addressing environmental impacts to the Blue East/ Black West/Reconfigured "T" Intersection alternative (the Preferred Alternative). All impacts discussed in this chapter have been documented in technical reports prepared for this project. Technical reports, executive summaries, updated technical memos, and agency coordination completed since the 2013 draft Environmental Assessment are attached as Appendix 4.

3.1 AIR QUALITY

The Clean Air Act of 1970[1] regulates air emissions. It authorizes the US Environmental Protection Agency (USEPA) to establish national standards for air quality to protect public health and welfare and to regulate emissions of hazardous air pollutants. Six pollutants are targeted in the standards: carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. When a region's concentrations of any of these pollutants are above the established standards, the region is designated as a "non-attainment" area for that pollutant. Once the concentrations of specific pollutants are reduced enough to be within the standards, the area is designated as a "maintenance area."

In 2013, KYTC prepared an Air Quality Baseline Assessment for the proposed project and found that the project would be in compliance with the Clean Air Act standards and with all other applicable air quality regulations. Its findings are summarized below.

The project is within the Bluegrass Intrastate Air Quality Control Region, which has the status of "attainment" for all transportation-related pollutants. As an attainment area, there are currently no transportation control measures for air pollution required in the project area. In addition, current Kentucky guidelines indicate that a full air quality analysis is not required for this project because average daily traffic volumes on the project in the year it would be open to traffic

1 42 U.S.C. §7401 et seq.

are not expected to reach the threshold required for such analysis. That threshold is 80,000 vehicles per day. The highest average daily volume on the new roadway is expected to be 16,000 vehicles, in the design year of 2045.

Likewise, the project does not meet the criteria for requiring a project-level carbon monoxide analysis and would not violate carbon monoxide standards (35 parts per million over a one-hour period, or nine parts per million over an eight-hour period).

The proposed project was found to be in compliance with the Clean Air Act standards and with all other applicable air quality regulations.

Under USEPA regulations, this project does not require a detailed study for particulate matter, nor does it require a detailed analysis of "Mobile Source Air Toxics (MSAT)," according to FHWA's guidance. For each of the project's alternatives (including the No-Build), MSATs in the design year are expected to be significantly lower than the EPA threshold of 140,000 to 150,000 annual average daily traffic; therefore, the project is considered to have a "Low Potential for MSAT Effects."

Cumulative and Indirect Air Quality Effects

Although indirect air quality impacts on rural, commercial, or residential areas along the project corridor could occur as a result of additional growth attracted by the project, it is expected they would be minor. Because the project is not expected to cause any significant direct or indirect air quality impacts, it would not result in any cumulative air quality impacts.

For possible air quality concerns during construction, no substantial impacts are expected to occur if currently adopted rules for open burning and dust control are followed. As a result, KYTC has concluded that the project is unlikely to cause or contribute to any violation of USEPA's National Ambient Air Quality Standards.

3.2 TRAFFIC NOISE

In 2021, KYTC updated the 2012 Traffic Noise Impact Analysis using traffic volumes for existing year 2020 and design year 2045, as con-

tained in the project's May 2021 Traffic Forecast Technical Report. The updated analysis is consistent with the current (2020) KYTC Noise Policy and was conducted in accordance with the Federal Highway Administration's Procedures for Abatement of Highway Traffic Noise and Construction Noise.

For highway projects such as the Veterans Memorial Parkway Extension, traffic noise analyses begin by measuring existing noise levels in the project area. Using these measurements as input, an FHWA-approved computer model (TNM 2.5) is used to predict the extent to which existing noise levels would change, and whether any change would be substantial enough to be considered a traffic noise impact.

The FHWA has established a set of Noise Abatement Criteria (NAC) for determining if the noise levels caused by a project would be severe enough to require consideration of measures to lower, or "abate," them. Abatement must be considered if the predicted noise levels approach or exceed the NAC.

An impact may also be considered to occur if the project would result in a substantial noise level increase over existing conditions. In Kentucky, a substantial increase is considered to exist when a build alternative would increase noise levels over the no-build condition by 10 decibels or more.

In its 2012 analysis, KYTC identified several noise-sensitive locations (receptors) along the proposed alternatives, as shown on **Exhibit 6**. Most of these were residences. FHWA's TNM 2.5 was used to determine if these locations would receive substantial traffic noise impacts resulting from the project.

KYTC's analysis of the noise model output indicated that traffic noise impacts would occur in the future, with or without the project. Under the future (2045) No-Build condition, traffic noise is expected to increase by between 0 and 3 decibels over existing levels, which is consistent with the predicted increase in traffic volumes.

For the Blue East segment, the 2045 noise level is predicted to range from a decrease of one decibel to an increase of up to 21 decibels, compared to existing conditions. Seven receptors representing eight residences are predicted to receive a traffic noise impact because of a substantial increase in noise levels. These include three residences in the vicinity of Two-Mile Road and five in the vicinity of Muddy Creek Road. Three additional residences receiving an impact are properties that KYTC would need to acquire and relocate.

For the Black West segment near the Winchester Country Club golf course, noise levels are predicted to increase by between one and three decibels over existing levels. One residence at the Boonesboro Road intersection of the new bypass was predicted to receive a

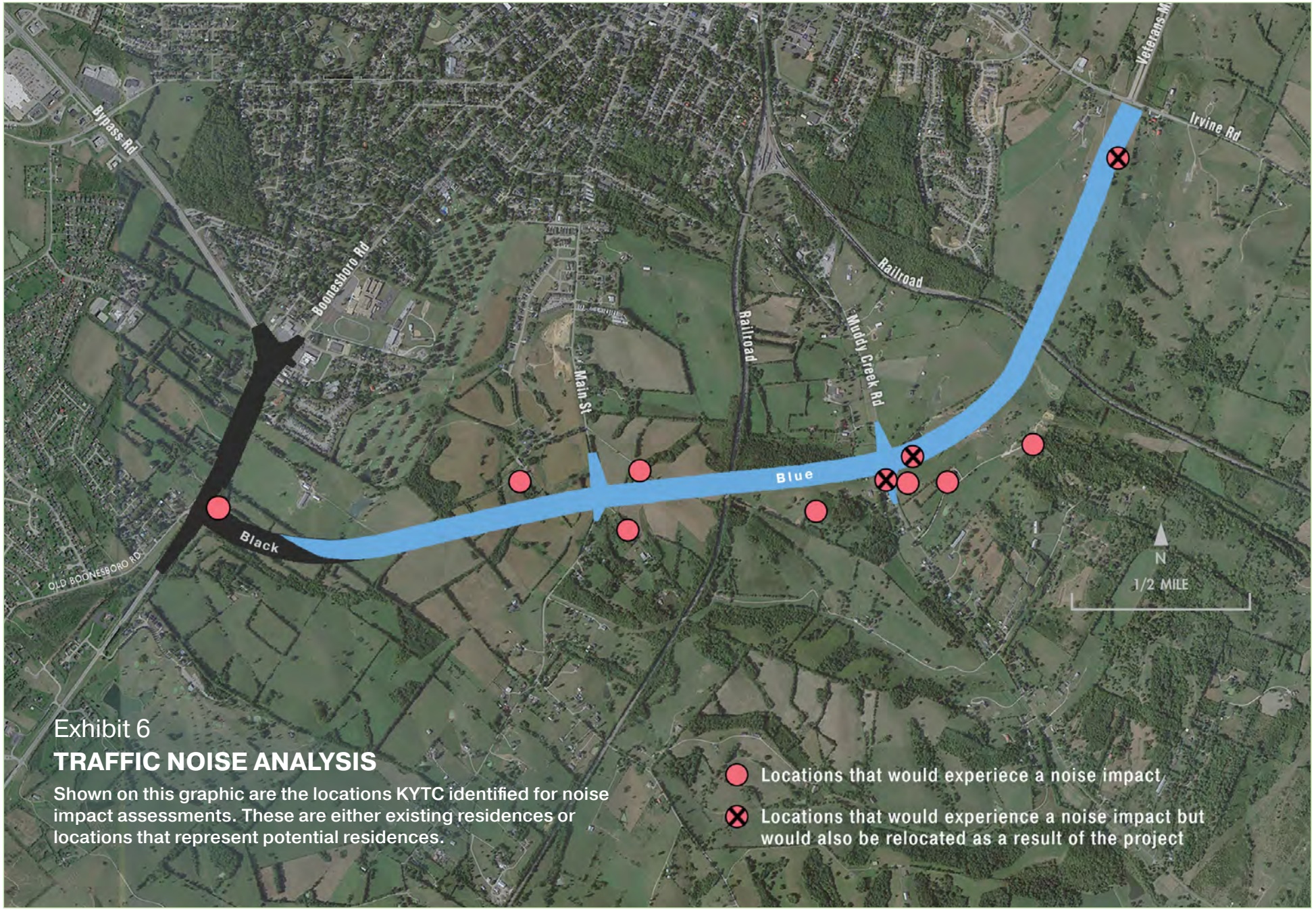


Exhibit 6

TRAFFIC NOISE ANALYSIS

Shown on this graphic are the locations KYTC identified for noise impact assessments. These are either existing residences or locations that represent potential residences.

Locations that would experiece a noise impact

Locations that would experience a noise impact but would also be relocated as a result of the project

traffic noise impact because noise levels would approach or exceed the abatement criteria. At the time of the analysis was conducted, the residence was vacant and listed for sale as commercial property.[2]

The Black West alternative's Reconfigured "T" Intersection option was not evaluated in the original 2012 noise study and was added to the 2021 update. Based on design year 2045 daily hourly volumes, impacts were predicted to occur within 100 feet from the roadway edge of pavement. The five receptors are all at least 275 feet from the centerline, three being greater than 400 feet. Based on the 2020 KYTC Noise Policy, even if modeling predicted that noise-related impacts would occur, no further consideration of impacts is required because the mitigation required to protect these receptors would not be acoustically feasible because there are not three receivers within a 115-foot radius of each other.

Under the Preferred Alternative, future traffic noise levels are expected to cause impacts. Analysis was conducted to identify Impacts because noise levels would meet or exceed abatement criteria, and because noise levels would increase substantially.

Indirect and Cumulative Noise Effects

KYTC's future year (2045) noise analysis included projected traffic volumes for the proposed project as well as forecasted background traffic growth and other planned and programmed projects in the area. With each of these factors included, the noise impacts predicted in the project's noise analysis represent both direct and cumulative noise impacts.

Because a doubling of traffic volume is required to increase the sound level enough to be detected by the human ear, and because traffic volumes in the project area are not anticipated to double, any increases in sound levels beyond the project limits would likely be undetectable. As a result, KYTC has determined that the project would not result in any indirect noise impacts.

Traffic Noise Abatement

Because FHWA's noise abatement criteria would be approached or exceeded at certain receptor locations, KYTC evaluated 25 sound barrier locations to determine if barriers would be both reasonable and feasible. Barriers within the right-of-way at a height of 20 feet (the maximum recommended height) were assessed to determine their effectiveness, cost, and construction feasibility. The results of the evaluation indicated that all barrier locations would cost more than the maximum allowed per benefited residence.

KYTC concluded that no noise abatement measures are feasible and reasonable to address the traffic noise impacts that would occur as a result of the project. A final decision about noise abatement measures will not be made, however, until after completion of the project's final design and its public involvement process.

2 Note that this residence would not be relocated by the project and as of January 2023 was still vacant.

Construction Noise

Noise and vibration impacts could occur from various sources including heavy equipment movement, possible blasting, and construction activities such as pile driving and vibratory compaction of embankments. If such impacts occur, they would be intermittent, of relatively short duration, and largely dependent on the distance to nearby receptors. Construction noise is generally less of a nuisance for new highway projects like the Veterans Memorial Parkway Extension because of the lower density of receptors. Construction noise and vibration effects do not constitute a noise impact as defined by FHWA regulation or KYTC noise policies.

When warranted, barriers are a common method for reducing traffic noise along busy roadways.

Construction of the proposed project would be governed by KYTC Standard Specifications for Road and Bridge Construction to minimize the nuisance that can be caused by construction noise.

3.3 SURFACE WATERS AND AQUATIC HABITAT

Protecting water bodies from pollutants that are carried from road surfaces by rain water is important when constructing a new highway. Short-term impacts on water quality within a project area may be caused by soil erosion and sedimentation. Long-term impacts can also occur when particulates, heavy metals, organic matter, pesticides, herbicides, nutrients, and bacteria enter groundwater and surface water bodies from highway runoff. The likelihood and extent of these impacts often depends on the size of the waterways crossed, the number of crossings, and the time of year that construction takes place.

Aquatic habitats are the places in lakes and streams that support the life cycles of plants and animals. A common way these habitats become polluted is by the introduction of small particles that become suspended in the water and scatter the sunlight that strikes the water's surface, causing the water to become cloudy. This cloudiness is referred to as turbidity. High levels of turbidity can affect a water

body's biological productivity, recreational values, and habitat quality, and cause lakes to become increasingly shallow.

Sediments entering a water body as a result of road construction can cause an increase in turbidity, which can in turn have direct negative effects on aquatic organisms by clogging or injuring gills and other respiratory surfaces. Turbidity can also negatively affect aquatic habitat by altering water chemistry and reducing concentrations of dissolved oxygen.

The following summary of aquatic resources is based on the findings of the proposed project's Aquatic and Terrestrial Baseline Assessment, prepared in 2013. It is available at the KYTC District 7 Office in Lexington.

Streams and Water Quality

The project corridor contains several stream systems that drain to the south, toward the Kentucky River, via Howard Creek, Fourmile Creek, and their unnamed tributaries. The proposed project area would cross two sub-watersheds of the Kentucky River: Lower Howard Creek-Kentucky River, and Fourmile Creek. Eight streams would be crossed by the proposed project (see **Exhibit 7**).

KYTC's field survey of biological, chemical, and physical/habitat characteristics was conducted in August and September of 2012. This survey established the baseline conditions of each resource and evaluated overall aquatic community health. Field survey samples were collected at five locations (stations): two on Lower Howard Creek, two on Fourmile Creek, and one on Twomile Creek. Additional field studies were completed in December 2015 to identify and assess jurisdictional waters for the preparation of a Section 404 permit.

Macroinvertebrate Survey

Macroinvertebrates are animals without spines that are large enough to be seen by the human eye. Macroinvertebrates at each station were sampled using quantitative and qualitative methods established in the Kentucky Division of Water Methods for Sampling Benthic Macroinvertebrate Communities in Wadable Waters. At each of the five sampling locations, the macroinvertebrate environment was found to be in the "poor" category, meaning human activity has substantially degraded the stream and its ability to provide adequate habitat for macroinvertebrates.

Fish Survey

Fish sampling was conducted following protocols from the Kentucky Division of Water. In a manner similar to the macroinvertebrate assessment, KYTC's biologists used the Kentucky Division of Water Standard Operating Procedure Collection Methods for Fish in Wadable Streams. At three of the five sampling stations (Lower Howard Creek at two locations and Fourmile Creek), the biotic integrity was found to be in the "poor" category. At a second location on Fourmile Creek the rating was "fair," and at the Twomile Creek sampling location the rating was "excellent."

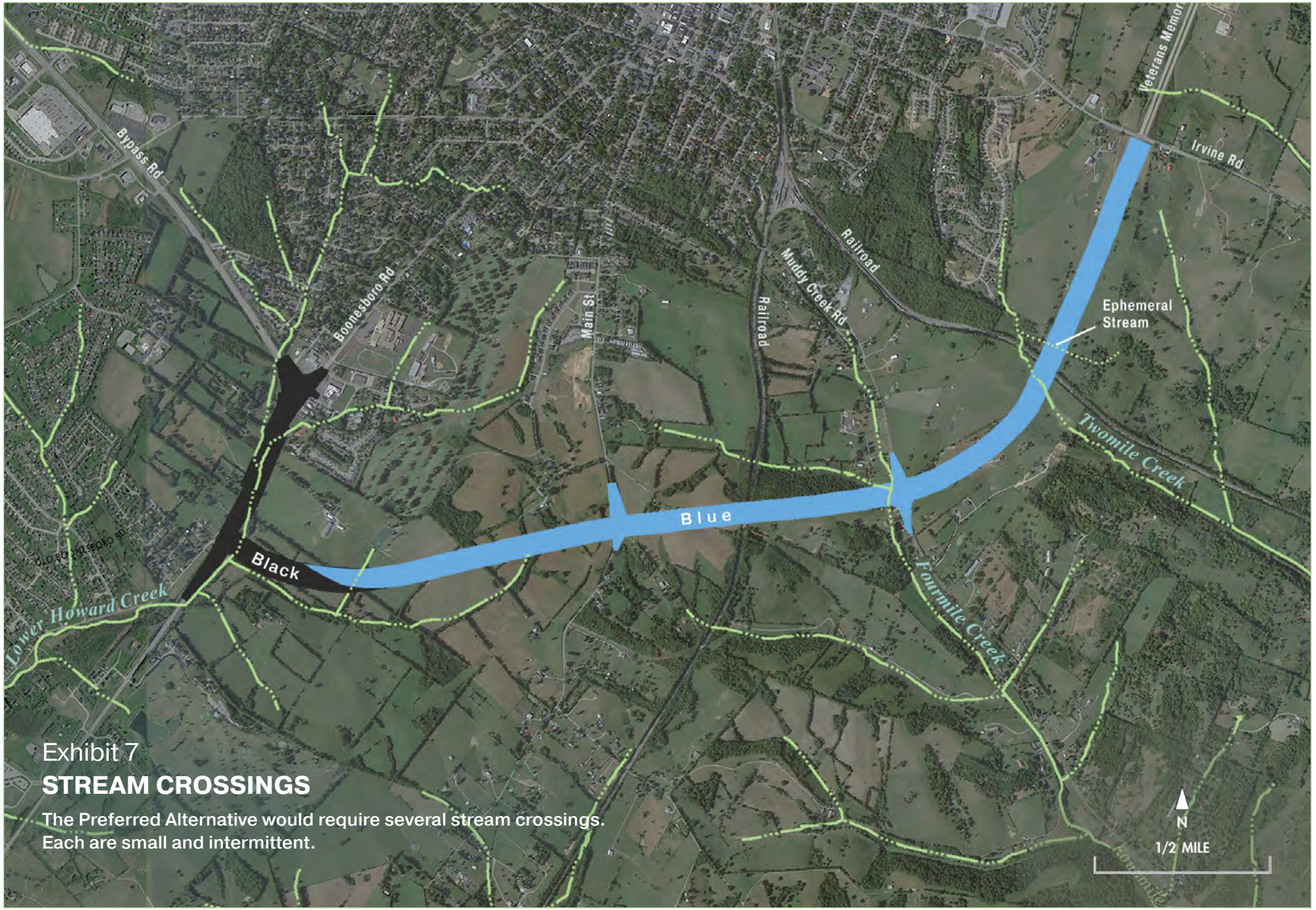


Exhibit 7

STREAM CROSSINGS

The Preferred Alternative would require several stream crossings. Each are small and intermittent.

All of the fish encountered at these sampling stations were common species that typically would be found in small headwater streams in this region. KYTC biologists noted that the drainage areas for these streams are very small (0.47 to 2.34 square miles) and that with such small drainages it is probable that the sampled streams lack flow during dry times of the year. They further noted that even though Station 4 (Twomile Creek) scored an "Excellent" rating, this result was likely to be misleading because of the stream's small drainage area.

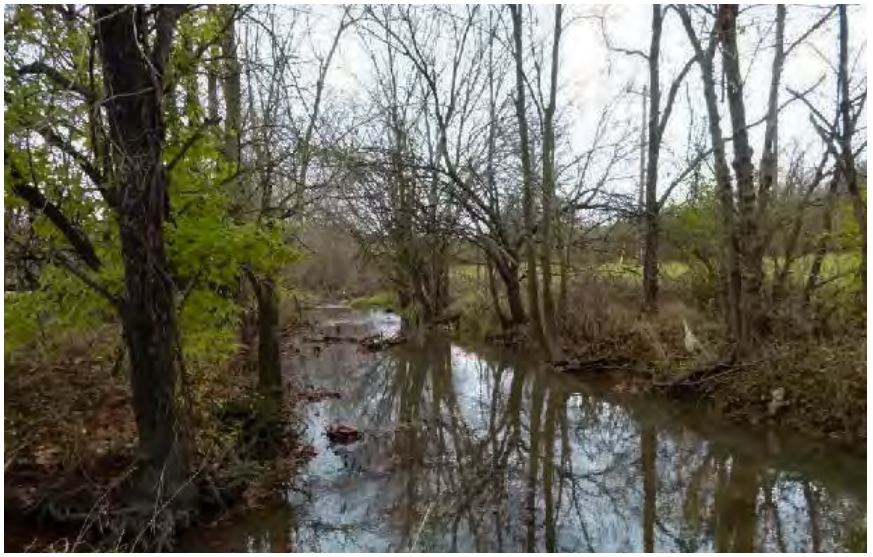
Water Quality

Stream habitat and water quality was assessed using a Rapid Bioassessment Protocol (RBP) developed by the USEPA and modified for use in Kentucky by the Kentucky Division of Water. Water samples were taken at each of the five stream sampling stations. The results of the sampling analysis indicated that each of the five streams scored a rating of "poor." Sub-optimal or marginal conditions were detected across most of the analysis categories, which led to this rating.

Potential Effects on Aquatic Resources

In addition to the loss of habitat at the project's stream crossings, potential impacts on aquatic resources include:

- Increased sediment loading and siltation due to vegetation removal, erosion, or construction.
- Erosion of stream banks as a result of construction activities.
- Increased turbidity, resulting in decreased light penetration and water clarity.
- Increased concentration of pollutants from highway runoff, construction activities, and construction equipment.
- Increased stream flows and velocities as a result of increased storm runoff.



Water quality was assessed using the Rapid Bioassessment Protocol developed by the US Environmental Protection Agency and modified for use in Kentucky by the Kentucky Division of Water. The results of indicated that each of the study area's five streams scored a rating of "poor."

- Increases in average stream temperatures, which can lower stream oxygen levels, affecting animal communities and promoting algal growth.
- Reductions in the amount of beneficial, naturally occurring coarse woody debris into the stream systems.

Potential Indirect Effects

The project has the potential to affect Lower Howard's Creek, which is an important feature of the Lower Howard's Creek State Nature Preserve. Although this preserve is several miles downstream from the project (located at the creek's confluence with the Kentucky River), the project could indirectly affect it because of runoff from construction activities or accidental discharges of pollutants.

Although KYTC's analyses found that the aquatic resources in the study area are generally of poor quality, impacts resulting from the proposed project could have a cumulative impact because they would further degrade these already stressed ecosystems.

Minimization and Mitigation Measures

To keep these kinds of impacts to a minimum, an erosion and sedimentation control plan would be developed and put in place before any construction occurs. This plan would be prepared in accordance with Kentucky Division of Water and KYTC guidance. Examples of Best Management Practices for erosion and sedimentation control that would be used during construction include the use of dikes, berms, silt basins, and silt fencing; locating construction staging areas outside of floodplains and away from streams; and rapid re-seeding of sites where vegetation is disturbed.

Wetlands

KYTC began its analysis of wetlands by consulting the US Fish and Wildlife Service's National Wetland Inventory mapping, which provides a general picture of an area's wetland features. A field survey was conducted by KYTC representatives in August 2012 to verify those findings and to check for additional wetland areas. This survey followed procedures specified in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0. The survey identified three individual wetland areas near the project's Build alternatives. As shown on **Exhibit 8**, all are in the vicinity of the Blue East Alternative.

Each of these wetlands are small farm ponds. Two have a wetland margin and one is a shallow pond dominated by emergent wetland plants. The location of these areas is such that they would not be affected by the proposed project's Build alternatives. Nevertheless, a final determination of potential impacts to jurisdictional wetlands will be made by KYTC during preparation of the project's final design plans.

Floodplains

For regulatory purposes, floodplains are defined by the area inundated during the one percent probability flood event, more commonly referred to as the 100-year flood zone. Development in floodplains

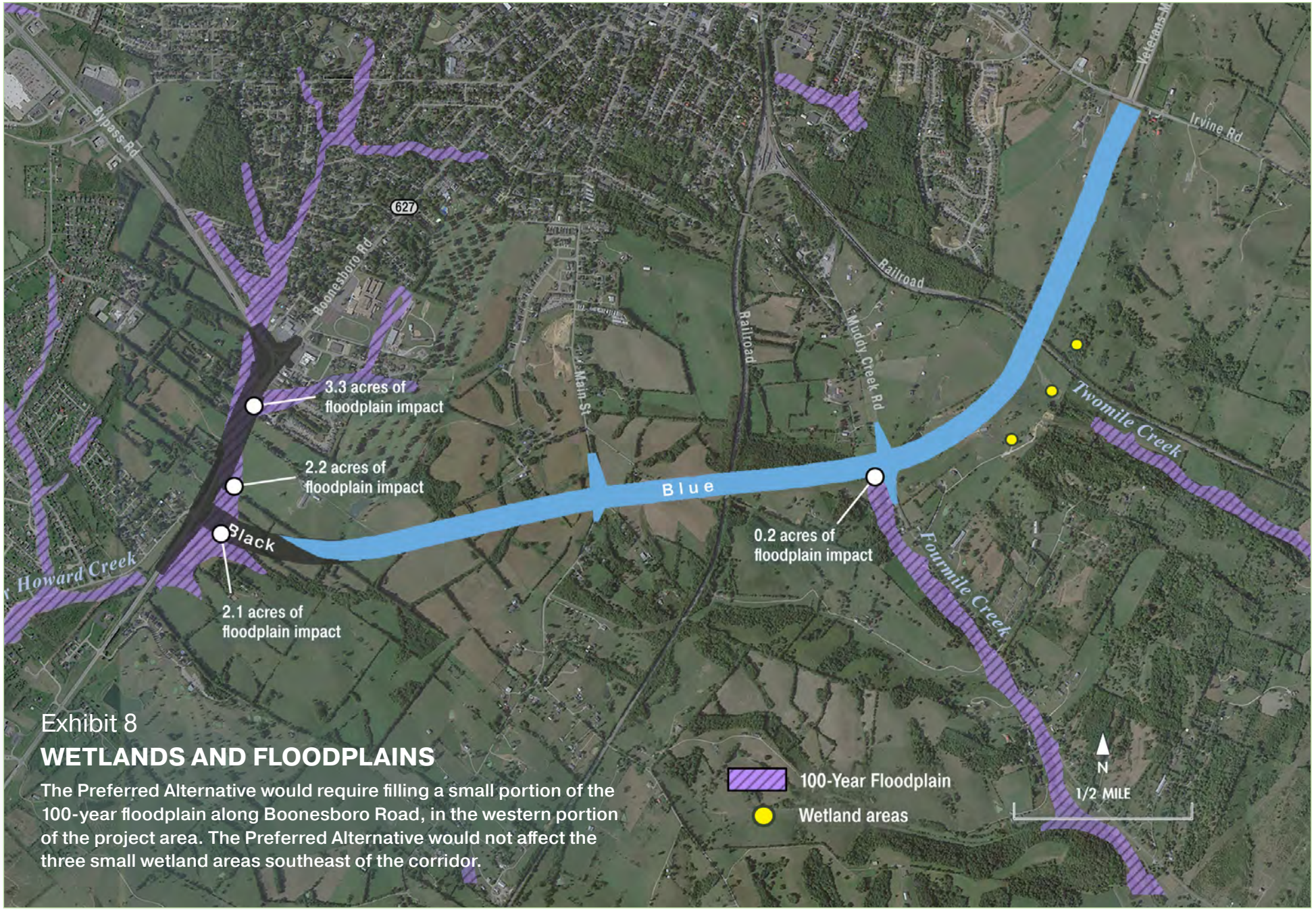


Exhibit 8

WETLANDS AND FLOODPLAINS

The Preferred Alternative would require filling a small portion of the 100-year floodplain along Boonesboro Road, in the western portion of the project area. The Preferred Alternative would not affect the three small wetland areas southeast of the corridor.

is regulated, in part, because of their many beneficial attributes. Floodplains typically:

- provide for the natural moderation of floods, the maintenance of water quality, and the recharge of groundwater
- support large and diverse populations of plants and animals
- often contain wetlands areas, which are biologically productive and provide vital breeding grounds for fish and wildlife
- may contain cultural resources including archaeological and historical sites, unique habitats for ecological study, open space, and recreation opportunities
- generally provide excellent resources for agricultural, aquacultural, and forestry production
- have aesthetic and other intangible attributes that have important social and economic value

The evaluation of floodplain impacts is based on official Federal Emergency Management Agency (FEMA) flood insurance studies and FEMA Flood Insurance Rate Maps (FIRM). These studies and maps provide a standardized way of assessing the extent to which a project may encroach upon 100-year floodplain areas.

As shown on **Exhibit 8**, the Preferred Alternative crosses 100-year floodplain areas associated with Lower Howard Creek and crosses or abuts floodplain areas associated with Fourmile Creek. The acreages that would be affected are 7.6 and 0.2, respectively.

Other Water Resources

The project area contains no wild or scenic rivers, exceptional waters, or Outstanding National or State Resource Waters. Groundwater in the project area tends to be of insufficient quantity and quality for human use, thus there few groundwater wells in the area. There are no gas or monitoring wells in the project's general path.

3.4 THREATENED AND ENDANGERED SPECIES

KYTC coordinated with the US Fish and Wildlife Service, the Kentucky Department of Fish and Wildlife Resources, and the Kentucky State Nature Preserves Commission to identify the project's potential for affecting any federal or state threatened or endangered species. This coordination resulted in the identification of six federally-listed species that are known to occur or have the potential to occur in Clark County. No designated critical habitat or exemplary natural communities were identified within the vicinity of the project during the review. These findings are contained in the project's 2017 Biological Assessment and are summarized in **Table 1**. In 2023, project biologists revisited these findings and ran a query of USFWS's IPaC system to check for new listed species, the findings of which are also listed in Table 1.

Selection of Species for Study

Based on coordination with the environmental agencies noted

TABLE 1
Federally-Listed Species Potentially Occurring in the Project Area

Group	Common Name	Scientific Name	Federal Status	Designating Agency*
Mammal	Gray Bat	*Myotis grisescens*	Endangered	USFWS, KDFWR, KSNPC
Mammal	Northern Long-Eared Bat	*Myotis septentrionalis*	Threatened	USFWS, KDFWR
Mammal	Indiana Bat	*Myotis sodalis*	Endangered	USFWS
Mussel	Fanshell	*Cyprogenia stegaria*	Endangered	KDFWR
Mussel	Clubshell**	*Pleurobema clava*	Endangered	USFWS
Mussel	Rabbitsfoot**	*Quadrula cylindrica cylindrica*	Threatened	USFWS
Plant	Short's Bladderpod	*Physaria globosa*	Endangered	USFWS, KSNPC
Plant	Running Buffalo Clover***	*Trifolium stoloniferum*	Endangered	USFWS, KSNPC

*US Fish and Wildlife Service (USFWS); Kentucky Department of Fish and Wildlife Resources (KDFWR); Kentucky State Nature Preserves Commission (KSNPC).
**Added subsequent to preparation of the 2017 Biological Assessment.
***This species has since been delisted, effective September 6, 2021.

above, and review of occurrence records obtained from these agencies, the species that required assessment as a result of the 2017 BA included the Gray Bat, Indiana Bat, Northern Long-Eared Bat, and Running Buffalo Clover.

Assessment and Findings

A habitat assessment was conducted within the project corridor to determine if suitable habitats are present for the listed species. Habitats present within the project corridor include agricultural land, mature woods, young woods/scrub, and maintained areas, as well as streams and ponds. Of these, the mature woods habitat was identified as suitable summer habitat for the Indiana Bat and Northern Long-Eared Bat. The streams and ponds in the project corridor were identified as poor-quality foraging and commuting habitat for the Gray Bat, but the mature woods in the corridor do provide suitable commuting habitat for this species. As of September 2021, Running Buffalo Clover was delisted by USFWS and is now considered recovered. No further consideration of this species is anticipated.

The habitat assessment also documented the presence of any caves, sinkholes, our other features within one-half mile of the proposed project that may provide potential hibernacula (places where bats can hibernate) or roosting habitat for the three bat species. No potential hibernacula or roosting habitat for were identified within the project corridor. Although three sinkholes are present within one-half mile of the project, they were found to not provide adequate bat habitat. In addition, the three culverts present in the corridor were determined to be unsuitable as potential roosting habitat for the Gray Bat.

The assessment also included examinations for potential Running Buffalo Clover habitat. A lack of one or more preferred habitat requirements for this species led to the conclusion that there is no suitable Running Buffalo habitat in the project corridor, and no individuals of this species were identified during the corridor field survey. It should be noted that subsequent to preparation of the 2017 BA was delisted, effective September 6, 2021; no further action with respect to this species is required.

Based on the occurrence or potential occurrence of these species in Clark County, and the presence of potential habitat in the project corridor, KYTC has elected to assume presence of the Gray, Indiana, and Northern Long-Eared Bat species in the project corridor.

Construction of the proposed project would result in the removal of approximately 17.85 acres of potential habitat for the Indiana Bat and Northern Long-Eared Bat, and construction activities may need to occur when these habitats are considered occupied by these species. Based on these potential impacts, the US Fish and Wildlife has assigned the determination category of "May Affect, Likely To Adversely Affect" for the Indiana Bat and Northern Long-Eared Bat.

No direct or cumulative effects on the Gray Bat are anticipated as a result of the proposed project, and potential indirect effects on this species are considered insignificant. As a result, USFWS has assigned the determination category of "May Affect, Not Likely To Adversely Affect" for this species.

The KYTC will mitigate for takes associated with potential direct, indirect, and cumulative impacts to the Indiana Bat and Northern Long-Eared Bat, in keeping with guidance provided in the Revised Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky,[3] and will make a contribution to the Imperiled Bat Conservation Fund for use in protection of these species.

Details of the assessment and findings for these federally-listed species are contained in the project's 2017 Biological Assessment for the Southeast Winchester Bypass, which is on file at the KYTC District 7 headquarters, in Lexington.

As noted above, the findings of the 2017 BA were revisited in 2023. Because neither the project plans nor conditions in the study area have changed since the 2017 BA was completed, that document's findings remain valid. As previously discussed, Running Buffalo Clover is now delisted and is no longer a concern, and two additional federally-listed mussel species have been included as potentially occurring in the project area. A Habitat Assessment i to address these species and will be completed prior to preparation of this project's final environmental document.

3.5 FARMLAND IMPACTS

Livestock farms are present on the eastern side of KY 627, within the project corridor. Hay and row crop farming is scattered throughout

3 US Fish and Wildlife Service, Kentucky Field Office. Revised Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky. Version 2: June 2016.

the corridor. Although KYTC has attempted to locate the proposed project along property boundaries to minimize impacts to farms, several would be affected.

Pockets of land designated by the US Department of Agriculture as Prime Farmland or Statewide Important Farmland occur intermittently along the project's path and throughout the greater area. Transportation projects with federal participation that would irreversibly convert farmland to nonagricultural uses are subject to the provisions of the Farmland Protection Policy Act. Coordination with the US Department of Agriculture is required on such projects. This coordination results in a scoring of each project alternative, based on a point system contained in the USDA's Farmland Conversion Impact Rating Form for Corridor Type Projects (NRCS-CPA-106). If a project alternative receives a score of 160 points or higher, the project sponsor must consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).[4]

Coordination with USDA on project alternatives took place during the summer of 2021 and scoring for the project segments is as follows:[5]

Blue 98
Black 108
Blue/Black with "T" Intersection (Preferred Alternative) 105

USDA's Land Evaluation score, combined with the agency Corridor Assessment Criteria for the alternatives being considered, did not result in a score greater than 160. Therefore, no additional consideration of alternative alignments or mitigation is necessary.

Indirect and cumulative impacts to farmland are primarily related to the project's potential to trigger additional or more rapid development in the project vicinity. This potential was estimated when assigning values to USDA's Corridor Assessment Criteria. The Preferred Alternative is contained within the urban expansion area doc-

The project's study area is predominantly open space and farmland.

4 Farmland Protection Policy Act. P.L. 97-98, Sec. 1539-1549; 7 U.S.C. 4201, et seq.

5 See appendix 4 for completed rating forms.

umented the 2018-2038 Clark County/Winchester Comprehensive Plan, and the project could have the effect of making it more appealing for farm owners to sell their land for residential and commercial development, potentially reducing the amount of farmland in the county.

3.6 LAND USE AND COMMUNITY IMPACTS

A Socioeconomic Baseline Assessment for the proposed project was prepared by KYTC in 2013. The socioeconomic assessment was updated and documented in a technical memo in August 2021. The update reflects demographic data from the US Census Bureau's 2019 American Community Survey. The findings of this assessment are summarized in the sections that follow.

Existing and Future Land Use

Existing land uses in the immediate project area are predominantly low-density residential, agricultural, or undeveloped. The Winchester Comprehensive Plan (2018-2038) designates future land uses in the immediate project vicinity as predominantly single-family residential, with some planned community neighborhoods and local neighborhood/ planned development categories.[6] The latter two designations are intended to include a mix of residential, commercial, and recreational facilities.

The comprehensive plan recognizes the Parkway Extension project and has been prepared assuming the project will be built. As stated in the plan:

> *Completing the bypass around Winchester has been in discussion for decades and continues to be on the top of KYTC's list. The first phase of the bypass has been completed and the remaining section, the extension of the Winchester East Bypass to the Veterans Memorial Bypass (from KY 627 to KY 89), has been identified as a high priority project on the KYTC maintained Six-Year Plan.*[7]

The project area is primarily outside of Winchester's city limits but is within its Urban Planning and Long Range Planning boundaries (see **Exhibit 9**). These boundaries extend beyond the city limits and establish areas where new development is most suitable with respect to existing and planned utilities and public infrastructure.

Because the Parkway Extension project is called for in the Town's adopted comprehensive plan, and because the project would be located within the Town's urban growth boundaries, any growth supported by the project would be viewed by area planners as a positive outcome.

Indirect and cumulative land use impacts are primarily related to growth and development in the corridor. If owners of large parcels (or owners of adjacent smaller parcels) decide to sell their property, that land may ultimately be developed into higher density residential

6 Clark County/Winchester Comprehensive Plan (2018-2038), pp. 75.NOTE: the road and project names in this passage reflect names used earlier in the proposed project's history.

7 ibid, pp. 124.

Exhibit 9

LAND USE PLANNING

Although both project alternatives are located outside of the Winchester city limits, both are within either the city's larger urban planning area or its long range planning areas. It is within these areas that future growth is being directed by City planners.

or commercial properties, changing the character of the community from a rural to suburban.

Relocations and Displacements

Although KYTC has attempted to minimize the need for relocations, some relocations would be unavoidable. All would be residential properties:

Blue East ..... 5 residences
Black West ..... 1 residence

Preferred Alternative ..... 6 residences[8]

All residential acquisitions would be conducted in accordance with the Uniform Relocation Assistance and Real Properties Act of 1970 and the Kentucky Transportation Cabinet's Relocation Assistance Program. KYTC has assessed available housing in the project vicinity and does not expect that any potential relocatees would have difficulty finding replacement housing.

As described in Section 3.7, below, an archaeological survey of the study area was conducted in April and May 2021. During that survey, a previously unidentified family cemetery was discovered. It contains three graves, dating from 1988 to 2008. This cemetery is located within the proposed right-of-way of the Blue East segment and would require relocation with the Preferred Alternative.

Community Cohesion and Barrier Effects

Community cohesion refers to the quantity and quality of interactions among people in a community, as indicated by the degree residents know and care about their neighbors and participate in community activities. A community or neighborhood is said to be cohesive when its residents communicate and interact with each other in ways that lead to the neighborhood being seen as a singular unit.[9]

The low-density, rural pattern of residential housing in the project corridor does not create discernible neighborhoods, though some higher-density subdivision neighborhoods are present. Most project corridor residences are clustered along project area roadways. Because there are no established neighborhoods along the project corridor, and because there would be few residential relocations, KYTC does not expect the project to affect the quality or quantity of social interaction and has concluded that any changes in community cohesion would be minor.

The barrier effect refers to a separation between people or places. Communities can become separated when a new highway is built through them and local streets are closed. This effect can be felt by

8 Note: Because they would not be relocated, the three noise-impacted residences identified during the project's noise analysis are not included on this list.

9 Litman, Todd. "Community Cohesion As A Transport Planning Objective." Victoria Transport Policy Institute: Victoria, BC. 2009.

individuals as a psychological impact, even when local street access is not substantially altered. The barrier effect can also affect businesses, recreational facilities, and other public facilities and services because a new road can sometimes cut off enough clients or users to have a substantial negative effect on the continued operation of a business or facility.[10]

Because this project would not close existing streets or substantially change access to properties, KYTC does not expect it would result in any substantial barrier effects.

Community Facility Impacts

Although there are schools, churches, golf courses, trails, and other community facilities in the project area, none would be directly affected by the project.

Environmental Justice and Civil Rights

Under Executive Order 12898 ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"), the policies, programs, and plans of federal agencies may not place an unfair burden on groups of people in the US who have historically lacked political power because of socioeconomic, racial, or ethnic discrimination. Likewise, Title VI of the Civil Rights Act of 1964 requires nondiscrimination on the basis of race, color, and national origin in programs that receive federal funds. As a recipient of federal funding, KYTC must demonstrate compliance with these and other regulations designed to mitigate adverse impacts on low-income people, people of color, and transit-dependent individuals.

Data from the 2010 US Census and from a 2021 Technical Memorandum indicate that median household and per capita income levels in the eastern half of the study area (corresponding to census tract 201.06—see **Exhibit10)** are lower than elsewhere in the project corridor, the county, and the state overall. Data for census tract 201.06 also indicate a higher percentage of the population living below the poverty level and a higher percentage of minority residents in this area, compared to the other two census tracts that are crossed by the project.

Most of the population in census 201.06 is located within the Winchester city limits, outside of the project study area. Because there are few households in the portion of this census tract that would be traversed by the project, it is unlikely that the project would result in a disproportionate share of adverse impacts falling on minority or low income populations. Adverse impacts, particularly relocations, would affect a population that appears to contain a range of incomes, with few of affected households appearing to be low-income.

Other benefits and burdens to the study area population would be distributed evenly along the project corridor. Construction of the

10 US Department of Transportation. Social Impact Assessment: A Sourcebook for Highway Planners. Report No. FHWA/RD-81/026. Washington, DC. 1982.

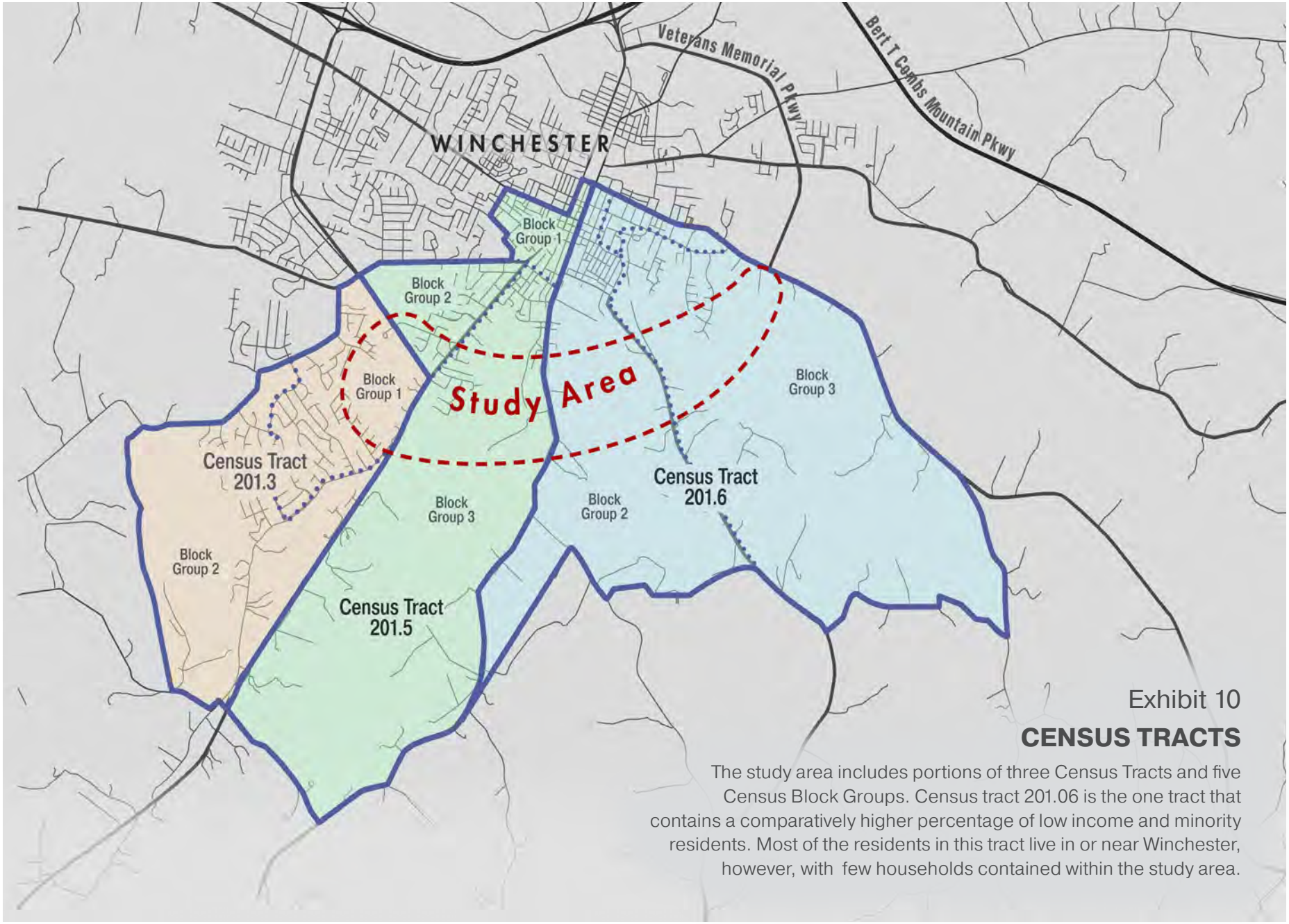


Exhibit 10

CENSUS TRACTS

The study area includes portions of three Census Tracts and five Census Block Groups. Census tract 201.06 is the one tract that contains a comparatively higher percentage of low income and minority residents. Most of the residents in this tract live in or near Winchester, however, with few households contained within the study area.

project is not expected to result in long-term, meaningful impacts on air quality. For the Preferred Alternative, noise impacts would be spread out along the project corridor, with no areas recommended to receive noise abatement measures. Potential minority or low income households in or near the eastern part of the study area will not experience noise impacts under the build scenario. Short-term construction impacts such as dust, noise, vibration, and erosion would be experienced similarly by all residences along the proposed build alternative. Under the build scenario, all who live and work in the project area will benefit as result of improved roadway conditions, decreased travel times, and reduced cost for access to goods and services.

Pedestrian, Bicycle, and Recreational Facilities

Very few pedestrian and bicycle facilities are present in the project area; most of the existing sidewalks in the area are located north of the project corridor, in Winchester. One facility within the greater project area is the Winchester Traveling Trail, which includes unpaved walking and bicycling paths.

The proposed project does not include sidewalks or bicycle lanes, consistent with its high speed, rural design, and in keeping with the design of the roadway segments that the project would connect to at its eastern and western termini.

Public parks and recreation facilities are protected by Section 4(f) of the US Department of Transportation Act of 1966.[11] Section 4(f) resources cannot be used by a highway project unless there is no prudent or feasible alternative available.

Three recreational facilities are located in the vicinity of the project:

Winchester Traveling Trail—This is a public facility located just north of the northern terminus of the project. It would not be directly affected by the project.

Southwind Golf Course—This is a privately-owned golf course that is open to the public. It is located just south of the proposed KY 627 intersection and would not be directly affected by the project.

Winchester Country Club—This is a privately-owned facility that is not open to the public. It is located northeast of the proposed KY 627 intersection and would not be affected by the project.

Visual Impacts

The area's viewsheds primarily contain undeveloped and agricultural properties, with residences scattered along roads. There are no roadways in the project area designated as scenic highways or byways.

11 Although the law is now codified in 49 U.S.C. §303 and 23 U.S.C. §138, it is still commonly referred to as Section 4(f).

The project's conversion of undeveloped land to roadway would result in negative visual impacts, experienced primarily by residents living near the project's path. Although the proposed new route would likely be visible from the southern end of the Winchester County Club golf course, trees and adjacent farmland would likely minimize this impact.

Indirect visual effects are related to the possibility that the project could alter the location or pace of area growth and developments. If the project were to attract new residential and commercial development, the area's viewshed could ultimately transition from rural undeveloped land to more suburban viewshed.

KYTC has concluded that the project's potential visual impact would not be significant, given the that much of the project area is increasingly transitioning to suburban land uses.

3.7 HISTORIC RESOURCES

Historic Structures or Districts

An overview level cultural historic survey was originally completed for the project in December 2011. The original area of potential effect (APE) for the survey was defined by a 1,000 ft buffer surrounding the environmental footprint associated with the proposed alternatives. Upon approval of the initial overview level survey, in September 2012, a Cultural Historic Baseline Survey to determine eligibility and effects of the proposed alternatives was prepared detailing the projects effects on historic resources.

In November 2020, KYTC conducted an addendum to the 2012 report to identify any additional resources associated with the Preferred Alternative. The APE remained a 1,000 ft buffer surrounding the environmental footprint associated with the proposed alternatives. From January through March 2021, field surveys identified 148 cultural historic resources within the APE, 104 of which were previously documented. The report concluded with a recommendation of No Adverse Effect for the proposed project.

In a September 21, 2021 letter, the State Historic Preservation Officer (SHPO) officially concurred with the majority of the recommendations made in the KYTC report. One recommendation they did not concur with was KYTC's findings for resource CK-509—a horse racing farm called Fairholme. For this property, KYTC found that only its 6.2 acre residential parcel and historic driveway were significant, and not the entire 148 acre farm parcel. Initially, the SHPO was concerned that the loss of a barn (Resource H) and the splitting of the farm parcel would constitute an Adverse Effect. The SHPO also did not concur with KYTC's period of significance for the CK-509 resource.

In response to the SHPO's lack of concurrence for this resource, KYTC conducted more detailed research on the history of the Fairholme property, including gathering information on various struc-

tures' association with horse racing and photographic documentation of the loss of integrity at the site. Based on these additional research findings, the SHPO re-evaluated its assessment of CK-509 and changed its conclusion to a finding of No Adverse Effect to Historic Properties. This was documented in a letter to the KYTC Division of Environmental Analysis, dated June 7, 2022. (See Appendix 5).

With this new concurrence for the CK-509 resource, the proposed project's Preferred Alternative will have no adverse effect on any historic resources. By agreement, SHPO concurrence with a finding of No Adverse Effect also results in a Section 4(f) *de minimis* determination.

Archaeological Sites

An archaeological survey was conducted for the project in April and May, 2021 by a qualified cultural resources firm under contract to KYTC. The area APE for the survey corresponded to the approximate right-of-way and proposed easements of the Preferred Alternative, encompassing an area of approximately 138 acres. Systematic shovel testing was the primary survey method, with a total of 1,285 tests conducted.

The survey resulted in the identification of nine new archaeological sites and seven isolated finds. None of the nine new sites were found to be eligible for the National Register of Historic Places. Likewise, none of the seven isolated finds met the criteria for designation as archaeological sites. Additional investigation is not necessary for any of these sites or finds.

Two sites had been recorded in the 1930s in the general vicinity of the APE, although their exact locations are unclear today. Shovel tests conducted in an attempt to locate these sites were unsuccessful and additional investigation of these sites is not necessary. In a letter to the KYTC Division of Environmental Analysis, dated June 15, 2022, the SHPO formally concurs with KYTC's finding of No Historic Properties Affected for archaeological resources (see Appendix 5).

One modern, family cemetery was discovered during the survey, consisting of three graves dating from 1988 to 2008. Given these dates, the cemetery does not represent an archaeological site, and no further investigation is necessary.

Native American Consultation

Section 106 of the National Historic Preservation Act of 1966 (NHPA)[12] requires federal agencies to consider the effects of their actions on all significant historic properties (36 CFR Part 800), as does the National Environmental Policy Act of 1969 (NEPA).[13] Section 101(d)(6)(A-B) of the NHPA notes that historic properties may have religious and/or cultural significance to Indian Tribes.

12 16 U.S.C. § 470-470w-6

13 43 U.S.C. § 4321-4347 and 40 CFR § 1501.7(a)

In a letter dated September 29, 2021, KYTC requested consultation with federally-recognized Native American Indian tribes who have jurisdiction over tribal matters in the project area. The purpose of the consultation was to request a determination of effect on Native American Indian tribes with respect to the proposed Veterans Memorial Parkway Extension. In a letter dated November 9, 2021, the Tribal Historic Preservation Officer of the Eastern Shawnee Tribe of Oklahoma responded to KYTC by stating: "… upon research of our database(s) and files, we find our people occupied these areas historically and/or prehistorically. However, the project proposes NO Adverse Effect or endangerment to known sites of interest to the Eastern Shawnee Tribe. Please continue project as planned. However, should this project inadvertently discover an archaeological site or object(s) we request that you immediately contact the Eastern Shawnee Tribe, as well as the appropriate state agencies (within 24 hours)" (see **Appendix 5**).

Native American Indian tribal consultation closed on November 1, 2021. One comment was received, from the Eastern Shawnee Tribe of Oklahoma, which raised no concerns. FHWA notified KYTC on August 16, 2022 that the consultation period for the project had concluded (see **Appendix 5**).

Section 106 Consultation

In order to fully understand the effects to the project area from this transportation project, the project team reached out to property owners, local public officials, and members of local historic preservation groups to solicit participation in the Section 106 Consultation Process as consulting parties. An invitation to participate was included in a project newsletter sent to households in the project area. The newsletter was also made available at the County Clerk's office, local public library, and local agricultural extension office. Prior to the newsletter being distributed, KYTC met with local officials to update them on the project status. An invitation to become a consulting party was also posted on KYTC's Consulting Parties Portal, which allows interested individuals to search for projects by county and includes an online application form. Despite these various outreach efforts, KYTC received no applications, and the Section 106 Consultation Process was concluded.

3.8 POTENTIAL CONSTRUCTION IMPACTS

Short term, negative impacts of roadway projects can include increased noise and air pollution and stream sedimentation and erosion. In addition, the presence of heavy construction equipment accessing the site from existing roadways could affect area motorists. Because project would be constructed almost entirely along new alignment, it is not likely to result in any substantial traffic delays, nor will it require detours.

To minimize potential construction impacts, KYTC would ensure that all construction contractors comply with Kentucky's Standard Spec-

ifications for Road and Bridge Construction. Sedimentation and erosion would be minimized through adherence to an Erosion Control Plan developed for the project in accordance to the Standard Specifications and KPDES permit requirements. In addition, Best Management Practices would be strictly followed. Increases in noise and air pollution from heavy construction equipment can sometimes be mitigated by adjusting the time of day that certain construction activity occurs. KYTC will monitor and adjust all such minimization measures, as needed, to ensure they are functioning effectively.

Utilities

Several public utilities were identified in the project area. The identification of significant utility impacts early in the project development process drove the decision for eliminating the Red Alternative. Utilities that could be affected by the project include; Clark Energy (electric distribution), East KY Power (electric transmission), Winchester Municipal Utilities (water and sewer), East Clark County Water District (water) Columbia Gas of Kentucky (natural gas), Tennessee Gas Transmission (natural gas and crude oil), AT&T (telephone), and Spectrum Communications (cable/communication fiber).

Hazardous Materials

A Phase I ESA was prepared by KYTC in July 2012. The assessment included fieldwork to help identify underground storage tank and hazardous materials issues along the project corridor, along with a review of environmental databases, historic mapping, and aerial photography, as well as interviews with individuals who may have knowledge of hazardous materials use or contamination events. No storage tank or hazardous materials issues were identified.

The project area does not contain gas stations or commercial or industrial properties that may include storage tanks. Fuel storage tanks associated with farm operations were observed in the immediate project area, two of which were found where the project would cross KY 974. At the time the field work was conducted, these tanks appeared to be in good condition with no signs of leakage.

A 24-inch crude oil pipeline traverses the project area. Construction activities associated with replacement of this pipeline were observed on KY 974 near the Blue Alternative location. Leaks have been documented from this pipeline, with a very large release discovered in 2000, located approximately 3,000 feet down-gradient and south of the project corridor. Because of its down-gradient location relative to the proposed project, this past release does not pose a risk to the project. Additional leaks within the project corridor have not been reported.

Overall, KYTC's assessment did not reveal any hazardous materials or contamination issues that could affect construction the proposed project. A windshield survey was conducted on October 22, 2020, to check for any new land uses or facilities where hazardous materials or underground storage tanks were likely to be present. None were found, and no further action is necessary at this time.

3.9 IMPACT SUMMARY

In summary, the impacts associated with the Preferred Alternative would be minor across all categories. In no instance are any of the project impacts considered significant.

The impacts associated with the Preferred Alternative are summarized in **Table 2**.

3.10 REQUIRED ENVIRONMENTAL PERMITS

The project would require the following environmental permits: a Nationwide Section 404 (Clean Water Act) permit from the US Army Corps of Engineers, a Section 401 Water Quality Certification Program certification from the Kentucky Division of Water, and, because construction of the project would likely constitute ground disturbance of more than 1.0 acre, a KPDES KYR10 stormwater runoff permit.

A 404/401 permit application was prepared in 2017 and will be renewed, either during the Right-of-Way process or one year prior to construction.

TABLE 2
Preferred Alternative Impact Summary

IMPACT CATEGORY	SEGMENT		
	Blue East	Black West	TOTAL
Air Quality	In attainment for National Ambient Air Quality Standards		
Traffic Noise			
receptors impacted	7	1	8
abatement criteria exceeded	0	0	0
substantial increase	7	1	8
Streams (channel changes/culverts)	3056 linear ft	1224 linear ft	4280 linear ft
Floodplains	0.2 acres	2.1 acres	2.3 acres
Wetlands	0	0	0
Protected Species	17.85 acres of potential habitat affected		
Section 106 Resources	0	0*	0
Section 4(f) Resources	0	0	0
Community Impacts	1	0	1
Relocations	5	1	6
Environmental Justice	No disproportionately adverse impacts		
Farmlands	Below threshold for mitigation		
Contamination/Hazardous Materials	0	0	0

**The SHPO has concurred that the proposed project would have No Adverse Effect on the historic farm property in the Black West segment. By agreement, this is also a* de minimus *determination.*

4 Stakeholder Involvement

Coordination with members of the public and other key stakeholders has been ongoing throughout the life of the project.

4.1 ADVISORY COMMITTEE

A Transportation Advisory Committee that included city and county officials, residents, and other key stakeholders was created for the project in the early 2000s. Working with KYTC, the Advisory Committee established the project goals and objectives.

Having been dormant for several years, the project was re-activated in the late 2000s, and, in 2012, a new Advisory Committee was formed. The new committee included a similar mix of key stakeholders. It met ten times, in February, March, April, May, June, July, August, and November of 2012, and in July and August of 2013. The build alternatives currently under consideration were developed jointly by KYTC and this more recent Advisory Committee, over the course of these ten meetings.

4.2 PUBLIC OUTREACH

A public meeting was held for the project on August 13, 2012. The meeting was conducted as an informal open house, giving the public an opportunity to informally discuss the project with KYTC staff and provide comments. Approximately individuals 100 attended.

Following the meeting, in October 2012, the Project Team met to review the comments received from the public. As a result, it was determined that the public was split in its preference for the Blue Alternative or the Black Alternative. After discussing the advantages and disadvantages of these alternatives, it was decided that the Blue East Alternative would be the Preferred Alternative in the eastern portion of the study area. KYTC developed two concepts for the Black West Alternative's intersection with Boonesboro Road: and Offset "T" Intersection and a Reconfigured "T" Intersection. The Reconfigured "T" Intersection was ultimately chosen because it addressed the project's purpose with a lower level of impact.

4.3 REGULATORY AGENCIES

Between 2010 and 2021, regulatory agencies including the United States Fish and Wildlife Administration–KY Division, KY Department of Fish and Wildlife, KY Nature Conservancy, United State US Army Corps of Engineers, KY Division of Water, KY Heritage Council, KY State Historic Preservation Officer, and the Federal Highway Administration were all consulted regarding potential impacts resulting from the proposed project. These regulatory agencies were afforded opportunities to comment on the project alternatives and associated impacts as the project developed. No controversy was identified during this consultation.

APPENDIX 1

2013 Draft Environmental Assessment

ENVIRONMENTAL ASSESSMENT

for

Winchester Southeast Bypass
Extend KY 1958 from KY 627 to KY 89
(Veterans Memorial Parkway Extension)
Clark County, Kentucky
KTYC Item No. 7-8401.00

Submitted Pursuant to 42 USC 4332(2)(c) by
US Department of Transportation
Federal Highway Administration
and
Kentucky Transportation Cabinet,
Division of Environmental Analysis

June 21, 2013

The following persons may be contacted for additional information regarding this document:

Mr. Jose Sepulveda
Division Administrator
FEDERAL HIGHWAY ADMINISTRATION
330 West Broadway
Frankfort, KY 40601
502-223-6720

Mr. David Waldner
Division of Environmental Analysis
KENTUCKY TRANSPORTATION CABINET
200 Mero Street, 5th Floor
Frankfort, KY 40622
502-564-7250

ENVIRONMENTAL ASSESSMENT

for

Winchester Southeast Bypass (KY 1958)
Extend KY 1958 from KY 627 to KY 89
(Veterans Memorial Parkway Extension)
Clark County, Kentucky
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Federal Highway Administration Date Kentucky Division Office	Kentucky Transportation Cabinet Date Division of Environmental Analysis

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APPENDICES

I. WHAT IS AN ENVIRONMENTAL ASSESSMENT?

This Environmental Assessment (EA) has been written to comply with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code 4321 *et seq*.) It is being submitted pursuant to 42 USC 4332 (2)(c) by the US Department of Transportation, Federal Highway Administration, and Kentucky Transportation Cabinet, Division of Environmental Analysis. NEPA requires that federal agencies use an interdisciplinary approach in planning and decision-making for federally funded actions that impact the human and natural environment. An EA is used as a tool to assist in determining if a proposed project will have significant impacts that would necessitate the preparation of an Environmental Impact Statement (EIS.) If impacts are not significant, then a Finding of No Significant Impact (FONSI) is prepared.

The proposed project, which will connect two previously constructed bypass sections to form a complete bypass around the City of Winchester, is not expected to have significant environmental impacts. This EA describes the proposed project's impacts on the human and natural environment.

What is " NEPA?"

The National Environmental Policy Act (NEPA) provides a means of documenting the impacts of projects with federal involvement (including funding) to the human and natural environment. NEPA also ensures that members of the public and local officials are kept informed during project development and are able to provide input regarding the project.

An Environmental Assessment (EA) is a means of documenting a project and its impacts and is used to determine whether or not a project's impacts will be significant. This EA is the first of two NEPA documents that will be prepared for the project.

II. WHAT IS THE PROJECT? WHY IS IT BEING CONSIDERED?

A. What is the project?

The project consists of the construction of the proposed KY 1958 Winchester Southeast Bypass (Veterans Memorial Parkway Extension) in Clark County, Kentucky (KYTC Item No. 7-8401.00). The project is the final phase of a complete bypass around the City of Winchester and will connect two previously constructed bypass sections. The project will extend existing KY 1958 (Bypass Road) from its existing terminus at KY 627 across new alignment to connect with KY 1958 (Veterans Memorial Parkway) at its terminus at KY 89. The proposed project is approximately four miles in length.

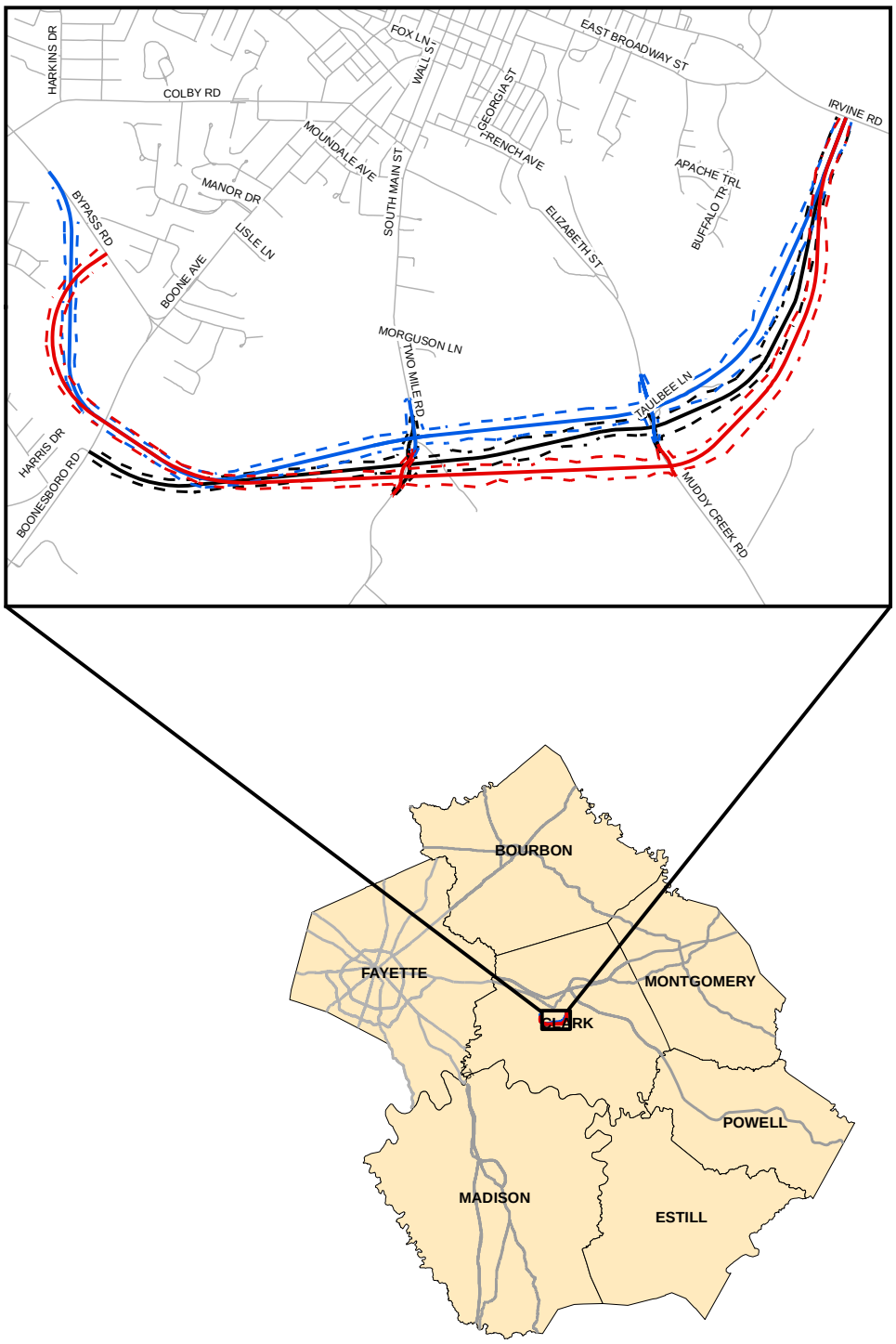
The proposed project is listed in the Kentucky Transportation Cabinet's (KYTC) *FY 2012 – FY 2018 Recommended Highway Plan* as "Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 South of Winchester." Funding for right-of-way ($12,020,530) and utility ($10,198,400) acquisition has been scheduled for 2014, with construction ($29,561,900) scheduled for 2016. Funding for design ($3,041,600) was scheduled for 2010 in KYTC's *FY 2010 – FY 2012 Enacted Biennial Plan*. The project will be constructed with State Funds.

The proposed project is also included as a key issue in the Transportation Plan contained within the 2004 *Winchester/Clark County Comprehensive Plan*.

B. Where is the project?

The project is located in central Clark County, southeast of the City of Winchester. Figure 1, page 2, shows the project area in relation to the community. The project is shown on Exhibit 1, page 3.

FIGURE 1 – PROJECT LOCATION



P:\Project_Files\Kentucky\KY11-024_VM_KY1538_EA_Clark\Mapping\GIS\EA_Ex1_Aerial.mxd 3/1/13 las

WINCHESTER

Winchester Traveling Trail

First Presbyterian Church

Winchester Country Club

Grace Lutheran Church

George Rogers Clark High School

Clark County Area Technology Center & Clark/Bourbon Day Treatment

YMCA

Boonesboro Plaza

The Path Walking Trail

Apartment Complex

Double F Lambs & Sacagawea Farms

West Meade, Lyndale and Boone Trace Subdivisions

Station 750+00

Southwind Country Club Golf Course

Buffalo Trace Subdivision

Locust Hill Farm

Tuttle Farm

Columbia Gas Transmission Station

Burgher House

Former Gas Co Park

Receiver 1
Receiver 2
Receiver 3
Receiver 4
Receiver 5
Receiver 6
Receiver 7
Receiver 8
Receiver 9
Receiver 10
Receiver 11
Receiver 12
Receiver 13
Receiver 14
Receiver 15
Receiver 16
Receiver 17
Receiver 18
Receiver 19
Receiver 20
Receiver 21
Receiver 22
Receiver 23
Receiver 24
Receiver 25

Modeled Noise Receiver
Field Measured Noise Receiver
Blue East Centerline
Blue East Right-of-way
Blue West Centerline
Blue West Right-of-way
Black West Centerline
Black West Right-of-way

0 1,250 2,500 Feet

N

Exhibit 1
Environmental Impacts
Winchester Southeast Bypass
KYTC Item # 7-8401.00
Clark County, Kentucky

C. What is the purpose of the project? Why is it needed?

The purpose of the project is to improve connectivity between rural highways south of Winchester and US 60, the county's most heavily traveled highway, and I-64 (which provides access to the Bert T. Combs Mountain Parkway) as well as improve connectivity to/between the existing eastern and western city bypasses. This improved connectivity in southeastern Clark County will enhance local and regional mobility. The project is the final segment of a planned complete bypass around Winchester.

The project is needed because east-west connectivity immediately south of Winchester is lacking. No direct east-west connectors are present in the area, and most existing roadways in the area (including rural arterial highways KY 1923, KY 974, and KY 89) are narrow, two-lane facilities with narrow shoulders and tight curves. These roadways do not meet current KYTC design guidelines.

As the roadway network is currently configured, it is most efficient for drivers accessing I-64 or US 60 via KY 1923 and KY 974 south of Winchester to travel through town, which increases the number of cars traveling through downtown Winchester and increases travel time for local and through traffic. Connecting these roads to the completed bypass would enable motorists from communities south of Winchester to access US 60, I-64, and the Bert T. Combs Mountain Parkway more efficiently. In addition, many regional destination points are located along or near the existing eastern bypass, including big box and smaller commercial retailers, as well as community facilities such as the Clark Regional Medical Center. Connectivity to these facilities would be improved by the proposed project. Both bypasses also provide connectivity from southern Clark County (and other southern counties) to the industrial facilities north of I-64.

D. How and why was the project developed?

The proposed southeast bypass is the final phase of a bypass around the City of Winchester in its entirety. It will connect an existing bypass to the west of Winchester with an existing bypass to the east of Winchester. The southeast bypass was identified as a priority in the Winchester/Clark County local transportation plan, included in the most recent (2004) *Winchester/Clark County Comprehensive Plan*. This plan identified the need to provide Clark County residents with access to I-64 and the Bert T. Combs Mountain Parkway. Transportation and land use planners also hope that the proposed roadway will encourage growth in the less-developed area south of Winchester, and discourage westward and southward sprawl along US 60 and KY 627, respectively. Discouraging new growth in these areas would reduce congestion along these roadways.

The project has been in the planning stages since the 1990s. A Corridor Study was prepared for the project in 2004. This study examined the impacts of two Build Alternatives, the alignments of which were similar to the Build Alternatives currently under consideration. A Transportation Advisory Committee that included local officials, residents, and other key stakeholders was established for the project at that time. The Advisory Committee established project goals, which transportation planners have considered and incorporated throughout the life of the project. These goals include:

- Improve traffic flow and safety
- Balance growth of community
- Land use management

- Minimize disruption to existing facilities
- Minimize environmental harm

E. What are the current roadway conditions?

The proposed project will be located on new alignment. Land use in the project corridor is primarily low-density rural residential and agricultural. As mentioned previously, east-west mobility southeast of Winchester is lacking. No direct route connects KY 627 and KY 89. Existing roadways in the area include rural arterial highways KY 1923, KY 974, and KY 89. These roads are narrow, two-lane facilities with narrow shoulders and tight curves and do not meet current KYTC design guidelines.

F. Why does the project begin and end where it does?

The proposed termini, or project end points, were selected to achieve the objectives of the project (a new east-west facility bypassing Winchester to the southeast) while minimizing unnecessary impacts. The termini were designed to connect with two previously constructed bypass sections to provide a complete bypass around the City of Winchester.

The Blue Alternative (East)'s eastern terminus is at KY 89 where existing KY 1958 (Veterans Memorial Highway; Winchester's eastern bypass) ends. This alternative travels west along new alignment to connect with KY 1958/Bypass Road. The western terminus of the Blue Alternative (West) is KY 1958/Bypass Road. These points (KY 1958/Veterans Memorial Highway and KY 1958/Bypass Road) were selected as termini because it directly connects the two previously-constructed bypass sections to create a full bypass of Winchester. The western terminus of the Black Alternative (West) is KY 627. This point was selected as a terminus because, since it does not directly connect to KY 1958/Bypass Road, it does not provide a complete bypass of Winchester. This point was selected to determine if a shorter route, which would subsequently be less expensive and have fewer impacts, would meet the project's purpose and need. All three Build alternatives currently under consideration share a common termini at Station 750+00 dividing them into East and West segments. This point was selected so that hybrid alternatives could be developed from the original six Build Alternative East/West segments developed for the project, as needed.

> ***What are "logical termini" and "independent utility?"***
> *"Logical termini" means that the project's end points are rational, sensible places for the proposed road to begin and end. "Independent utility" means that, when completed, the project will provide a fully usable standalone roadway, i.e., no other projects are necessary for the proposed project to provide a functional roadway.*

The project has independent utility, meaning that the selection of any Build Alternative currently under consideration will result in a roadway that is fully usable as a stand-alone project.

III. WHAT ARE THE ALTERNATIVES FOR THE PROJECT?

A. What happens if the road is not built?

The No-Build Alternative will leave the existing transportation system as is, and a new east-west connector will not be constructed. Only routine maintenance would occur along the existing roadways. The advantages of the No-Build Alternative include no required residential relocations, and the cost of constructing a new approximately four-mile roadway would not be incurred.

The No-Build Alternative will not address the project need of improved connectivity between rural highways south of Winchester and US 60 or I-64 by forming a complete bypass around the City of Winchester. If the No-Build Alternative is selected, drivers accessing US 60 or I-64 from KY 1923 and KY 974 south of Winchester will still be required to travel through the city, increasing the number of cars traveling through downtown Winchester and reducing travel time for local and through traffic.

Two Lane Road Typical of Project Corridor Roads

The No-Build Alternative will also not address the limited options available for east-west mobility in the area. Existing roadways that serve the area are narrow, two lane facilities with limited shoulders and tight curves. These roadways do not meet current KYTC design guidelines.

Additionally, the No-Build Alternative is inconsistent with state and local transportation planning. The proposed project is included in the Kentucky Transportation Cabinet's (KYTC) *FY 2012 – FY 2018 Recommended Highway Plan* and was identified as a priority in the Transportation Plan contained within the 2004 *Winchester/Clark County Comprehensive Plan*.

Level of Service information is not available for existing roadways in the project area.

Pedestrian and bicycle facilities are not present along roadways in the project area. The Path Walking Trail, which is privately owned but open to the public, is located on the west side of KY 627. The No-Build Alternative will not affect this facility.

B. Could public transportation meet the project's purpose and need?

Public transportation alternatives generally relieve congestion by improving the efficiency of travel; *i.e.*, utilizing busses, trains, etc. to decrease the number of individual cars on a roadway. These alternatives are best suited for more urban project areas with a population exceeding 200,000 individuals (FHWA 1987).

Clark County does not meet this description, as the relatively rural county contains far fewer than 200,000 individuals. The Kentucky State Data Center estimates that the county's population was 35,537 in July 2011 (KSDC 2012). Limited public transportation is provided to Clark County residents by the Kentucky River Foothills Development Council, Inc. (KRFDC). KRFDC's bus service operates Monday through Friday from 8 am to 5 pm, and the bus route is an approximately 90-minute loop between popular Winchester and Clark County destinations. Due to the county's size, it is unlikely that expanding the bus route to include extended days and hours of operation would be viable in the community.

C. Could transportation system management meet the project's purpose and need?

The Transportation System Management (TSM) alternative is intended to improve the operational efficiency of the existing transportation system. Typically, TSM measures include low-cost measures such as widening shoulders, constructing minor realignment of curves, adding turning and/or climbing lanes, installing traffic signals and/or computerizing signal systems, designating high-occupancy vehicle (HOV)

lanes, or other improvements designed to promote efficient travel. As with public transportation alternatives, the TSM alternative is generally only useful in urbanized areas where the population is greater than 200,000 (FWHA 1987).

Clark County does not meet the description of the ideal community for TSM measures. Additionally, no direct east-west connecting roads are located in the project vicinity. Existing roads in the project area are fragmented, narrow roads with limited shoulders. Significant reconstruction would be necessary for existing roadways to conform to current highway geometric, construction, and safety design standards.

D. What Build Alternatives are being considered?

Three Build Alternatives are being considered for the project: the Blue Alternative (West), the Black Alternative (West), and the Blue Alternative (East). All were designed to minimize splitting large farms in half by adhering to property lines and avoiding existing utilities, residences, and businesses where possible.

The western terminus for the Blue Alternative (West) is KY 1958 (Bypass Road); its eastern terminus is Station 750+00, which is the western terminus for the Blue Alternative (East). The Blue Alternative (East)'s eastern terminus is existing Veterans Parkway (KY 1958). The western terminus for the Black Alternative (West) is KY 627; its eastern terminus is Station 750+00.

Except where existing roads are intersected, each Build Alternative is comprised almost exclusively of new alignment. The Build Alternatives are shown on Exhibit 1, page 3.

Two typical sections have been designed for the new roadway (Appendix A). From KY 1958 (Bypass Road) to KY 627, the Blue Alternative (West) will have an urban section. This section will have four 12-foot lanes and a 14-foot flush median. Access to the facility will be limited, with access spacing of 600 feet.

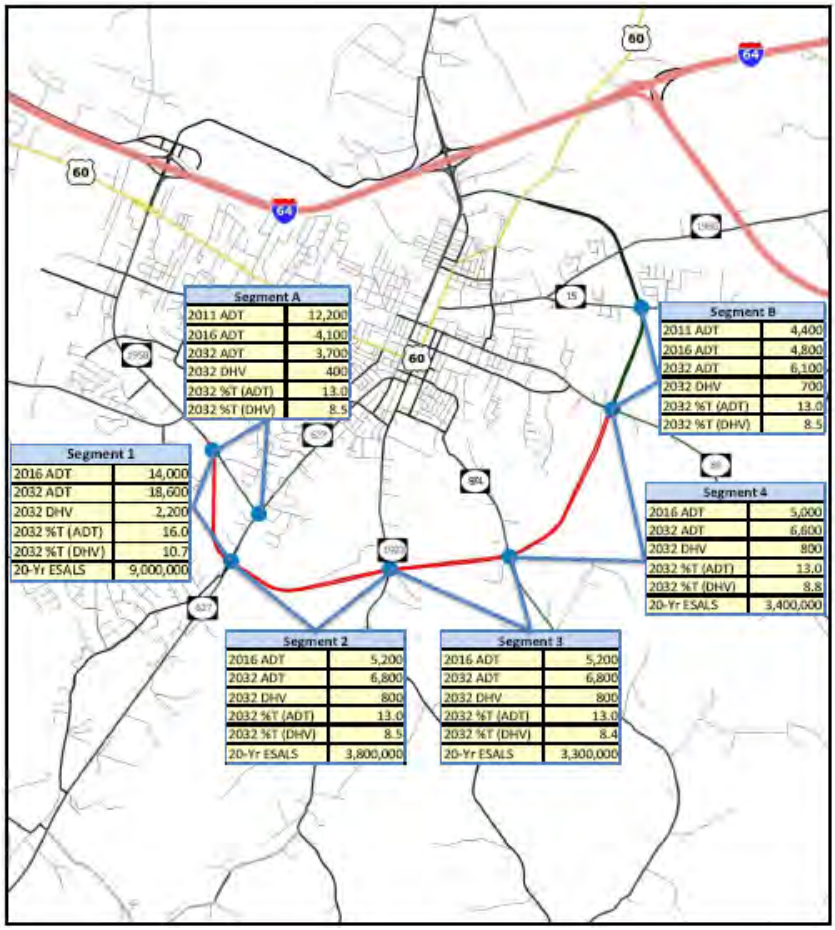
From KY 627 to their eastern termini, the Black Alternative (West) and Blue Alternative (East and West) will use a rural section with four 12-foot lanes and a 40-foot depressed grass median. Minimum access spacing will be 1,200 feet. The posted speed limit will be 55 miles per hour (mph.)

E. How will area traffic patterns be affected?

Stantec, Inc. prepared a traffic forecast for the project in December 2012. The project corridor was broken into four segments. Two additional segments (existing KY 1958/Bypass Road and KY 1958/Veterans Memorial Highway) were assessed as well. The segment locations are described below. They are shown in Figure 2, page 8.

- Segment A - Existing KY 1958/Bypass Road from the Blue Alternative (West)'s western terminus to existing KY 627
- Segment B – Existing KY 1958/Veteran's Memorial Highway from KY 15 to KY 89
- Segment 1 – Proposed Blue Alternative (West)'s western terminus to KY 627
- Segment 2 – Project corridor from KY 627 to KY 1923
- Segment 3 – Project corridor from KY 1923 to KY 974
- Segment 4 – Project corridor from KY 974 to KY 89

FIGURE 2 – AVERAGE DAILY TRAFFIC FORECASTS



Existing (2011) Average Daily Traffic (ADT) for Segment A (KY 1958/Bypass Road) is 12,200 vehicles per day. The ADT is predicted to decrease to 4,100 in 2016 (Build Year) and to 3,700 VPD by 2032 (Design Year). This decrease in traffic will be due to the removal of through traffic from this segment. ADT along Segment B (KY 1958/Veterans Memorial Highway) is predicted to increase from 4,400 currently (2011) to 4,800 in 2016 to 6,100 in 2032. This increase in traffic may be due to the increased connectivity to the existing northeastern bypass of Winchester that the proposed project will provide. With the new bypass, it will be much easier for residents along KY 1923, KY 974, and other points south to access I-64, KY 15, and other points from KY 1958/Veterans Memorial Highway instead of traveling into Winchester and utilizing KY 627.

The 2016 ADT along the proposed bypass segments ranges from 14,000 along Segment 1 to approximately 5,000 along Segments 2, 3, and 4. By 2032, ADT is expected to increase to 18,600 along Segments 1 and 6,600 to 6,800 along Segments 2, 3, and 4.

Traffic data is summarized in Table 1.

TABLE 1 – TRAFFIC DATA

SEGMENT	2011 ADT (VPD)	2016 ADT (VPD)	2032 ADT (VPD)	2032 DHV (VPD)	2032 ADT - % TRUCKS	2032 DVH - % TRUCKS	20-YEAR ESALS (VPD)
Segment A	12,200	4,100	3,700	400	13.0	8.5	N/A
Segment B	4,400	4,800	6,100	700	13.0	8.5	N/A
Segment 1	N/A	14,000	18,600	2,200	16.0	10.7	9,000,000
Segment 2	N/A	5,200	6,800	800	13.0	8.5	3,800,000
Segment 3	N/A	5,200	6,800	800	13.0	8.4	3,300,000
Segment 4	N/A	5,000	6,600	800	13.0	8.8	3,400,000

Data for Level of Service (LOS), a means of rating roadway congestion whereby "A" indicates completely free flowing traffic and "F" indicates completely congested traffic, is not available for existing roadways. The new bypass' LOS is anticipated to be "A" in 2032 (Build Year).

As the new roadway will be a limited access highway, pedestrian and bicycle facilities are not being included in the project.

F. What alternatives have been dismissed from further consideration?

During the early stages of project development, two alternatives were initially developed for the project: Alternatives 1 and 2. These alternatives were refined following the 2004 Corridor Study and were developed by the Citizen's Action Committee, a group comprised of local officials and key stakeholders that meets regularly with project planners, into the alternatives currently under consideration. They shared the same termini and general alignment corridor as the Blue Alternatives (East and West) and Black Alternative (West).

Additional alternatives developed and ultimately eliminated included a Red Alternative (East), Red Alternative (West), and Black Alternative (East). The Red Alternative (West) was similar to the Blue Alternative (West) still under consideration, but reconnected with KY 1958 (Bypass Road) approximately 1,500 feet southeast of the proposed Blue Alternative (West)'s connection with KY 1958 (Bypass Road). The Red Alternative (East) and Black Alternative (East) had termini similar to the Blue Alternative (East) and followed the same general route, but their alignments were just south of the Blue Alternative (East).

The Red Alternatives (East and West) were eliminated after the August 2012 public meeting as they received very little public support. The Black Alternative (East) was eliminated due to high utility relocation costs.

G. When is the project anticipated to be built?

The proposed project is listed in the Kentucky Transportation Cabinet's (KYTC) *FY 2012 – FY 2018 Recommended Highway Plan* as "Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 South of Winchester." Funding for right-of-way ($12,020,530) and utility ($10,198,400) acquisition has been scheduled for 2014, with construction ($29,561,900) scheduled for 2016. Funding for design ($3,041,600) was scheduled for 2010 in KYTC's *FY 2010 – FY 2012 Enacted Biennial Plan*. The project will be constructed with State Funds.

The proposed project is also included as a key project in the Transportation Plan contained within the 2004 *Winchester/Clark County Comprehensive Plan*.

IV. WHAT ARE THE IMPACTS OF THE PROJECT?

Project impacts by alternative are summarized in Table 2, and discussed in greater detail in the following sections. Final selection of an alternative will be made only after consideration of impacts and public hearing comments.

TABLE 2 – PROJECT IMPACTS

	ALTERNATIVE SEGMENT		
	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Air Quality	No impact		
Traffic Noise	10 impacted receptors; 1 will be taken by project	8 impacted receptors; 3 will be taken by project	1 impacted receptor
Aquatic Ecosystems			
Streams	583 feet	3,056 feet	1,224 feet
Floodplains	2.2 acres	0.2 acre	2.1 acres
Wetlands	No impact	No impact	No impact
Permits	USACE Nationwide 404 and KDOW 401 Water Quality Certification; FEMA No-Rise Certification if Construction Occurs in Floodplain; Notice of Intent (KDPES)		
Wild/Scenic Rivers	None are present within corridor; however, Lower Howard's Creek (an important feature of a downstream nature preserve) is downstream of the project. To preserve this feature aquatic impacts should be minimized to greatest extent practical.		
Threatened and Endangered Species	219.4 acres of listed species habitat impacts; BA required for Indiana and gray bat	626.8 acres of listed species habitat impacts; BA required for Indiana and gray bat	59.0 acres of listed species habitat impacts; BA required for Indiana and gray bat
Cultural Historic Resources	No impact	No impact	No impact
Archaeological Resources	A Phase I archaeological survey has not yet been completed for the project. It will be completed after a preferred alternative is selected, prior to completion of the FONSI.		

TABLE 2 – PROJECT IMPACTS, CONTINUED

	ALTERNATIVE SEGMENT		
	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Residential Relocations	4	5	1
Commercial Relocations	None		
Community/ Neighborhood	Community pedestrian trail (The Path) will be bisected	No impact	No impact
Section 4(f) Resources	No impact	No impact to non-archaeological resources; Phase I archaeological survey is pending and will document Section 4(f) archaeological impacts, if any	No impact
Section 6(f) Resources	No impact		
Land Use	34.7 acres	109.8 acres	12.5 acres
Farmland	7.7 acres prime farmland; 56.5 acres farmland of statewide importance	16.8 acres prime farmland; 18.0 acres farmland of statewide importance	12.8 acres prime farmland; 45.9 acres farmland of statewide importance
Environmental Justice Concerns	Coordination will be conducted with all displaced households; no Environmental Justice impacts are anticipated		
Pedestrian and Bicycle Facilities	No bike lanes and/or sidewalks are present along surrounding roadways. Due to the nature of the proposed facility (a limited access highway), neither feature is planned for the project		
UST/Hazardous Materials	No impact		
Visual	No scenic highways or byways or visually sensitive areas, but roadway on new alignment will impact area residents unaccustomed to traffic near their homes		
Construction	Short term impacts during construction phase (noise and air pollution, erosion and sedimentation, as well as potential for delay at intersection points and due to heavy equipment on existing roadways)		

A. Air Quality

An *Air Quality Baseline Assessment* for the proposed project was approved by KYTC on January 17, 2013. The air quality assessment provides supporting documentation for this Environmental Assessment.

The proposed project is in the Bluegrass Intrastate Air Quality Control Region. There are currently no required transportation control measures, and the area is in attainment for all transportation-related pollutants. This project is state-funded, so it is not listed in the STIP.

According to the *Kentucky Guidelines for Addressing Transportation Air Quality in NEPA Documents* (FHWA & KYTC 2008), a full air quality analysis is not required for this project due to the fact that Average Daily Traffic (ADT) volumes in the open-to-traffic year are not expected to meet or exceed 80,000 vehicles per day. The highest expected ADT on the new roadway is 15,600 in the design year of 2032. This ADT projection occurs on Segment 1, which includes the proposed bypass section from KY 1958 to KY 627.

Based on the Kentucky Carbon Monoxide (CO) Screening Criteria, this project does not meet the criteria for requiring a CO project level analysis and will not produce a projected violation of the CO standards (35 parts per million over a one-hour period or nine parts per million over an eight-hour period).

The proposed project is classified as "Low Potential Mobile Source Air Toxics (MSATs) Effects." For all alternative scenarios, including Build and No-Build Alternatives, the amount of MSATs in the design year is expected to be significantly lower than existing conditions on a regional basis. This is based on the USEPA-projected reductions in MSATs associated with USEPA vehicle and fuel regulations, coupled with fleet turnover.

Indirect air quality impacts on rural, commercial and residential areas along the project corridor are expected to be minor as future traffic volumes increase and improved access encourages development in the project vicinity. Construction of the proposed project may cause additional growth in the area, but the additional traffic is not expected to create any air quality cumulative impacts. The proposed project is not anticipated to significantly alter the rural nature of the area or the ambient CO levels.

B. Traffic Noise

1. Traffic Noise Monitoring and Modeling

A *Traffic Noise Baseline Assessment* for the proposed project was approved by KYTC on January 13, 2013. The traffic noise assessment provides supporting documentation for this Environmental Assessment.

All noise levels predicted in this study are in decibels (dB) on the A-weighted scale or dBA, using the L_{eq} descriptor. The A-weighted scale is used because it most nearly matches the response of the human ear to sound. $L_{Aeq1\text{-}hr}$ (shortened in this report to L_{eq}) is the A-weighted equivalent steady state sound level, which in one hour contains the same acoustic energy as the time varying sound level during one hour.

Existing noise levels were measured on September 24 and 25, 2012 at three locations identified on Exhibit 1, page 3. Receptor locations were selected for modeling purposes because of accessibility, representative proximity to the roadway, and potential sensitivity to noise impacts. The three locations selected for noise measurement represent 46 noise sensitive receptors located in 25 common noise environments as described in Table 3, page 13.

TABLE 3 – EXISTING AND PREDICTED NOISE LEVELS (L_{EQ})

NOISE RECEIVER	ACTIVITY CATEGORY	NUMBER OF REPRESENTED RECEIVERS	SOUND LEVEL (DBA)			
			2012 EXISTING	2032 NO-BUILD	2032 BLACK BUILD ALT	2032 BLUE BUILD ALT
West Segment						
1	B	1	65	66	68	67
4	C	1	54	56	56	55
5	B	1	47	48	48	TAKEN
6	B	2	42	43	43	57
7	B	6	39	40	41	58
8	B	3	57	59	60	60
12	C	1	40	41	43	64
East Segment						
2	B	3	53	54		55
3	B	4	57	59		57
9	B	1	35*	35*		51
10	B	1	35*	35*		50
11	B	1	35*	35*		56
13	B	1	35*	35*		56
14	B	1	56	58		TAKEN
15	B	3	54	56		53
16	B	4	51	53		52
17	B	1	44	46		49
18	B	2	50	52		57
19	B	1	41	44		57
20	B	1	37	40		TAKEN
21	B	2	35*	35*		52
22	B	1	35*	35*		46
23	B	1	40	41		TAKEN
24	B	2	51	52		56
25	B	1	55	56		59

*Lowest field measurement recorded was 35 dBA. All predictions were raised to this level to represent ambient conditions.
Highlighting indicates approach or exceedance of NAC.
Note: "Taken" indicates that the receiver will be acquired by the selected alternative.

The majority of receptors are residences that represent NAC Activity Category B. Two receptors represent Activity Category C – First Presbyterian Church and The Path Trailhead. The Activity Category C receivers had outdoor areas of human use, so internal monitoring was not required. FHWA defines Categories B and C NAC as 67 dBA.

Traffic noise modeling utilizing FHWA TNM was conducted in conjunction with monitoring. Design hour volume (DHV) traffic was provided by Stantec, Inc. A 50:50 split was assumed for the directionality of the traffic.

The traffic noise level results predicted by FHWA TNM are summarized in Table 3, page 13, for the Existing, No-Build, and Build Alternatives. Existing noise levels are field-measured peak values. The No-Build and Build Scenarios are predicted based on future traffic data for year 2032.

2. Direct Impacts

Results indicate that some traffic noise impacts due to an approach or exceedance of the NAC are predicted for each future scenario, and impacts due to a substantial increase from the existing levels are predicted for all Build Alternatives.

Under existing conditions (2012), no noise receivers were predicted to be impacted. The predicted exterior noise levels range from 35 dBA to 65 dBA. The lowest ambient noise level measured in the field was 35 dBA. This value was used in cases where the model predicted values less than ambient conditions.

Under the No-Build Alternative (2032), traffic noise impacts due to an approach or exceedance of the NAC are predicted at one receiver representing one residence on KY 627 (Receiver 1). Generally, the noise level is predicted to increase by 0 to 3 dBA over existing levels, which is consistent with the predicted increase in traffic levels. The predicted exterior noise levels range from 35 dBA to 66 dBA.

For the Blue Build Alternative (East and West) (2032), the predicted exterior noise levels range from 46 dBA to 67 dBA. The noise level is predicted to decrease by 1 dBA or increase up to 24 dBA over existing levels. For the Blue Alternative (West), one residence at 2000 KY 627 (Receiver 1) is predicted to be impacted due to an exceedance of the NAC. Three receivers representing nine residences or equivalents are predicted to be impacted due to a substantial increase in noise levels including eight residences along Stratton / Gregory Lane (Receivers 6 and 7) and The Path trailhead (Receiver 12). One residence (Receiver 5) would also be taken by the construction of the Blue Alternative (West).

What are "traffic noise impacts?"
According to the FHWA Policy, Procedures for Abatement of Highway Traffic Noise and Construction Noise, contained in 23 CFR 772, traffic noise impacts occur when the predicted traffic noise levels approach (are within 1dBA) or exceed the Noise Abatement Criteria (NAC). The policy states traffic noise impacts also occur when the predicted traffic noise levels for the build scenario substantially exceed existing noise levels (increase beyond existing levels by 10 dBA or more). The FHWA exterior NAC for institutional and residential facilities is 67 dBA Leq. The KYTC "Noise Abatement Policy" (KYTC 2000) incorporates FHWA procedures and Noise Abatement Criteria contained in 23 CFR 772. KYTC policy also includes, among others, the following definitions and criteria:

- *A "noise increase" is defined as the difference in noise levels between the "Build and "No-Build" alternatives in the design year.*
- *A project does not "appreciably alter" future noise levels if the noise increase is not greater than 3 dBA.*
- *Noise barrier construction will generally not be considered feasible along existing roadways where the proposed project does not appreciably alter future noise levels.*
- *KYTC will consider noise abatement measures as appropriate if the noise level predicted for the design year approaches (within 1 dBA) or exceeds the NAC for the land use category affected; and/or the noise level increase predicted for the design year is 10 dBA or more greater than the measured existing noise level (a substantial exceedance).*

For the Blue Alternative (East), seven receivers representing eight residences are predicted to be impacted due to a substantial increase in noise levels including three residences in the vicinity of Two Mile Road (Receivers 9, 10, and 11), and five in the vicinity of Muddy Creek Road (Receivers 13, 19, 21, and 22). Three residences (Receivers 14, 20, and 23) would also be taken by the construction of the Blue Alternative (East).

For the Black Alternative (West) (2032), the predicted exterior noise levels range from 41 dBA to 68 dBA. The noise level is predicted to increase by 1 to 3 dBA over existing levels due to predicted increases in traffic levels and the new alignment. One traffic noise impact due to an approach or exceedance of the NAC is predicated at the residence at 2000 KY 627 (Receiver 1).

These impacts are summarized by alternative in Table 4.

TABLE 4 – SUMMARY OF TRAFFIC NOISE IMPACTS BY ALTERNATIVE

Alternative	Impacts By Activity Category		Taken By Activity Category	
	B	C	B	C
2032 Black Alternative - West	1	0	0	0
2032 Blue Alternative - West	9	1	1	0
2032 Blue Alternative - East	8	0	3	0

Note: "Impacts" and "Taken" refer to residences (or equivalents).

3. Traffic Noise Abatement

As noise impacts were predicted, noise abatement measures were considered for impacted receptors.

The following noise abatement measures may be considered for incorporation into a Type I project to reduce traffic noise impacts:

- Construction of noise barriers, including acquisition of property rights, either within or outside the highway right-of-way
- Traffic management measures including, but not limited to, traffic control devices and signing for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits, and exclusive lane designations
- Alteration of horizontal and vertical alignments
- Acquisition of real property or interests therein (predominantly unimproved property) to serve as a buffer zone to preempt development, which would be adversely impacted by traffic noise

Noise abatement measures must be determined to be both reasonable and feasible to be incorporated into a project.

i. Feasibility

When determining the acoustic feasibility of a proposed abatement measure, KYTC considers whether the measure provides a substantial noise reduction (>5 dBA) for a reasonable percentage of impacted receptors to warrant consideration. Though the objective of the proposed abatement is to achieve the noise reduction design goal (7 dBA) for a minimum of 40 percent of all benefited receptors, if a proposed barrier

will not provide a minimum 5 dBA reduction for more than 50 percent of the impacted receptors, it is not considered acoustically feasible.

Engineering or constructability issues may render an abatement measure infeasible. In determining if site characteristics are suitable for barrier construction, KYTC considers numerous factors, including safety, maintenance, drainage and access.

ii. Reasonableness

The determination of reasonableness of a proposed abatement measure is based upon three primary factors: the noise reduction design goal, cost effectiveness, and the desires of the benefited residents and property owners. KYTC's noise reduction design goal is 7 dBA for a minimum of 40 percent of all benefited receptors. If the design goal cannot be met, the abatement measure is not considered reasonable.

The cost effectiveness or cost per benefited receptor (CBR) is calculated by dividing the total anticipated cost of the noise barrier including, design, right of way, utilities and construction by the total number of receptors receiving a noise reduction of at least 5 dBA. The cost of the noise barrier is based upon the best estimate of the total barrier costs. KYTC assumes an average cost of $\$30/ft^2$ of barrier wall and has established a maximum threshold of $35,000 CBR for barriers to be considered reasonable. Locations where the CBR exceeds $35,000 are not considered cost effective, and abatement measures will not incorporated into the project unless it meets "Other Reasonableness Criteria." Third party funding cannot be used to make up the difference between the reasonable cost allowance and the actual cost.

"Other Reasonableness Considerations" involve circumstances where absolute noise levels are considered extraordinary (>77 dBA) or the difference between the Build and No-Build future condition is greater than 10 dBA and exceeds the NAC. When these conditions apply, additional consideration shall be afforded by allowing a higher than average cost for each benefited receptor meeting the defined criteria. This is accomplished by reducing the total cost of the barrier by the total value of all adjustments.

If noise barriers are found to be feasible and meet the noise reduction design goal and cost effective reasonableness factors, the desires of the benefited receptors and property owners will be assessed by a Noise Abatement Public Meeting held for this purpose. As this assessment would occur subsequent to the publication of this analysis, the desires of the benefited receptors will not be evaluated in this report.

iii. Evaluation of Abatement Measures

For the impacted receptors, traffic management was evaluated as a noise abatement measure but is not feasible, as the project requires maintaining the speed limits at their current levels in order to service the expected growth in the area.

Construction of noise barriers was evaluated for the residences or equivalents at which an impact was predicted in one or more Build Alternatives. Twenty-five barrier locations were evaluated in order to determine whether noise barriers were reasonable and feasible for any alternative. Barriers were modeled within the right-of-way at a height of 20 feet tall, the maximum recommended height. No barrier was determined to meet the cost threshold of $35,000 per benefited residence. Therefore, no noise abatement measures are feasible and reasonable to address the residences or equivalents predicted to be impacted under one or more alternatives.

A final decision regarding implementation of noise abatement measures will be made after completion of project design and the public involvement process.

4. Construction Noise

If required, contractors can utilize the following noise abatement measures during road construction in the vicinity of noise sensitive areas such as schools, residences, and churches:

- Provide soundproof housing or enclosures for stationary noise-producing machinery such as drills, augers, cranes, derricks, compactors, pile drivers, etc.
- Provide efficient silencers on air intakes of equipment
- Provide efficient intake and exhaust mufflers of internal combustion engines
- Perform proper maintenance on all noise producing equipment to prevent excessive rattling and vibration of metal surfaces
- Restrict construction operations in the vicinity of noise sensitive locations to periods of the day when excessive noise would be least harmful
- Take other measures as necessary to prevent construction noise from becoming a public health nuisance or detriment to human health

KYTC has the responsibility for monitoring construction noise levels and will advise the contractor of any violations.

5. Cumulative and Indirect Impacts

The future year 2032 noise analysis includes projected traffic volumes for the project as well as forecasted background traffic growth and other planned and programmed projects in the area. As a result, the noise impacts predicted for the noise analysis represent both direct and cumulative noise impacts.

Implementation of the project could cause some redistribution of traffic on the surrounding roadway network beyond the modeled network. The project could also affect development and land use patterns in the project area. These situations could result in higher traffic volumes and indirect noise impacts at locations near roadways beyond the project limits. However, a doubling of the traffic volume is required to increase the sound level by 3 dBA, which is usually the smallest change in sound levels that individuals can detect without specifically listening for the change. Traffic volumes are not anticipated to double as a result of the redistribution of traffic or changes in development; therefore, any increases in sound levels beyond the project would be less than 3 dBA. As a result, the project is not predicted to cause any indirect noise impacts.

The project will result in intermittent and temporary noise above existing ambient levels due to construction activities in the project vicinity. However, these noise increases will be temporary and will not constitute a noise impact as defined by the FHWA noise standards and KYTC's noise policy.

C. Aquatic Ecosystems

An *Aquatic and Terrestrial Baseline Assessment* for the proposed project was approved by KYTC on January 10, 2013. The aquatic and terrestrial assessment provides supporting documentation for this Environmental Assessment.

1. Streams and Water Quality

The project is located within the Kentucky River watershed. The project corridor is dissected by dendritic stream systems that drain toward the south via Howard Creek and Fourmile Creek and their unnamed tributaries. The proposed project area will cross two sub-watersheds of the Kentucky River watershed, the Lower Howard Creek-Kentucky River sub-watershed (HUC 051002050302) and the Fourmile Creek sub-watershed (HUC 051002050104).

There are no state wildlife management areas, national or state forests or parks, exemplary natural communities, champion trees, wild or scenic rivers, exceptional waters, or Outstanding National or State Resource Waters (ONRW or OSRW) in the project area. However, according to the Kentucky State Nature Preserves Commission (KSNPC) the project has the potential to impact Lower Howard's Creek, which is an important feature of the Lower Howard's Creek State Nature Preserve downstream of the project. Even though it is several miles away from the project, this area (located at the creek's confluence with the Kentucky River) could be affected by construction impacts and accidental discharges of pollutants. Because of the proximity to this important area, impacts to aquatic features should be minimized to the fullest extent possible.

Groundwater in the project corridor tends to be of insufficient quantity and/or poor quality, thus resulting in few groundwater users. Winchester Municipal Utilities supplies water for the project area. The Kentucky Geological Survey database containing water and gas well information was researched regarding well locations. No water, gas or monitoring wells were identified along the project corridor.

Eight streams will be crossed by the proposed project corridor. Table 5 details each alternative's stream impacts. These streams are shown on Exhibits 2 and 3, pages 19 and 20.

TABLE 5 – STREAM IMPACTS

FEATURE	ALTERNATIVE	IMPACT (FT)
Stream 1 – UNT to Twomile Creek (Ephemeral)	Blue	1,697
	Black	0
Stream 2 – Twomile Creek (Intermittent)	Blue	441
	Black	0
Stream 3 – Unnamed Tributary to Lower Howard's Creek (Intermittent)	Blue	288
	Black	283
Stream 4 – Unnamed Tributary to Lower Howard's Creek (Intermittent)	Blue	329
	Black	0
Stream 5 – Unnamed Tributary to Lower Howard's Creek (Intermittent)	Blue	0
	Black	708
Stream 6 – Unnamed Tributary to Lower Howard's Creek (Intermittent)	Blue	295
	Black	233
Stream 7 – Fourmile Creek (Intermittent)	Blue	311
	Black	0
Stream 8 – UNT to Fourmile Creek (Intermittent)	Blue	278
	Black	0

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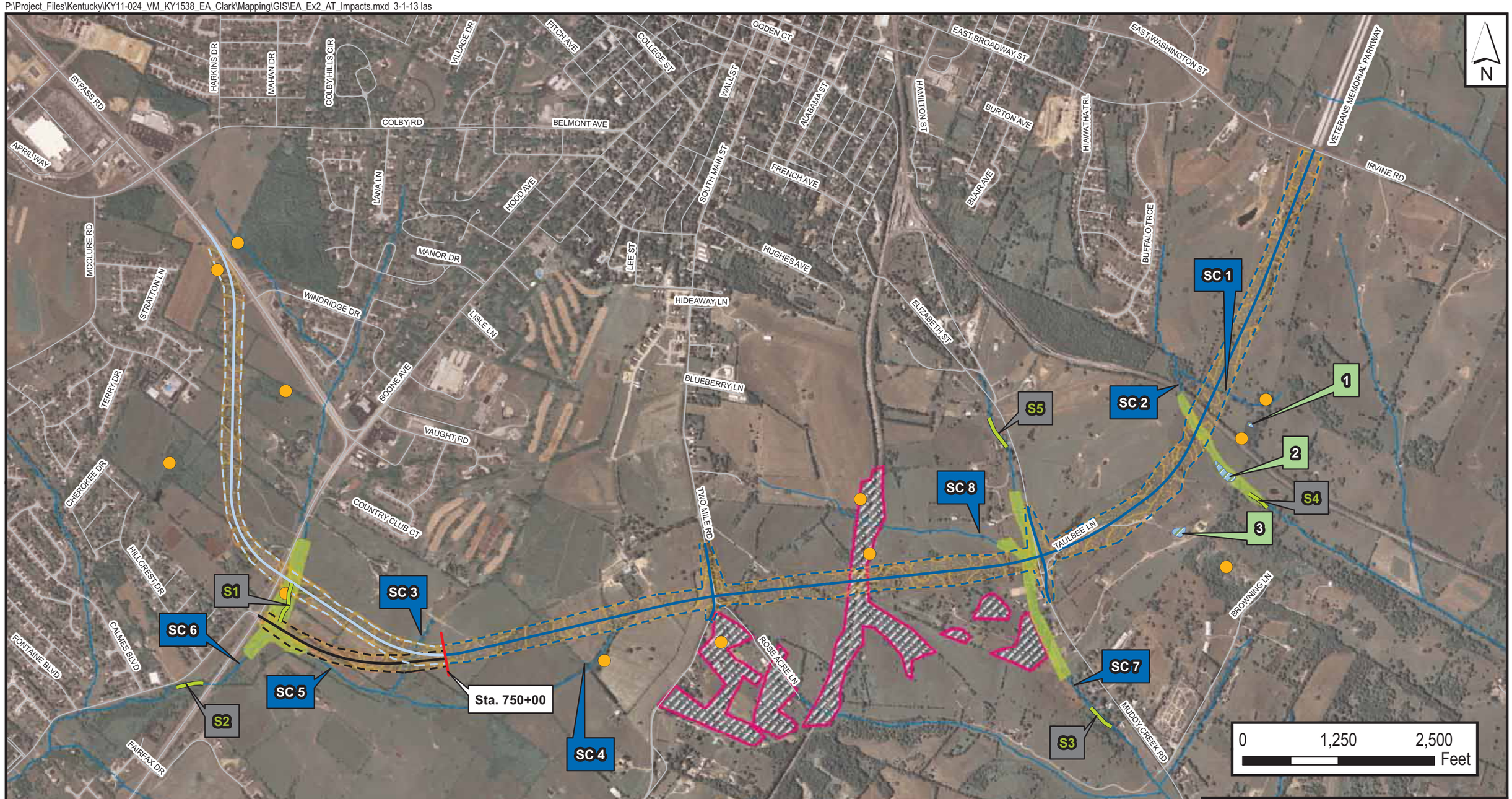

Blue East Centerline
Blue East Right-of-way
Blue West Centerline
Blue West Right-of-way
Black West Centerline
Black West Right-of-way
Stream Surveys
Running Buffalo Clover Survey Sites
Observed Wetland
Lark Sparrow/Indiana Bat/Evening Bat Habitat
Gray Bat/Black-crowned Night Heron Habitat
Bobolink/Barn Owl/Least Weasel/Henslow's Sparrow Habitat
Observed Wetland
SC # Stream Impact
S # Stream Sampling Station

Exhibit 2
Aquatic and Terrestrial Impacts (Aerial)
Winchester Southeast Bypass
KYTC Item # 7-8401.00
Clark County, Kentucky

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N

SC 1
SC 2
SC 3
SC 4
SC 5
SC 6
SC 7
SC 8
S1
S2
S3
S4
S5
1
2
3
Sta. 750+00

0 1,250 2,500 Feet

Blue East Centerline
Blue East Right-of-way
Blue West Centerline
Blue West Right-of-way
Black West Centerline
Black West Right-of-way
Stream Surveys
Running Buffalo Clover Survey Sites
Observed Wetland
Lark Sparrow/Indiana Bat/Evening Bat Habitat
Gray Bat/Black-crowned Night Heron Habitat
Bobolink/Barn Owl/Least Weasel/Henslow's Sparrow Habitat
Observed Wetland
SC # Stream Impact
S # Stream Sampling Station

Exhibit 3
Aquatic and Terrestrial Impacts (Topographic)
Winchester Southeast Bypass
KYTC Item # 7-8401.00
Clark County, Kentucky

An aquatic field survey consisting of biological, chemical, and physical (habitat) investigations was conducted on August 24 and September 10, 11, and 13, 2012 to establish the baseline conditions of each resource and to evaluate overall aquatic community health. Based on review of the topographic map and field observations, five (four crossing and one control) field survey sampling stations were selected: Lower Howard Creek (Stations 1 and 2), Fourmile Creek (Stations 3 and 5), and Twomile Creek (Station 4) (Exhibits 2 and 3, pages 20 and 21).

Stream 2 – Twomile Creek

i. Macroinvertebrate Survey

The macroinvertebrate community at each station was sampled using quantitative and qualitative methods described in KDOW (2011). A total of 22 macroinvertebrate taxa were recorded from the qualitative and quantitative samples collected at Station 1 on Lower Howard Creek. Of the 22 taxa collected, three were from the generally pollution intolerant EPT. Approximately one-twentieth of the sample (4.9 percent) was composed of the pollution-tolerant Chironomidae (midges) and Oligochaeta (aquatic worms). Clingers, those organisms that need hard, silt-free substrates to "cling" to, comprised 8.2 percent of the sample. Station 1 had a Macroinvertebrate Bioassessment Index (MBI) score of 26.8 (Poor).

A total of 21 macroinvertebrate taxa were recorded from the qualitative and quantitative samples collected at Station 2 on Lower Howard Creek. Of the 21 taxa collected, two were EPT. Similar to Station 1, 4.9 percent of the sample was composed of pollution-tolerant midges and aquatic worms. Clingers comprised 4.9 percent of the sample. Station 2 had an MBI score of 26.5 (Poor).

Station 3, Fourmile Creek, had the most total taxa collected with 39 taxa. Of the 39 taxa collected, four were EPT. Approximately one-third of the sample (28.6 percent) was comprised of pollution-tolerant midges and aquatic worms. Clingers comprised 45.4 percent of the sample. Station 3 had an MBI score of 38.0 (Poor). This was the highest MBI score for all stations, almost rating "Fair" for headwater streams of the Bluegrass Ecoregion (39-50).

A total of 32 macroinvertebrate taxa were recorded from the qualitative and quantitative samples collected at Station 4 on Twomile Creek. Of the 32 taxa collected, four were EPT. Approximately one-half of the sample (42.1 percent) was composed of pollution-tolerant midges and aquatic worms. Clingers comprised 19.4 percent of the sample. Station 4 had an MBI score of 28.8 (Poor).

Station 5, on Fourmile Creek, had the second highest total taxa richness with 37 taxa. Of the 37 taxa collected, two were EPT. Only 6.3 percent of the sample was composed of pollution-tolerant midges and aquatic worms. Clingers comprised 15.8 percent of the macroinvertebrate community. Station 5 had an MBI score of 31.8 (Poor).

Lirceus fontinalis, a tolerant isopod, was the most dominant taxa at all stations except Station 4. The isopod comprised 15 percent (Station 4) to 71 percent (Station 2) of the total number of individuals in the

macroinvertebrate community. *Lirceus fontinalis* is a common macroinvertebrate of headwater streams. The macroinvertebrate community of Station 4 was dominated by the midge *Polypedilum flavum.*

ii. Fish Survey

Fish sampling was conducted on September 10, 11, and 13, 2012 and followed methods outlined by KDOW (2010). Approximately 100 meters of Lower Howard Creek was electrofished for 613 seconds at Sampling Station 1. Sampling resulted in the collection and identification of 14 individuals representing three species.

Bluntnose minnow (*Pimephales notatus*), fantail darter (*Etheostoma flabellare*) and Mosquitofish (*Gambusia affinis*) accounted for all taxa collected. The sampling station on Lower Howard Creek (Station 1) scored a 25 on the Kentucky Index of Biotic Integrity. For the Bluegrass Icthyoregion this score can be translated qualitatively as "Poor."

Approximately 100 meters of Lower Howard Creek was electrofished for 609 seconds at Station 2. Sampling resulted in the collection and identification of 14 fish representing four species. Creek chub (*Semotilus atromaculatus*), fantail darter, stoneroller (*Campostoma anomalum)* and mosquitofish accounted for all taxa collected. The sampling station on Lower Howard Creek (Station 2) also scored a 25 on the Kentucky Index of Biotic Integrity. For the Bluegrass Icthyoregion this score can be translated qualitatively as "Poor."

Approximately 100 meters of Fourmile Creek was electrofished for 613 seconds at Station 3. Sampling resulted in the collection and identification of 70 individuals representing six species. Creek chub, fantail darter, rainbow darter (*Etheostoma caeruleum),* bluntnose minnow*,* green sunfish (*Lepomis cyanellus*) and mosquitofish accounted for all taxa collected. The sampling station on Fourmile Creek (Station 3) scored a 42 on the Kentucky Index of Biotic Integrity. For the Bluegrass Icthyoregion this score can be translated qualitatively as "Fair."

Approximately 100 meters of Twomile Creek was electrofished for 719 seconds at Station 4. Sampling resulted in the collection and identification of 219 individuals representing four species. Creek chub, fantail darter*,* bluntnose minnow, and mosquitofish accounted for all taxa collected. The sampling station on Twomile Creek (Station 4) scored a 56 on the Kentucky Index of Biotic Integrity. For the Bluegrass Icthyoregion this score can be translated qualitatively as "Excellent."

Approximately 100 meters of Fourmile Creek was electrofished for 615 seconds at Sampling Station 5. Sampling resulted in the collection and identification of nine individuals, all of which were mosquitofish. The sampling station on Fourmile Creek (Station 5) scored a 25 on the Kentucky Index of Biotic Integrity. For the Bluegrass Icthyoregion this score can be translated qualitatively as "Poor."

All of the fish encountered are common species that typically would be found in small headwater streams. It should be noted that the drainage areas for these streams are very small (0.47 to 2.34 square miles). With such small drainages, it is probable that these streams lack flow at dry times of the year. This would explain the very low numbers of individuals and species encountered at the sampling locations. Even though Station 4 scored an "Excellent" rating for the IBI, this result is likely due to the IBI score weighted

according to drainage area. Station 4 had similar taxa richness as other stations; however, it had the greatest number of individuals captured.

iii. Water Quality

Water quality was sampled on September 11 and 13, 2012. Water grab samples were taken in the field at each station, returned to the laboratory, and analyzed for the following parameters: pH, hardness, acidity, alkalinity, carbon dioxide, ammonia, chloride, sulfate, orthophosphate, and iron. Field measurements of water temperature (°F), pH (Standard Units), dissolved oxygen (mg/L), and specific conductance (µS) were taken at each site using a Hydrolab multiparameter water quality instrument. Field and laboratory methods for water quality sampling and analyses followed those outlined by the American Public Health Association (1998).

Forms from the US Environmental Protection Agency (USEPA)'s 1999 publication *Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers* were completed in the field, and the physical characteristics and habitat quality at each station were evaluated through the completion of an RBP (Rapid Bioassessment Protocol) Habitat Assessment Field Data Sheet (Barbour *et al.* 1999; KDOW 2011).

Field measurements were within Warmwater Aquatic Habitat (WAH) criteria for temperature (< 31.7º Celsius), pH (6 to 9 standard units), and dissolved oxygen (> 4.0 mg/L instantaneous). While WAH criteria does not exist for specific conductance, levels were elevated (> 500 µS) at all stations especially Station 1 (801 µS), Station 2 (962 µS), and Station 5 (828 µS). Elevated hardness at Stations 1 (307 mg/L as $CaCO_3$), 2 (372 mg/L as $CaCO_3$), and 5 (419 mg/L as $CaCO_3$) probably contributed to elevated specific conductance levels. Elevated chloride levels at Station 1 (73.8 mg/L) and Station 2 (94.5 mg/L) and elevated sulfate concentrations at Station 2 (125 mg/L) also contributed to specific conductance levels. Ammonia was detected only at Station 3 (0.07 mg/L), and Station 5 (0.08 mg/L).

Physical habitat of all stream stations rated "Poor" with habitat scores less than 142 for headwater streams of the Bluegrass Ecoregion. Sub-optimal or marginal condition categories for Epifaunal Substrate/Available Cover, Velocity/ Depth Regime, and Channel Flow Status contributed to the "Poor" ratings for all stream sampling stations. These conditions are to be expected for small headwater streams due to their small drainage areas. Embeddedness and sediment deposition contributed to the low habitat score for Station 2. Narrow riparian vegetative zone widths contributed to low habitat scores for Stations 3, 4, and 5.

2. Floodplains

FEMA 100-year floodplain impacts are detailed in Table 6.

TABLE 6 – FLOODPLAIN IMPACTS BY ALTERNATIVE

	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Acres of Floodplain Impacted	2.2	0.2	2.1

Floodplains help dissipate energy within a stream during high flow events by enabling the stream to leave its banks. Eliminating floodplains can cause increased erosion leading to stream entrenchment and

sedimentation. Expanding bridge crossings to include the floodplain areas, where possible, will minimize impacts by maintaining the potential for streams to leave their banks during high flow events.

Coordination with KDOW will be required for floodplain impacts. A general KDOW Water Quality Certification will be necessary, as will FEMA No-Rise Certification for any construction activities occurring within the 100-year floodplain.

3. Wetlands

A wetland survey was conducted on August 28, 2012. Wetland delineation boundaries were determined by following procedures outlined in the US Army Corps of Engineers *Wetland Delineation Manual* (1987) and the subsequent *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (2008). Characteristics of vegetation, hydrology, and soils were evaluated. The jurisdictional status of each wetland was determined according to USACE guidance, which considers a wetland's adjacency and hydrologic connection to "Waters of the United States." Wetlands that occur in proximity to a stream channel are normally classified as jurisdictional.

The US Fish and Wildlife Service National Wetland Inventory (NWI) mapping indicated 24 potential wetlands adjacent to the disturbance limits of the proposed alternatives. All of these wetlands are classified as PUBHh, which are man-made diked/impounded ponds. An examination of these wetlands during the August 28, 2012 field visit indicated that three were in the vicinity of the proposed Build Alternatives. The wetlands are farm ponds, two of which have a wetland margin and one of which is a shallow pond dominated by emergent wetland plants. No other wetland areas were observed. None of the project corridor wetlands are anticipated to be impacted by the proposed Build Alternatives.

Wetland 2

Exhibits 2 and 3, pages 19 and 20, show the location of these wetlands. An exact determination of impacts to jurisdictional wetlands will be made by the KYTC Division of Environmental Analysis after the completion of final design.

4. Wild and Scenic Rivers

Correspondence with the Kentucky Division of Water confirmed that no State Outstanding Resource Waters, Wild Rivers, or Exceptional Waters occur within the project corridor. A copy of this letter is contained in Appendix B.

However, according to KSNPC correspondence included in Appendix B, the project has the potential to impact Lower Howard's Creek, which is an important feature of the Lower Howard's Creek State Nature Preserve downstream of the project. Even though it is several miles away from the project, this area (located at the creek's confluence with the Kentucky River) could be affected by construction impacts and

accidental discharges of pollutants. Because of the project location near this important area, impacts to aquatic features should be minimized to the fullest extent possible.

5. Aquatic Ecosystem Permits

Impacts to aquatic resources are likely to require a Nationwide Section 404 Permit issued by the US Army Corps of Engineers (USACE) and a general Section 401 Water Quality Certification issued by the Kentucky Division of Water (KDOW). Permitting will be handled through the Letter of Permission (LOP) process. Compensatory mitigation for stream loss may include the payment of an in-lieu fee or on- or off-site stream restoration projects.

As required for construction activities disturbing one or more acres, a Notice of Intent for coverage under a Kentucky Pollutant Discharge Elimination System (KPDES) general permit number KYR100000 for stormwater point sources, construction, will be filed with KDOW. The BMP plan set forth in Part IV of this general permit will be implemented to minimize potential pollution. The generic groundwater protection plan as required by KDOW and KYTC DEA will be strictly followed to protect groundwater.

6. Cumulative and Indirect Impacts to Aquatic Ecosystems

Construction activities and associated erosion will produce short-term and long-term impacts on water quality and habitat quality of streams in the project corridor. Potential direct, indirect, and cumulative impacts are summarized below:

- During road construction, the potential for sedimentation will increase as sediments are exposed, extracted, and moved. Increased sedimentation can cause reduced stream capacity (flooding) and smothering of aquatic habitat (aggradation).
- Because fresh sediment and rock are exposed, levels may increase for parameters such as turbidity, conductivity, and suspended solids.
- After construction of the new roadway, an increase in the amount of impervious surface may contribute to greater and more rapid surface runoff to streams.
- Increased runoff during storm events may cause increased instream flows and velocities.
- Due to more rapid stormwater runoff, stream base flow will be reduced during drier periods with a corresponding rise in water temperature.
- New road surfaces will contribute road salt, oil, antifreeze, and other non-point source pollutants to aquatic environments.
- Culvert placement will eliminate some instream habitat.
- The removal of the stream canopy will cause an increase in average stream temperatures during warmer months. Higher stream temperatures will support lower concentrations of dissolved oxygen. Both factors will have a negative impact on resident animal communities (fish, amphibians, macroinvertebrates). In addition, more open canopies and the subsequent increase in sunlight could promote the establishment of excessive algal growths.
- If not revegetated, streambanks will be less stable and could erode and release sediment into the stream channel. Increased sediment inputs will reduce instream cover for fish and macroinvertebrates.
- Removal of riparian vegetation along streams will also reduce the amount of coarse woody debris (sticks, leaves) entering the stream systems. This input of coarse woody debris is the primary energy

source for stream systems. Changes in quality and quantity could cause negative impacts on the aquatic community.

7. Minimization and Mitigation Measures

There are no state wildlife management areas, national or state forests or parks, exemplary natural communities, champion trees, wild or scenic rivers, exceptional waters, or Outstanding National or State Resource Waters (ONRW or OSRW) in the project area.

However, KSNPC correspondence indicates that the project has the potential to impact Lower Howard's Creek, which is an important feature of the Lower Howard's Creek State Nature Preserve downstream of the project. Even though it is several miles away from the project, this area (located at the creek's confluence with the Kentucky River) could be affected by construction impacts and accidental discharges of pollutants. Because of the project location in this important area, impacts to aquatic features should be minimized to the fullest extent possible.

When possible, bridges should be utilized at stream crossings rather than culverts in order to minimize in-stream impacts. Construction activities at these crossings may cause short-term sediment impacts, but sediment control structures such as straw bales, silt fences, and erosion mats should prevent or minimize these impacts. Additional opportunities for minimization of impacts may be implemented during final design and construction. Similarly, KDFWR and KSNPC recommend numerous Best Management Practices (BMPs) for all portions of the project corridor where ephemeral, intermittent, or perennial streams are crossed. These BMPs are noted in the responses received from these agencies as included in Appendix A. Strict adherence to Kentucky's Standard Specifications for Road and Bridge Construction (KYTC 2008) will minimize erosion and in-stream siltation. Additional sediment control can be achieved by using Federal Highway Administration *Best Management Practices for Erosion and Sediment Control* (FHWA 1995). An erosion control plan will be developed for the project and approved by KYTC DEA prior to construction. The plan should include stringent erosion control methods. All erosion control measures should be monitored periodically to ensure that they are functioning as planned.

As required for construction activities disturbing one or more acres, a Notice of Intent for coverage under a Kentucky Pollutant Discharge Elimination System (KPDES) general permit number KYR100000 for stormwater point sources, construction, will be filed with KDOW. The BMP plan set forth in Part IV of this general permit will be implemented to minimize potential pollution. The generic groundwater protection plan as required by KDOW and KYTC DEA will be strictly followed to protect groundwater.

Regardless of the alternative selected, stream crossings for the proposed project are anticipated to require a Nationwide Section 404 permit issued by the US Army Corps of Engineers (USACE) and a general Section 401 Water Quality Certification issued by the Kentucky Division of Water (KDOW). Individual USACE permits are required for culvert impacts greater than 500 feet (channelization can also require an Individual Permit). Impacts of more than 200 linear feet require Section 401 Water Quality Certification from KDOW. KDOW currently requires compensatory mitigation for all permanent stream losses greater than 300 feet. Compensatory mitigation for stream loss may take several forms. Examples include the following:

- An in-lieu fee payment
- Repair of stream bank stability problems on other stream reaches

- Stream restoration projects that involve the creation of in-channel aquatic habitat and riparian re-establishment; may be on-site or off-site

D. Terrestrial Ecosystems

The western half of the proposed project corridor is on the eastern edge of the Inner Bluegrass Physiographic Region, which is typically underlain by limestone and is characterized by broad ridgetops, shallow, wide valleys, and level bottomland (USDA 1961). The eastern half of the project corridor transitions into the Outer Bluegrass Physiographic Region, which is underlain by limestone interbedded with shale and exhibits more undulating topography with narrow winding ridgetops and steep hills (USDA 1961). The US Geological Survey (USGS) geologic map indicates that the underlying bedrock in the corridor consists of Lexington Limestone and Clays Ferry Limestone of Ordovician age. The project corridor is classified as having moderate to high karst potential, which is characterized by sinkholes, springs, seeps, sinking streams, and underground drainage through solution-enlarged conduits or caves (Black 1974). There are no documented caves in the vicinity of the project corridor, although sinkholes are shown on USGS and Kentucky Geologic Survey (KGS) mapping. No geologic faults are indicated within the project corridor on KGS or USGS mapping.

Coordination was conducted with USFWS, KDFWR, and KSNPC regarding federally and state listed species (Appendix B). Listed species – and the impacts the project will have on their habitat – are included in Table 7, page 28. Identified areas of habitat are shown on Exhibits 2 and 3, pages 19 and 20.

Three areas of potential running buffalo clover habitat were initially identified in the project corridor. However, a subsequent field survey of the potential running buffalo clover habitat during its flowering season indicated that the species is not present. No habitats of exceptional quality or rarity were identified within the project area during the field survey. Overall, the fish and macro community ranked “poor” and the habitat assessment results were poor, with the highest RBP score of 134. The riparian buffers are narrow, containing few mature trees with an understory dominated by non-native species. Several stream corridors provide potential foraging habitat for the federally endangered gray bat, although these foraging areas are marginal due to small stream size. Forests within the project area contain a few mature trees, although most forested areas within the project corridor have few snags or live trees with exfoliating bark, cracks, and crevices that could serve as summer maternity habitat.

Impacts to gray bat foraging habitat and black-crowned night-heron habitat along streams and riparian areas will be similar for each alternative. Though habitat suitable for running buffalo clover was initially identified in the corridor, field investigations conducted during the species’ flowering period determined that the species is not present. Thus, the project will have no impact on running buffalo clover.

Forests within the project have few snags and live trees with exfoliating bark, cracks, and crevices that could serve as summer maternity habitat. Therefore, summer roosting habitat is marginal for Indiana bat.

TABLE 7 – HABITAT IMPACT, FEDERAL AND STATE LISTED SPECIES

SPECIES	IMPACTS (ACRES), BY ALTERNATIVE		
	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Gray bat	1.24	4.07	2.44
Black-crowned night-heron	1.24	4.07	2.44
Indiana bat	0	1.82	0
Evening bat	0	1.82	0
Henslow's sparrow	54.22	153.35	13.53
Bobolink	54.22	153.35	13.53
Barn owl	54.22	153.35	13.53
Least weasel	54.22	153.35	13.53
Lark sparrow	0	1.58	0
Running buffalo clover	0	0	0
Total	219.36	626.76	59

Note: Potential running buffalo clover habitat was initially identified within the project corridor; however, field investigations determined that running buffalo clover is not present in the corridor. Subsequently, no habitat for the species will be impacted by the project.

All resources should be utilized to minimize impacts to habitats conducive to threatened and endangered species. BMPs should be applied at stream crossings. Construction can accelerate erosion and sedimentation in streams, and the resulting sediment deposition on the channel bottom can degrade aquatic habitat used by listed species. Implementation of a well-developed erosion control plan, as well as the utilization of diversion channels and silt barriers, temporary seeding and mulching of cut and fill slopes, and limiting in-stream activity will minimize these adverse impacts.

1. Indiana and Gray Bat Minimization and Mitigation

Based on the USFWS coordination letter, a detailed assessment of the project area to identify caves, rock shelters, and underground mines should be conducted to identify any such habitats that may exist on-site, which may provide habitat for the federally endangered gray bat and/or Indiana bat. A Biological Assessment can include this information. Impacts to these features should be avoided pending an analysis of their suitability as habitat by the USFWS office.

Sediment Best Management Practices (BMPs) should be utilized and maintained to minimize siltation of the streams located within and in the vicinity of the project area, as these streams represent potential foraging habitat for the gray bat.

The USFWS recommends that trees within the project area be removed between November 15 and March 31 in order to avoid directly impacting Indiana bat and gray bat foraging behavior. If any Indiana bat hibernacula are identified on the project area, the trees should be removed between November 15 and March 31 in order to avoid impacting Indiana bat swarming. Mitigation is required for Indiana bat impacts; coordination with USFWS will be required prior to construction. KSNPC recommends that the project be surveyed for listed species.

Indirect and cumulative impacts include forest fragmentation, a detriment to many species of wildlife, particularly species of songbirds that require interior forest habitats. Roadways are a major contributor to forest fragmentation.

No unique flora or fauna were observed during the field survey. No caves or open sinkholes were observed in the project vicinity during the field survey. Terrestrial habitat within the area is a highly fragmented mix of pasture/agricultural, forested, and residential land uses. Habitat fragmentation created by road construction is undesirable. Roads can act as barriers to terrestrial species (both flora and fauna), diminishing or even preventing migration between previously contiguous communities. Isolated communities are known to be less stable and may consequently be lost. New road construction through intact forest habitat will increase the edge effect. While benefiting species associated with edges, those requiring large uninterrupted habitats will be adversely affected. Agricultural land is the most impacted land use type for this project regardless of which Build Alternative is chosen.

E. Section 106

Cultural historic and archaeological overviews were conducted to identify Section 106 resources. These studies are discussed in greater details in the following subsections. Section VI, *Comments and Coordination,* discusses the public involvement component of the project thus far.

What is "Section 106?"

Section 106 of the National Historic Preservation Act provides a procedure for evaluating project impacts on historic and cultural resources and for encouraging public comment regarding the evaluation. It includes three main components. First, determining if any ancient, historic, or potentially historic properties or sites are located within the project's Area of Potential Effect (APE), which delineates the geographic extent of the project based on direct (acquisition) and indirect (noise, visual, induced growth, etc.) effects. Concurrence from federal, state, and local agencies of the proposed APE is obtained, then resources within the APE are examined to determine the project effects on resources determined to be eligible for the National Register of Historic Places (NRHP) according to methods specified in 36 CFR 400.8. The second component of the Section 106 process requires that Native American tribes with an interest in archaeological sites and findings be allowed to comment on the project. The third component of Section 106 requires that consulting parties and the public at large be kept informed of project developments.

1. Historic Structures or Districts

A *Cultural Historic Overview Survey* for the proposed project was completed in January 2012. This study provides supporting documentation for this Environmental Assessment.

The Area of Potential Effect (APE) was defined as a 1,000 foot buffer surrounding the project corridor footprint. In conjunction with a field survey conducted in November and December 2011, records maintained by the Kentucky Heritage Council (State Historic Preservation Office [SHPO]) were reviewed to determine if the APE contains any previously-surveyed sites. Thirteen previously-surveyed resources are located within the APE. These include the J.W. Tuttle Farm (Site 1), which was documented in a previous survey within the APE and determined eligible for listing on the National Register of Historic Places (NRHP). Four other sites (Sites 2, 3, 9, and 13) were previously determined eligible for listing as well. SHPO records initially indicated that a site listed on the NRHP, the Henry W. Calmes House, was present within the APE; however, the 2011 field survey determined that this property is not within the APE boundaries.

During the 2011 field survey, 54 properties were documented within the APE. The survey team confirmed that the residence associated with Site 1, the J.W. Tuttle Farm, remains eligible for NRHP listing. Due to this property's NRHP eligibility, avoiding impacts to the site is

recommended. SHPO determined that the project would have No Effect on Site 1 in May 2013.

In addition to Site 1, SHPO advised that Site 2, the Burgher House, is potentially eligible for listing on the NRHP. The site was identified during a previous survey. SHPO believes that despite alterations to the property, the design integrity, materials, workmanship, and intact setting are sufficient to retain its status as NRHP eligible.

None of the proposed Build Alternatives will acquire right-of-way from Site 1. Any impacts to this property will be indirect and may involve impacts to the viewshed, as a new road will be introduced to the west of the property on land currently used for agriculture. SHPO determined that the project would have No Effect on Site 2 in May 2013.

The remaining sites surveyed do not appear eligible or potentially eligible for listing on the NRHP. The survey team was unable to gain access to three sites (Sites 13, 15, and 53). Though eligibility of these sites was unable to be fully evaluated due to the lack of access, SHPO determined the project would have No Effect on Sites 13, 15, and 53. SHPO concurrence regarding cultural historic impacts is included in Appendix B.

2. Archaeological Sites

An *Archeological Overview Survey* was completed for the project in 2011. This survey provides supporting documentation for this Environmental Assessment.

Three previously-recorded archaeological sites are present in the project corridor: 15Ck3, 15Ck4, and 15Ck300. Site 15Ck300 is an open habitation without mounds. No further work was recommended for the site, which was not considered eligible for the NRHP. Sites 15Ck3 and 15Ck4 are prehistoric stone burial mounds. Both have been impacted by modern activities, but the extent of the impact(s) is unknown.

A Phase I Archaeological Survey will be completed once a preferred alternative has been selected, prior to the completion of the FONSI. The results of the survey will be documented in the FONSI. Native American Consultation (NAC) will be completed, if necessary, following completion of the Phase I Survey.

F. Land Use

Clark County has a land area of 254 square miles, with an average population density of 130 persons per square mile. The corridor is primarily outside of Winchester's city limits, but is within Winchester's Urban Planning Boundary. This boundary includes Winchester and adjacent land that is either already, or anticipated to be, developed in an urban fashion. These areas are no longer considered rural and will ultimately receive urban services. The comprehensive plan presumes future development, including residential, commercial, and industrial enterprises, will be located within the Urban Planning Boundary due to this area's availability of transportation and community resources.

Farmland Typical of Project Corridor Land Use

The majority of land within the project corridor is currently undeveloped and used mainly for agriculture. Low-density rural residences are scattered along most existing roadways. Higher-density residential and commercial development are located along the northeast side of KY 1958 (Bypass Road) and where KY 1958 intersects with KY 627. An apartment complex, several smaller commercial enterprises (several of which are clustered within Boonesboro Plaza), and the Clark County Area Technology Center and Clark/Bourbon Day Treatment facilities are located in the vicinity of this intersection. Part of the privately owned Winchester Country Club is also located in this area. Southwind Golf Course is located along KY 627 south of the project corridor.

Mapping from the 2004 *Winchester/Clark County Comprehensive Plan*, which shows the project, indicates that future land use along the proposed bypass corridor will primarily be zoned as Single-Family Residential, Planned Community Neighborhoods, or Local Neighborhood/Planned Development (Appendix C). The latter two designations are intended to designate newly developed residential communities comprised of a mix of residential, commercial, and recreational facilities. The mid-section of the project corridor has been identified as a Long-Range Planning Area. These areas do not have future land use designations, as future land use is considered contingent upon other factors, such as construction of the proposed project.

As the majority of the proposed project will be constructed along new alignment, direct land use impacts will occur. Nearly all land that will be acquired to construct the proposed roadway will be converted to roadway right-of-way from other uses, primarily undeveloped and low-density residential and agricultural land. Table 8 contains the amount of land that would be converted to right-of-way for the proposed project.

TABLE 8 – LAND USE WITHIN RIGHT-OF-WAY PER ALTERNATIVE

LAND USE*	LAND USE BY ALTERNATIVE (ACRES)*		
	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Residential	0	1.46	0.28
Forest	8.33	6.85	3.28
Agriculture/ Undeveloped	26.41	101.50	8.9
Transportation	0.65	2.15	0
Total Acres within Right-of-Way	35.39	111.96	12.47
Acres Converted to Right-of-Way**	34.7 acres	109.8 acres	12.5 acres

*Determined from right-of-way on aerial photo.
**Acres Converted to Right-of-Way does not include land currently being used for transportation; only land that would be converted to roadway right-of-way is included in this category.

The project may indirectly induce new development in the area, as proximity to the new roadway may encourage landowners to sell their undeveloped and low-density residential and agricultural land to developers for constructing higher-density residential and commercial properties. As a result, this portion of Clark County is likely to become less rural and more suburban over time. This change is consistent with local plans. As discussed previously, the most recent (2004) Comprehensive Plan for Winchester/Clark County shows the proposed project, and future land use along the corridor is shown as a mixture of residential and commercial developments.

G. Community Profile and Impacts

Detailed information about the community is contained in the Socioeconomic Baseline Assessment. The community profile for the project area is summarized below.

1. Community Profile

The majority of the bypass corridor is located in unincorporated Clark County and lies within Census Tracts (CT) 201.03, 201.05, and 201.06 (Figure 3, page 33). Data from the US Census Bureau was examined at the state, county, and census tract level to identify demographic data for the project area. This data is included in Table 9.

TABLE 9 – DEMOGRAPHIC DATA (2010)

	KENTUCKY	CLARK COUNTY	CT 201.03	CT 201.05	CT 201.06
Total Population	4,339,367	35,613	3,678	3,430	3,256
% Minority	12.2	7.9	2.7	5.5	6.5
Hispanic or Latino* (%)	3.1	2.5	1.0	1.3	2.2
Median Household Income	41,576	46,575	68,547	54,320	24,690
Per Capita Income	22,515	23,966	32,013	28,689	16,364
Population Living Below Poverty Level (%)	17.7	16.0	6.1	13.0	23.6
Family Households (%)	66.9	69.8	79.1	66.5	68.9
Owner-Occupied Housing Units (%)	68.7	67.7	87.5	60.9	59.4
Median Value of Homes ($)	116,800	134,500	178,900	162,200	89,100
Median Gross Rent as % of Household Income	28.6	27.1	22.7	25.9	42.6

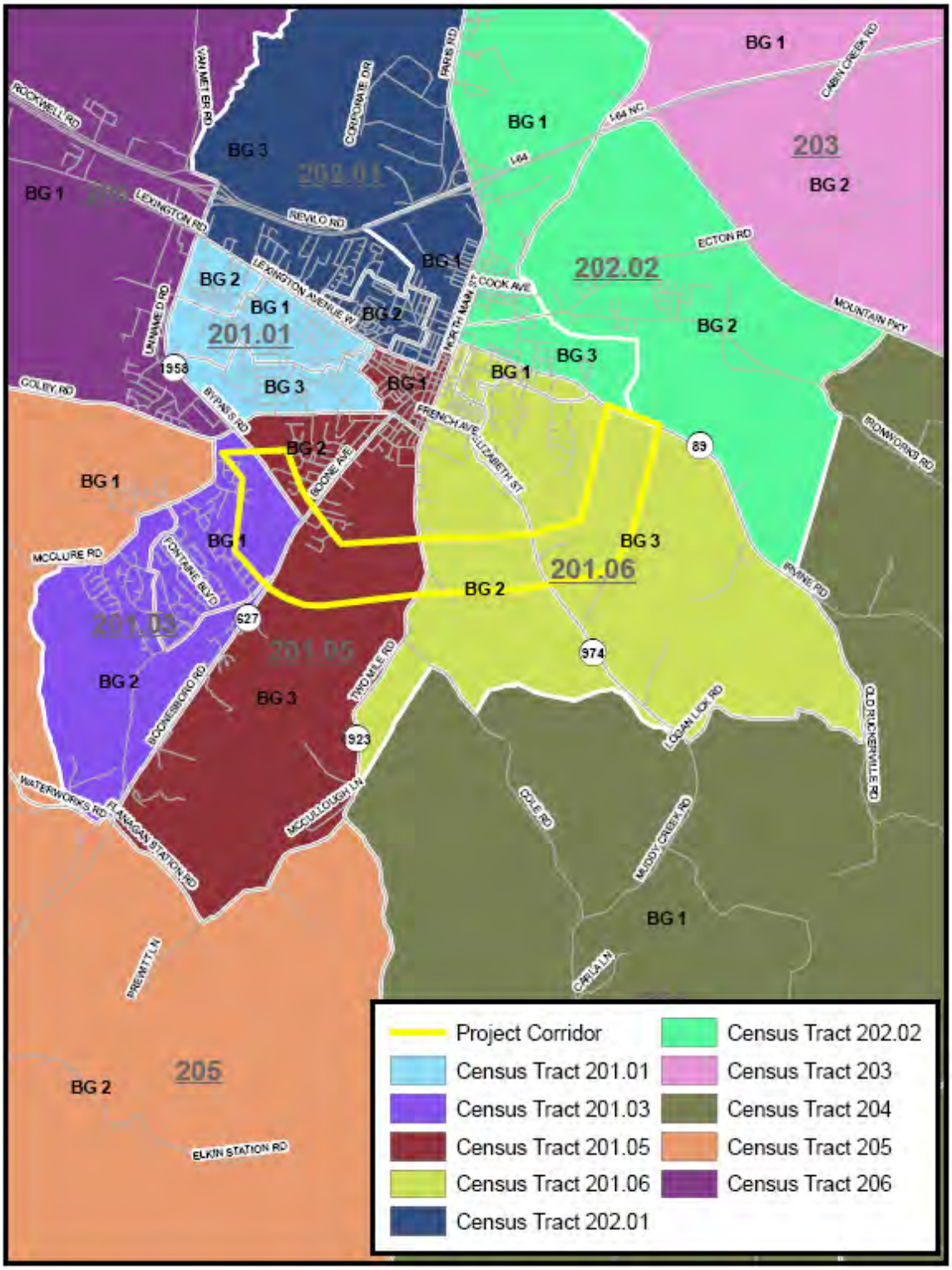
In 2010, Clark County contained 35,613 residents, a 7.4 percent increase from the 2000 decennial census. Data from the Kentucky State Data Center predicts the county's population will increase by 6.7 percent to 37,985 by 2020 and by 12.3 percent by 2050.

The median age in Kentucky is 38.1, which is lower than that of Clark County, CT 201.03 and CT 201.05. CT 201.06 has a lower median age than the state average.

CT 201.03, 201.05, and 201.06 contain a smaller percentage of minority residents than Clark County and Kentucky as a whole.

A higher percentage of households in CT 201.03 are family households (79.1 percent) than in the other areas studied, where approximately 68 percent of households are family households. Home ownership varies in the corridor. Approximately 60 percent of CT 201.05 and 201.06 residents own their homes, as compared to 87.5 percent of CT 201.03 residents. Approximately 68 percent of Kentucky and Clark County residents own their homes.

FIGURE 3 – PROJECT AREA CENSUS TRACTS



Residents of Clark County and CT 201.03 and CT 201.05 have higher median household and per capita incomes and are less likely to be living below the poverty level than residents of Kentucky as a whole. On average, however, residents of CT 201.06, which comprises the eastern half of the project corridor, have much lower median household and per capita incomes than elsewhere in the project corridor, county, and state. A higher percentage of this census tract's residents are living below the poverty level as well. They also expend 42.6 percent of their income on gross rent, indicating that these residents have a housing burden (expend 30 percent or more of income on housing).

In December 2011, Clark County had a civilian labor force of 17,347. The unemployment rate in Clark County in 2010 was 10.8 percent, which is slightly higher than that of Kentucky (10.5 percent) and the nation (9.6 percent) as a whole.

Consistent with state and national trends, the county's unemployment rate jumped by approximately four percentage points between 2008 and 2009. Easy access to/from I-64 (which provides access to I-75) and the Bert T. Combs Mountain Parkway have made Clark County an appealing site for commerce. Numerous businesses and industries are located in the county.

2. Community Impacts

The low-density rural residential housing in the project corridor does not create many discernible neighborhoods. Though some higher-density subdivision style neighborhoods are present (Buffalo Trace, West Meade, Lyndale, and Boone Trace), most project corridor neighborhoods likely consist of clusters of homes near one another along project area roadways. It is not known at this time if any socially interdependent clusters are present in the project area, though data from the 2010 US Census indicates that one-third of CT 201.06 residents carpool to their workplaces. As shown in Figure 3, page 33, this census tract comprises approximately half of the project corridor, as well as parts of Winchester to the north and unincorporated Clark County to the south. Thus, it is unknown if any project corridor residents carpool to work. At least two members of a family live on adjacent tracts of land along Muddy Creek Road. It is not known if any other family clusters are present in the project area.

Though some residents whose homes will be acquired by the project may be able to relocate on their property, some may ultimately decide to relocate elsewhere, subsequently selling their property. Other landowners near the proposed bypass may also decide to sell their property. As with land use impacts, indirect and community impacts are primarily related to growth and development in the corridor. If owners of large parcels (or owners of adjacent smaller parcels) decide to sell their property, it may ultimately be developed into higher density residential and/or commercial properties, changing the character of the community from a rural to a more suburban area.

The Path Walking Trail

One community facility – The Path Walking Trail – may be impacted by the project. The Blue Alternative (West) will bisect this facility, which is a privately owned walking path open to the public from dawn to dusk. No

other community facilities will be directly impacted by any other proposed alternatives.

Other community facilities within the vicinity of the project corridor include the Winchester Traveling Trail, which is across KY 1958 (Bypass Road) from the Blue Alternative (West)'s western terminus. This facility will not be impacted, but the proposed project could indirectly improve access to the facility for southeastern Clark County residents. George Rogers Clark High School, the Clark County Area Technology Center and Clark/Bourbon Day Treatment are located just north of the KY 1958 and KY 627 intersection. Two churches – Grace Lutheran and First Presbyterian – are located on the north side of KY 1958 (Bypass Road). None of these facilities will be directly impacted by any of the proposed Build Alternatives, but as with the Winchester Traveling Trail, the new roadway could indirectly improve access to these facilities for residents in southeastern Clark County.

All area residents will have to adjust their commuting patterns to the new roadway. Most area commuters will benefit from the project. As east-west roadways are lacking in the area, the new roadway will reduce travel time through southeastern Clark County, as residents traveling from one end of the county to the other will no longer have to travel through town to do so. As with any bypass project, however, removing through traffic from the existing road network through Winchester may impact businesses along the routes that will be bypassed, including businesses within Boonesboro Plaza and those in the central business district to the north of the project corridor. Less through traffic will result in fewer impromptu stops to these businesses by motorists "passing through." However, the decreased traffic along these roadways may also attract some consumers, as the bypassed routes will be less congested and safer, enticing more destination trips to these areas.

H. Relocations and Displacements

No non-farm commercial enterprises or other non-residential facilities will be relocated by the project as none lie along the proposed alignment of any Build Alternatives. All relocations will be to residential property owners. The proposed Blue (West) and Black (West) Alternatives will relocate four or one residence(s), respectively, and the proposed Eastern Build Alternative will relocate five residences. These relocations are summarized in Table 10.

TABLE 10 – RESIDENTIAL RELOCATIONS BY ALTERNATIVE (WEST/EAST)

	ALTERNATIVE SEGMENT		
	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Residential Relocations	4	5	1

All residential acquisitions will be conducted in accordance with the Uniform Relocation Assistance and Real Properties Act of 1970, as amended, and relocation resources are available to relocated persons without discrimination, in compliance with Title VI of the Civil Rights Act of 1968 and Executive Order 12898. All right-of-way acquisitions will also be conducted in accordance with the Kentucky Transportation Cabinet Division of Right-of-Way and Utilities' Relocation Assistance Program.

A search of Realtor.com in February 2013 indicated approximately 250 properties for sale in and around Winchester, ranging in price from approximately $50,000 to $500,000 depending on lot size and location and ranged from two to five bedrooms. The majority of available homes are located along or west of KY

627. Vacancy rates are much lower (3.8 percent) in the census tract that comprises the western end of the project corridor (CT 201.03; from KY 627 west) than the state (10.8 percent) and county (9.2 percent) average. Vacancy rates are higher in the census tracts to the west of KY 627 (CT 201.05 and CT 201.06) – 11.9 and 13.4 percent, respectively. It is not anticipated that any projects in the area will prevent occupants from finding housing, nor is it anticipated that Last Resort Housing Funds would need to be used. The flowing agencies are available to assist with housing or loan issues:

- Kentucky Transportation Cabinet, Division of Right-of-Way and Utilities
- HUD Housing Counseling for Homebuyers and Renters
- Social Security Administration
- National Housing Conference
- Kentucky Housing Corporation
- Area banks and mortgage lenders

No adverse community impacts are anticipated as a result of the required residential relocations. It is not known at this time how many residents will ultimately decide to relocate elsewhere. Several of the homes that may be acquired by the project are located on large tracts. Homeowners may be able to rebuild elsewhere on their parcel, which will minimize community impacts. However, some owners of large parcels may ultimately decide to sell their land, which could ultimately end up being developed into higher density residential and/or commercial developments. This will indirectly change the nature of the community from a low-density rural residential community to a higher-density suburban-style community. However, as discussed previously, this change is consistent with local planning.

Due to the nature of the project, a new roadway primarily on new alignment, construction impacts to area residents and business owners/ employees/customers will be less than with a project along existing roadways. Except for the few places where the proposed project will intersect with existing roadways, detours and delays due to construction will not be a major burden on area motorists. Some delays may occur due to construction equipment traveling to the site. As many of these existing roadways are narrow facilities with limited shoulders, delays could occur due to the presence of large equipment moving along the roads. The sights and sounds of roadway construction will also impact residents near the new roadway, as well as the introduction of a larger volume of through traffic along a corridor previously limited to smaller volumes of local traffic. Area motorists will have to adjust travel patterns to the new route.

I. Farmland

Active farming operations are present within the bypass corridor. Cattle are the dominant livestock, but sheep and goat farms (Double L Lambs and Sacagawea Farms, respectively) are located on the eastern side of KY 627 within the project corridor. Row cropping is also present. Mapping showing prime and statewide important farmland along the route of each proposed Build Alternative is included on Exhibit 4, page 37.

What is the "Farmland Protection Policy Act?"

The Farmland Protection Policy Act (FPPA) was established to minimize conversion of important farmland to non-agricultural uses. The act seeks to encourage alternatives, if possible, that lessen adverse effects to important farmlands. Important farmlands are lands with soils that are identified as prime and unique or of statewide and local importance. The FPPA is not applicable to land located within an urban boundary.

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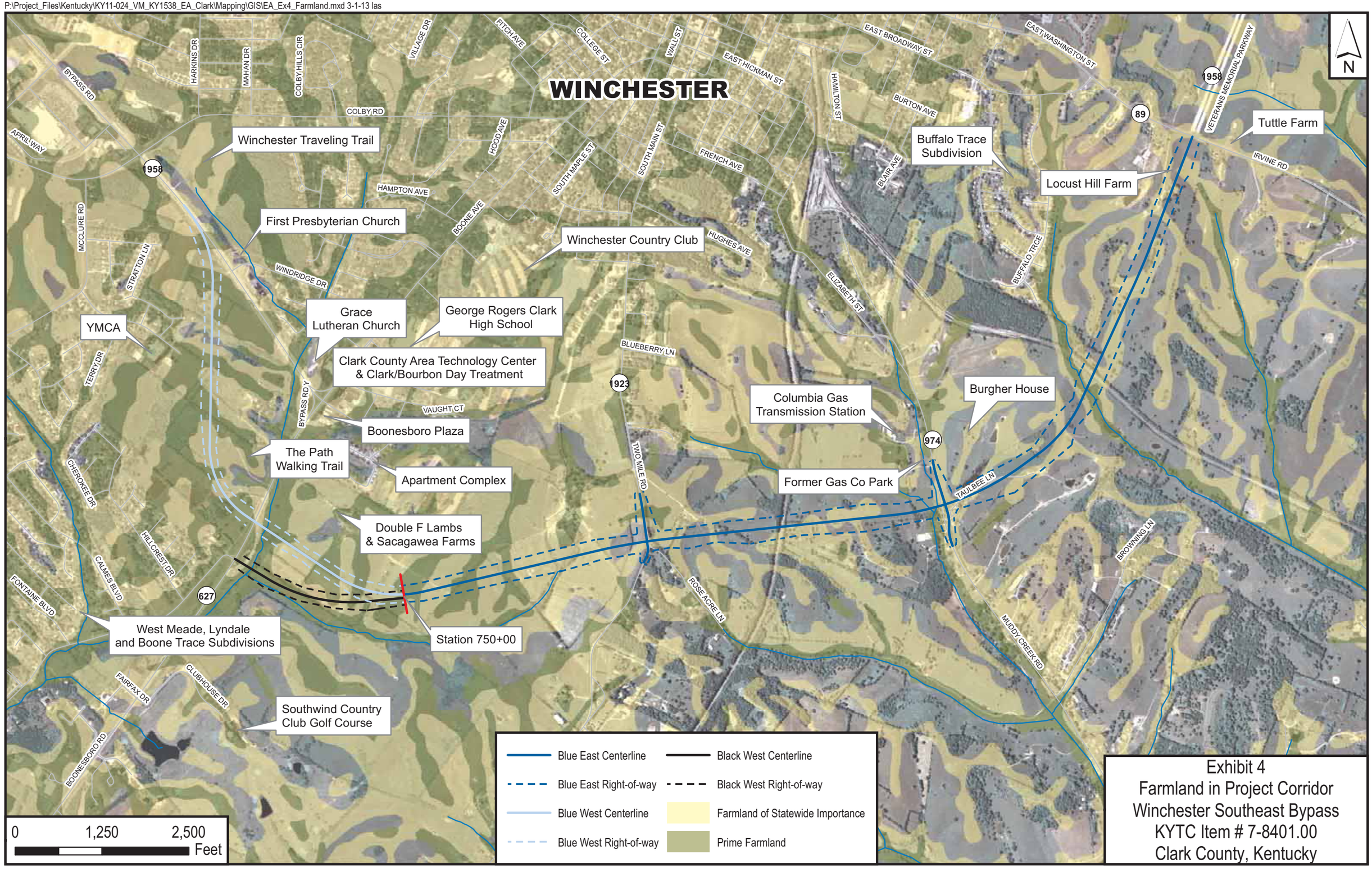

Exhibit 4
Farmland in Project Corridor
Winchester Southeast Bypass
KYTC Item # 7-8401.00
Clark County, Kentucky

Where possible, the project design team followed property boundaries to minimize impacts to farms; however, several farms along KY 1923 will be impacted. The Blue (East) Alternative will cut through the rear third of Double F Lambs and Sacagawea Farms. A neighboring (to the east) farm used for row cropping and another large tract to the east of this property, which may be used for agricultural purposes, will be bisected by this alternative as well.

Impacts to soils classified as Prime Farmland or Farmland of Statewide Importance by the US Department of Agriculture are listed in Table 11.

TABLE 11 – FARMLAND SOIL IMPACTS (ACRES)

ACRES IMPACTED	ALTERNATIVE SEGMENT		
	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Prime Farmland	7.7	16.8	12.8
Farmland of Statewide Importance	56.5	18.0	45.9

Indirect and cumulative impacts to farmland are primarily related to growth and development. As discussed previously, the new road may induce area landowners, including farmers whose land is not directly acquired by the project, to sell their properties for residential and commercial development, subsequently reducing the amount of farmland in the county.

Coordination with the US Department of Agriculture National Resource Conservation Service was conducted. The completed Farmland Conversion Impact Rating Form for Corridor Type Projects (NRCS-CPA-106) is included in Appendix B.

J. Environmental Justice

Data from the 2010 US Census, in conjunction with the 2000 Environmental Overview and field visits conducted in December 2011 and July 2012, indicate that residents of the census tract that comprises the eastern portion of the project corridor (CT 201.06; located from KY 1923 to the project's eastern terminus) have, on average, much lower median household and per capita incomes than elsewhere in the project corridor, county, and state. A higher percentage of this area's residents are living below the poverty level as well. During the field study, however, the homes that appeared most likely to potentially be housing lower-income individuals were in the community on the west side of KY 1923, which is not located within CT 201.06, though it is not known at this time whether these households actually contain low-income individuals. It is also not known at this time whether any households potentially relocated by the project contain any minority residents. CT 201.06 also contains a higher percentage of minority residents than the other project corridor census tracts, though it is still a smaller percentage compared to Clark County and Kentucky as a whole. The project team will coordinate with members of all households potentially displaced to determine whether an Environmental Justice population is affected by the project, and if so, what special relocation needs they have, if any,

What is "Environmental Justice?"
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, prevents minority and low-income populations from bearing a disproportionate share of a project's high and adverse human health or environmental impacts. This is done by identifying and addressing the impacts a project will have on these communities.

including whether members of these households are dependent upon neighbors for transportation. As discussed previously, over one-third of CT 201.06 residents carpool to their workplaces.

Even if it is determined that these households are containing low-income or minority residents, these populations are not anticipated to bear a disproportionate share of the project's adverse impacts. Adverse impacts, particularly relocations, will be spread among a population that appears to comprise a range of incomes, but the majority of affected households do not appear to be low-income.

K. Pedestrian and Bicycle Facilities

Very few pedestrian and bicycle facilities are present. Sidewalks and bicycle lanes do not exist within the project corridor, with most sidewalks being present to the north of the project corridor, within the City of Winchester. Recreational pedestrian facilities are present within The Path Walking Trail and the Winchester Traveling Trail, both of which include unpaved trails.

Due to the nature of the proposed facility – a primarily rural highway posted at 55 miles per hour – walking and bicycling will not encouraged along the new roadway. The proposed project does not include sidewalks or bicycle lanes, which is consistent with the previously completed bypass sections to the east and west.

The proposed project will attract through traffic to the new roadway, which will reduce the number of vehicles along Winchester streets that do include sidewalks. This reduction in traffic will indirectly improve walking and bicycling opportunities to the north of the project corridor by making these modes of transportation safer.

L. UST/Hazardous Materials

An *Underground Storage Tank and Hazardous Materials Baseline Assessment* was submitted to KYTC in July 2012. The baseline assessment provides supporting documentation for this Environmental Assessment. The Phase I site assessment was conducted to identify recognized environmental conditions, in accordance with ASTM Standard E 1527-00, within the proposed disturbance limits, and to recommend Phase II investigations as warranted.

A qualified Third Rock representative conducted a site reconnaissance of the project corridor on July 18, 2012. The purpose of the site reconnaissance was to identify underground storage tank and hazardous materials issues along the project corridor that could ultimately represent an environmental condition. The reconnaissance activity was conducted by driving access roads throughout the project corridor. The field reconnaissance was combined with an electronic review of applicable environmental databases, a review of historic mapping and aerial photography of the area, and interviews. No environmental conditions were noted.

Low density rural residential and agricultural properties comprise the majority of the project corridor. Due to the agricultural land use, above-ground storage tanks (ASTs) associated with farm tractor fuel can be expected within the project corridor. Two such ASTs were observed near Taulbee Lane, directly in the path of the Blue (East) Alternative. The ASTs appeared to be in good condition with no signs of leakage present. ASTs, unless severely compromised, typically do not represent an environmental condition. No non-farm commercial or industrial properties are present along the proposed alignment corridors. No water, gas or monitoring wells were identified along the project corridor.

Marathon Pipeline operates a 24-inch crude oil pipeline that traverses the project corridor. Construction activities associated with the pipeline replacement were observed during the site visit near Taulbee Lane. Known leaks have occurred from this pipeline. A very large release in 2000 was discovered near the Southwind Golf Course, approximately 3,000 feet down gradient and south of the project corridor. Due to the topographic position (down gradient), this past release does not represent an environmental condition. Additional leaks within the project corridor have not been reported.

The assessment did not reveal any environmental conditions associated with the proposed alternatives. No further action is recommended at this time, and the project is not expected to have underground storage tank or hazardous material impacts.

M. Visual Impacts

The conversion of large amounts of undeveloped land to roadway right-of-way will inevitably have negative visual impacts. The area viewshed is primarily comprised of undeveloped and agricultural properties, with residences scattered along roads. No project area roadways are designated as scenic highways or byways.

Visual impacts will be experienced primarily by residents living nearest the project corridor, as many of these residents are not accustomed to the presence of traffic near their homes. The proposed new route may be visible from the southern end of the Winchester County Club's golf course; however, trees and adjacent farmland will likely minimize visual impacts. Should the Blue (West) Alternative be selected, the project will have a negative visual impact on The Path Walking Trail, which would be bisected by this alternative.

If the proposed new road attracts new residential and commercial development, the area's viewshed could ultimately transition from rural undeveloped land to more suburban viewshed similar to KY 1958 (Bypass Road).

N. Section 4(f)

Four recreational sites are located in the vicinity of the project. Two sites – the Winchester Traveling Trail and The Path Walking Trail – are walking/running paths open to the public. The remaining recreational sites are the Southwind Golf Course and the Winchester Country Club (which contains a golf course, swimming pool, and tennis courts).

The country club and Southwind Golf Course will not be impacted by the proposed project. None of the proposed alternatives will impact the Winchester Traveling Trail. The Blue Alternative (West)'s western terminus is at existing KY 1958 (Bypass Road). It will not directly impact the facility; however, it will improve access to the facility from southeastern Clark County.

The northwest portion of The Path Walking Trail will be acquired by the Blue Alternative (West). As The Path Walking Trail is privately

What is "Section 4(f)?"

Section 4(f), as established by the US Department of Transportation (US DOT) Act of 1966 and amended in 1989 (49 U.S.C. Section 303), states that all park and recreation lands, wildlife and waterfowl refuges, and historic sites must be considered in transportation project development. Section 4(f) applies to all projects that receive federal funding or require approval by any agencies of the US DOT. It requires that an alternative that uses a Section 4(f) resource may only be selected if it can be proven that no other prudent or feasible alternatives exist, and that the selected alternative minimizes disturbance to the resource. In 2005, the act was amended to allow de minimis ruling in the event any impacts would not appreciably alter the attributes, features, or function of the resource.

owned, impacts to this site will not represent a Section 4(f) impact to recreational sites. No other park or recreational sites will be impacted, and no wildlife or waterfowl refuges are present in the project corridor. As such, the project will have no non-historic Section 4(f) impacts.

A *Phase I Archaeological Survey* has not yet been completed for the project. The survey will be completed after selection of a preferred alternative, prior to completion of the FONSI. Section 4(f) archeological resources present in the corridor, if any, will be documented in the FONSI.

Two cultural historic sites – the Burgher House and the J.W. Tuttle Farm – are eligible for the NRHP. SHPO has determined that the project will have No Effect on either site. Thus, there are no cultural historic Section 4(f) impacts.

O. Section 6(f)

No facilities that have received Land and Water Conservation Funding Act (LWCFA) monies are located in the bypass corridor. As such, the project will have no Section 6(f) impacts.

What is "Section 6(f)?"

Section 6(f) of the Land and Water Conservation Fund Act (LWFCA) of 1965 (16 U.S.C. 4601-4) established a funding source for both federal acquisition of parks and recreation lands and matching grants to state and local governments for recreation planning, acquisition, and development. It set requirements for state planning and provided a formula for allocating annual LWCFA appropriations to the states. The National Park Service and US Department of the Interior must approve any impacts to parks that have received LWCFA funding.

P. Impacts of Construction Activities

Construction will be conducted almost exclusively along new alignment. As such, construction is not likely to cause many traffic delays, congestion, or detours. Impacts to area motorists will occur in areas where the new alignment intersects existing roadways. The presence of heavy construction equipment accessing the site from existing roadways will also impact area motorists during construction. KYTC's *Standard Specifications for Road and Bridge Construction* (2008) shall be followed. This manual includes guidance for traffic maintenance, as well as for waste and borrow sites.

The roadway's construction on new alignment will involve considerable construction activities, though the use of Best Management Practices can minimize impacts. Additional short term, negative impacts of any roadway project include increased noise and air pollution, as well as sedimentation and erosion. The increase in noise and air pollution from heavy construction equipment are hard to avoid, but the time of day that construction occurs can help minimize the disturbance. In addition to the use of Best Management Practices, sedimentation and erosion will be minimized with an Erosion Control Plan developed in accordance to the *Standard Specifications* and KPDES permit requirements. These plans will be monitored and adjusted as needed to ensure they are functioning effectively.

Construction will bring short term positive impacts including increased revenues, increased employment, and additional salaries directly related to construction activities. Businesses in the project area will likely see an increase in the sales of food, beverages, and fuel for the construction crews.

V. HOW WILL PROJECT IMPACTS BE OFFSET?

Project impacts will be offset through the use of mitigation, minimization, and avoidance measures. Detailed mitigation, minimization, avoidance, and/or permit requirements for impacts of the proposed Build

Alternatives are included in their respective sections of Section IV, *Environmental Impacts*. Table 12 summarizes the mitigation measures required for the project.

TABLE 12 – MITIGATION MEASURES

	ALTERNATIVE SEGMENT		
	BLUE (WEST)	BLUE (EAST)	BLACK (WEST)
Streams	USACE and KDOW permits required for stream impacts; KPDES Notice of Intent for must be filed with KDOW		
Wetlands	No Impact		
Floodplains	KDOW permit required for floodplain impacts; FEMA No-Rise Certification required for construction within floodplain		
Threatened and Endangered Species	Biological Assessment to include assessment of caves, rock shelters, and underground mines; tree clearing must be conducted between November 15 and March 31; coordination with USFWS must be conducted regarding mitigation for Indiana bat habitat impacts		
Cultural Historic	No impact	No impact	No impact
Section 4(f)	No impact	Mitigation may be necessary pending completion of Phase I archaeological survey	No impact
Residential Relocations	All residential acquisitions will be conducted in accordance with the *Uniform Relocation Assistance and Real Property Policies Act of 1970*, as amended, and relocation resources are available to relocated persons without discrimination, in compliance with Title VI of the Civil Rights Act of 1968 and Executive Order 12898. All right-of-way acquisitions will also be conducted in accordance with the Kentucky Transportation Cabinet Division of Right-of-Way and Utilities' Relocation Assistance Program.		
Construction Impacts	Follow all specified construction activity guidelines		

VI. HOW HAVE OTHER AGENCIES AND THE PUBLIC BEEN INVOLVED IN PROJECT DEVELOPMENT?

Coordination with members of the public and other key stakeholders has been ongoing throughout the life of the project. As discussed in Section I.C., *Project History*, a Transportation Advisory Committee that included local (city and county) officials, residents, and other key stakeholders was established for the project in the early 2000s. The Advisory Committee established project goals and objectives, which have guided project development. As several years lapsed between initial project development and current project development, a new Advisory Committee was established for the project in 2011. The new committee is comprised of the same mix of key stakeholders (local officials, residents, and others) as the initial committee and continues to meet regularly with project planners to discuss the project. The alternatives currently under consideration for the project were developed by the Advisory Committee.

A public meeting was held for the project on August 13, 2012, with approximately 100 attendees present. At this meeting, which was conducted as an informal open house, members of the public were shown the

Build Alternatives under consideration and given the opportunity to review the information presented, make comments, and discuss the project. Representatives from the Kentucky Transportation Cabinet, Vaughn & Melton Consulting Engineers, and Third Rock Consultants were present to provide information and answer questions from area residents. Information from this meeting is included in Appendix D.

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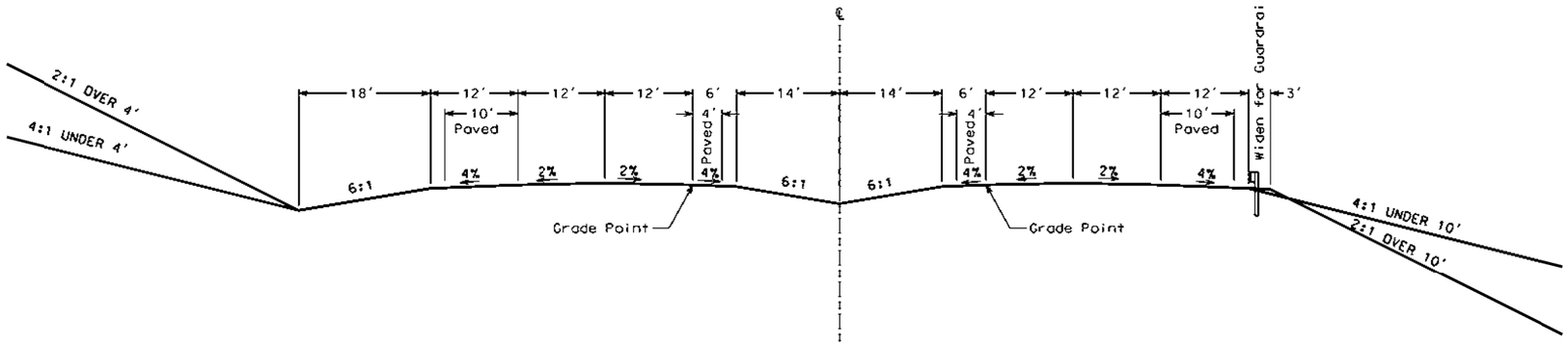
APPENDICES

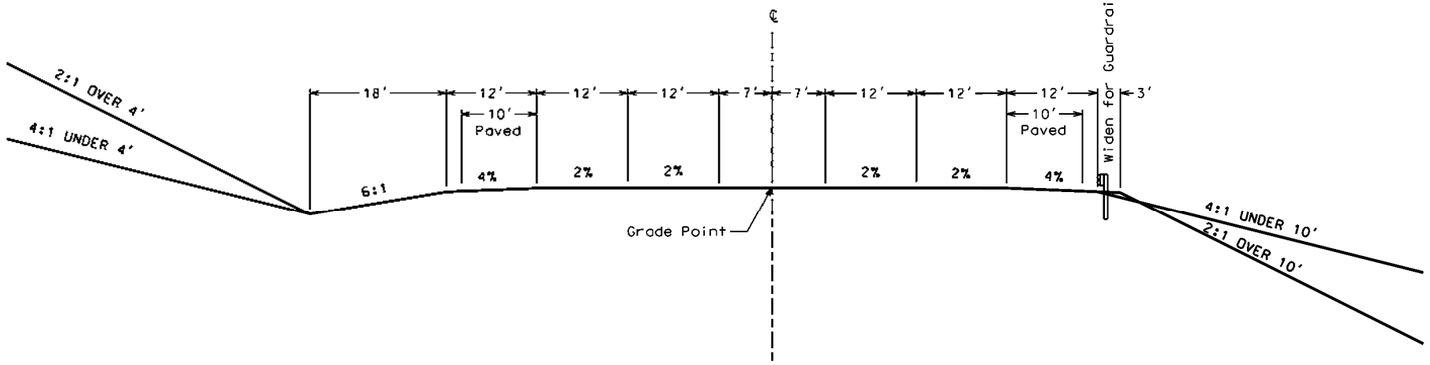
APPENDIX A – TYPICAL SECTION

COUNTY OF	ITEM NO.	SHEET NO.
CLARK		

TYPICAL SECTIONS
WINCHESTER BYPASS



NORMAL SECTION
40' DEPRESSED MEDIAN



NORMAL SECTION
14' FLUSH MEDIAN

NOT TO SCALE

TYPICAL SECTIONS

APPENDIX B – AGENCY CORRESPONDENCE

Kerley, Amanda

From: Phil_DeGarmo@fws.gov
Sent: Tuesday, October 30, 2012 11:20 AM
To: Colvin, Rebecca
Cc: Kerley, Amanda; Storm, James
Subject: RE: Agency Coordination Letter Status; KYTC 7-8401

Thank you for the correspondence dated August 14, 2012 regarding the above-referenced project. The U.S. Fish and Wildlife Service (Service) has reviewed this proposed project and offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq*.). This is not a concurrence letter. Please read carefully, as further consultation with the Service may be required.

In accordance with the provision of the Fish and Wildlife Coordination Act, the Service has reviewed the project with regards to the effects the proposed actions may have on wetlands and/or other jurisdictional waters. We recommend that project plans be developed to avoid impacting wetland areas and/or streams, and reserve the right to review any required federal or state permits at the time of public notice issuance. The U.S. Army Corps of Engineers should be contacted to assist you in determining if wetlands or other jurisdictional waters are present or if a permit is required.

In order to assist you in determining if the proposed project has the potential to impact protected species we have searched our records for occurrences of listed species within the vicinity of the proposed project. Based upon the information provided to us and according to our databases, we believe that three federally listed species have the potential to occur within the project vicinity. The listed species are:

Common Name **Scientific Name** **Federal Status**
Indiana bat *Myotis sodalis* endangered
gray bat *Myotis Grisescens* endangered
running buffalo clover *Trifolium stoloniferum* endangered

We must advise you that collection records available to the Service may not be all-inclusive. Our database is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitats and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality.

Indiana bat
Summer roost and/or winter habitat for the endangered Indiana bat may exist within the proposed project site. Based on this information, we believe that: (1) forested areas in the vicinity of and on the project area may provide potentially suitable summer roosting and foraging habitat for the Indiana bat; and (2) caves, rockshelters, and abandoned underground mines in the vicinity of and on the project area may

provide potentially suitable wintering habitat for the Indiana bat. Our belief that potentially suitable habitat may be present is based on the information provided in your correspondence, the fact that much of the project site and/or surrounding areas contain forested habitats that are within the natural range of this species, and our knowledge of the life history characteristics of the species.

The Indiana bat utilizes a wide array of forested habitats, including riparian forests, bottomlands, and uplands for both summer foraging and roosting habitat. Indiana bats typically roost under exfoliating bark, in cavities of dead and live trees, and in snags (i.e., dead trees or dead portions of live trees). Trees in excess of 16 inches diameter at breast height (DBH) are considered optimal for maternity colony roosts, but trees in excess of 9 inches DBH appear to provide suitable maternity roosting habitat. Male Indiana bats have been observed roosting in trees as small as 5 inches DBH.

Prior to hibernation, Indiana bats utilize the forest habitat around the hibernacula, where they feed and roost until temperatures drop to a point that forces them into hibernation. This “swarming" period is dependent upon weather conditions and may last from about September 15 to about November 15. This is a critical time for Indiana bats, since they are acquiring additional fat reserves and mating prior to hibernation. Research has shown that bats exhibiting this “swarming” behavior will range up to five miles from chosen hibernacula during this time. For hibernation, the Indiana bat prefers limestone caves, sandstone rockshelters, and abandoned underground mines with stable temperatures of 39 to 46 degrees F and humidity above 74 percent but below saturation.

gray bat

Gray bats roost, breed, rear young, and hibernate in caves year round. They migrate between summer and winter caves and will use transient or stopover caves along the way. Gray bats eat a variety of flying aquatic and terrestrial insects present along streams, rivers, and lakes. Perennial, low-flow streams, such as Lower Howard Creek produce an abundance of insects, and are especially valuable to the gray bat as foraging habitat. For hibernation, the roost site must have an average temperature of 42 to 52 degrees F. Most of the caves used by gray bats for hibernation have deep vertical passages with large rooms that function as cold air traps. Summer caves must be warm, between 57 and 77 degrees F, or have small rooms or domes that can trap the body heat of roosting bats. Summer caves are normally located close to rivers or lakes where the bats feed. Gray bats have been known to fly as far as 12 miles from their colony to feed. Additional, habitat and life history information on these species is available on the Service’s national website at www.fws.gov.

Because we have concerns relating to the Indiana bat and gray bat on this project and due to the lack of occurrence information available on this species relative to the proposed project area, we have the following recommendations relative to Indiana bats and gray bats.

1. Based on the presence of numerous caves, rock shelters, and underground mines in Kentucky, we believe that it is reasonable to assume that other caves, rock shelters, and/or abandoned underground mines may occur within the project area, and, if they occur, they could provide winter habitat for Indiana bats. Therefore, we would

recommend that the project proponent survey the project area for caves, rock shelters, and underground mines, identify any such habitats that may exist on-site, and avoid impacts to those sites pending an analysis of their suitability as Indiana bat and/or gray bat habitat by this office.

2. Sediment Best Management Practices (BMPs) should be utilized and maintained to minimize siltation of the streams located within and in the vicinity of the project area, as these streams represent potential foraging habitat for the gray bat. A plan for BMP implementation should be submitted to our office for approval.

3. We also recommend that construction activities including tree removal for the proposed project take place between November15 and March 31 in order to avoid directly impacting Indiana bat and gray bat foraging behavior. If any Indiana bat hibernacula are identified on the project area, this seasonal clearing restriction would also avoid impacting Indiana bat "swarming" behavior.

However, if these recommendations cannot be incorporated as project conditions, then the project area may be surveyed to determine the presence or absence of the species within the project area in an effort to determine if potential impacts to the Indiana bat are likely. A qualified biologist who holds the appropriate collection permits for the Indiana bat must undertake such surveys, and we would appreciate the opportunity to approve the biologist's survey plan prior to the survey being undertaken and to review all survey results, both positive and negative. If any Indiana bats are identified, we would request written notification of such occurrence(s) and further coordination and consultation.

If your project schedule requires the clearing of potential Indiana bat habitat (*i.e.*, trees) during the period of April 1 to October 14, you have two primary options for addressing impacts to Indiana bats. First, you can survey the project site as described previously, or you can enter into a Conservation Memorandum of Agreement (MOA) with the Service. By entering into a Conservation MOA with the Service, Cooperators gain flexibility in project timing with regard to the removal of suitable Indiana bat habitat. In exchange for this flexibility, the Cooperator provides recovery-focused conservation benefits to the Indiana bat through the implementation of minimization and mitigation measures as set forth in the Indiana Bat Mitigation Guidance for the Commonwealth of Kentucky. For additional information about this option, please notify our office.

running buffalo clover

Running buffalo clover may occur within the proposed project site. This species requires periodic, moderate disturbances to reduce competition and maintain open or semi-open habitat conditions. Disturbed areas such as old pastures, moderately grazed fields, road rights-of-way, and power line rights-of-way that are mechanically maintained are known to provide suitable habitat for these species. Additionally, running buffalo clover is known to occur in habitats ranging from stream banks and low mesic (moderately moist) forests to lawns and cemeteries. If the proposed project(s) require alteration of habitat that coincides with the habitat required for this species, an on-site inspection or survey of the area must be

conducted to determine if the listed species is present or occurs seasonally. Surveys should be done by qualified personnel and be conducted during the appropriate time of day and/or year to ensure confidence in survey results. Please notify this office with the results of any surveys and an analysis of the "effects of the action," as defined by 50 CFR 402.02 on any listed species including consideration of direct, indirect, and cumulative effects.

Surveys for the three listed species (Indiana bat, gray bat & running buffalo clover) would not be necessary if sufficient site-specific information was available that showed that: (1) there is no potentially suitable habitat within the project area or its vicinity or (2) the species would not be present within the project area or its vicinity due to site-specific factors. A survey for Indiana bats would also not be necessary if trees were removed from the site between October 15 and March 31, or if the project proponent chooses to enter into a Conservation MOA with the Service.
Thank you again for your request. Your concern for the protection of endangered and threatened species is greatly appreciated. If you have any questions regarding the information that we have provided, please me at the information provided below.

Phil DeGarmo
USFWS- Frankfort, KY Field Office
330 W. Broadway, Rm 265
Frankfort, KY 40601

502-695-0468 ext. 110 (office)
502-229-8830 (cell)
502-695-1024 (fax)
Phil_DeGarmo@fws.gov

KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES
TOURISM, ARTS, AND HERITAGE CABINET

Steven L. Beshear
Governor

#1 Sportsman's Lane
Frankfort, Kentucky 40601
Phone (502) 564-3400
1-800-858-1549
Fax (502) 564-0506
fw.ky.gov

Marcheta Sparrow
Secretary

Dr. Jonathan W. Gassett
Commissioner

14 September 2012

James Storm
Third Rock Consultants
2526 Regency Road
Lexington, Kentucky 40503

RE: Winchester Southeast Bypass, Clark County, KY
KYTC Item No. 7-8401.00

Dear Mr. Storm:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) has received your request for information regarding the subject project. The Kentucky Fish and Wildlife Information System indicates that no federally-threatened/endangered species are known to occur within close proximity to the project site. The state-listed Henslow's Sparrow *(Ammodramus henslowii)*, Bobolink *(Dolichonyx oryzivorus)*, and Black-crowned Night Heron *(Nycticorax nycticorax)* are known to occur within one mile of the project site. It does not appear that this project will impact any critical habitat or unique natural areas. Please be aware that our database system is a dynamic one that only represents our current knowledge of various species distributions.

To minimize indirect impacts to aquatic resources, strict erosion control measures should be developed and implemented prior to any construction to minimize siltation into streams and storm water drainage systems located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed. Additionally, the KDFWR recommends the following measures for any work that may occur within a stream to help reduce impacts to stream habitat and quality:

- When crossing a stream, pipe should be laid perpendicular to the stream bank to minimize the direct impacts to the streambed.
- Avoidance of impacts to intermittent and perennial streams if it is feasible.
- Development/excavation during low flow period to minimize disturbances.
- Proper placement of erosion control structures below highly disturbed areas to minimize entry of silt to the stream.
- Replanting of disturbed areas after construction, including reforestation of stream banks, with native vegetation for soil stabilization and enhancement of fish and wildlife populations.
- Avoid impacts to forested areas if possible. If impacts cannot be avoided we recommend reforestation of common areas with native trees to promote use by various species of wildlife.

- Return all disturbed instream habitat to stable condition upon completion of construction in the area.
- Preservation of any tree canopy overhanging the stream.

I hope this information is helpful to you, and if you have questions or require additional information, please call me at (502) 564-7109 extension 4453.

Sincerely,

Dan Stoelb
Wildlife Biologist

Cc: Environmental Section File

Steven L. Beshear
Governor

Leonard K. Peters
Secretary
Energy and Environment Cabinet

Donald S. Dott, Jr.
Director

Commonwealth of Kentucky
Kentucky State Nature Preserves Commission
801 Schenkel Lane
Frankfort, Kentucky 40601-1403
502-573-2886 Voice
502-573-2355 Fax

September 5, 2012

Amanda Kerley
Third Rock Consultants
2526 Regency Rd.; Suite 180
Lexington, KY 40503

Data Request 13-013

Dear Ms. Kerley:

This letter is in response to your data request of August 15, 2012 for the Winchester Southeast Bypass (Clark) project. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Kentucky State Nature Preserves Commission occur near the project area on the Winchester USGS Quadrangle, as shown on the map provided. Please see the attached reports for more information, which reflect analysis of the project area with three buffers applied:

1-mile for all records – 2 records
5-mile for aquatic records – no records
5-mile for federally listed species – 2 records
10-mile for mammals and birds – 9 records
Lower Howard's Creek within State Nature Preserve - 7 records

This project has the potential to impact Lower Howard's Creek, which is an important feature of the Lower Howard's Creek State Nature Preserve downstream of the project. A separate report was prepared to make you aware of the variety of species that are known to occur along the creek within the preserve. Even though several miles away from the project, this area could be affected by construction impacts and accidental discharges of pollutants.

The site is located within a karst landscape characterized by numerous sinkholes, underground conduits, or caves. Construction disturbance or release of pollutants within the specified area could easily cause contamination of groundwater. Caves are often associated with sensitive ecosystems and may provide habitat for a number of rare or endangered species. Cave organisms are heavily dependent on water quality, and steps should be taken to avoid

introducing contaminants into the water system.

Trifolium stoloniferum (Running buffalo clover, federally endangered, KSNPC threatened) is known to occur within five miles of the project area. This plant grows in mesic soils that receive filtered light. If suitable habitat is to be disturbed, a thorough search should be conducted by a qualified biologist in the months of May through July. The optimal time to search is in May, during its flowering period. Areas to search include stream banks, bars, and terraces, footpaths, dirt roads, and grazed bottomlands.

A maternity area record of *Myotis grisescens* (Gray myotis, federally listed endangered, KSNPC threatened) is known to occur within ten miles of the project area. A thorough survey for this species should be conducted by a qualified biologist if suitable habitat will be disturbed. The survey should include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat. Summer foraging habitats include upland forests, bottomland forests and riparian corridors. Suitable roost and winter sites include sandstone and limestone caves, rockhouses, clifflines, auger holes, and abandoned mines. In order to avoid impacts to bats, bottomland forests and riparian corridors, particularly near caves, should not be disturbed.

Nycticeius humeralis (Evening Bat, KSNPC special concern) occurs within your search area. Summer habitats include bottomland forests, swamps, and riparian corridors. In order to avoid impacts to bats, a thorough survey should be conducted. The survey should include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Kentucky State Nature Preserves Commission, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Kentucky State Nature Preserves Commission." The exact location of plants, animals, and natural communities, if released by the Kentucky State Nature Preserves Commission, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Kentucky State Nature Preserves Commission's Data Manager (801 Schenkel Lane, Frankfort, KY, 40601. Phone: (502) 573-2886).

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 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. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Sara Hines
Data Manager

SLD/SGH

Enclosures: Data Report and Interpretation Key

Standard Occurrence Report

KSNPC Monitored Elements within a 1-mi radius of the Winchester Southeast Bypass project (Clark Co.)

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky																		
Breeding Birds																		
ABNGA11010*010 1940	*Nycticorax nycticorax*	Black-crowned Night-heron	G5	S1S2B	T			Y	1993-05-14	M	D	Clark	Winchester	375923N	0841223W	05100102030 - Strodes Creek (Winchester)	Winchester, ca 0.1 air mi N of KY 1958 and KY 1927 jct. Nest ca 80 yds right on unnamed cul de sac.	Marshes, swamps, wooded streams, mangroves, shores of lakes, ponds, lagoons; salt water, brackish, and freshwater situations.
Historically known from Kentucky																		
Insects																		
IILEPJ6040*001 2294	*Speyeria idalia*	Regal Fritillary	G3	SH	H	SOMC		Y	1967-07-15	G	H	Clark	Austerlitz Winchester	380010N	0841116W	05100205050 - Lower Howard Creek 05100205005 - Kentucky River/Boonesborough 05100205030 - Fourmile Creek 05100102030 - Strodes Creek (Winchester)	WINCHESTER.	Tall-grass prairie in midwest, but is found in other open grassy situations elsewhere. Damp meadows or pastures with boggy or marshy areas in the east, but dry mountain pastures are also selected in some areas. It is restricted to the Upper Austral and Transition life zones (Opler and Krizek 1984).

Standard Occurrence Report

KSNPC Federal Status Elements within a 5-mi radius of the Winchester Southeast Bypass project (Clark Co.)

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky																		
Vascular Plants																		
PDFAB40250*022 5268	*Trifolium stoloniferum*	Running Buffalo Clover	G3	S2S3	T	LE		Y	1997-05-22	S	X?	Clark	Ford	375545N	0841626W	05100205050 - Lower Howard Creek	Lower Howards Creek, SW-facing side, ca 1.5 mi along stream from mouth.	Old trails, traces, and roads; grazed bottomlands, streambanks, lawns, shoals, and cemeteries with native vegetation, prairies, well-drained and mesic soils, and filtered to partial light.
PDFAB40250*092 6418	*Trifolium stoloniferum*	Running Buffalo Clover	G3	S2S3	T	LE		Y	2008-06-05	S	C	Clark	Ford	375619N	0841608W	05100205050 - Lower Howard Creek	West Fork, ca 0.4 stream mi N of confl w/ Lower Howard Creek on both sides of creek (092A), and 100 ft. N of confluence fo the two forks of the stream at gravel crossing, along creek and along stream terrace (092B).	

Standard Occurrence Report

KSNPC Monitored Bird and Mammal Elements within a 10-mi radius of the Winchester Southeast Bypass project (Clark Co.)

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky																		
Breeding Birds																		
ABPBX96010*044 8306	*Chondestes grammacus*	Lark Sparrow	G5	S2S3B	T				1966-06-19	M	H	Clark	Winchester	375616N	0840915W	05100205030 - Fourmile Creek	Near Pinchem, along KY 974 ca 1.0 rd mi NE of town and 0.5 rd mi NE of jct w/ Cole Road (Sewell Shop BBS Route, Stop 30).	Open situations with scattered bushes and trees, prairie, forest edge, cultivated areas, orchards, fields with bushy borders, and savanna (B83COM01NA).
ABPBXA9010*019 11955	*Dolichonyx oryzivorus*	Bobolink	G5	S2S3B	S			Y	2007-06-26	S	E	Clark	Austerlitz	380149N	0841153W	05100102030 - Strodes Creek (Winchester)	Winchester Municipal Utilities property, along Strodes Creek ca. 1.4 air mi NNE of jct. I-64 and KY 627.	
ABNGA11010*006 4276	*Nycticorax nycticorax*	Black-crowned Night-heron	G5	S1S2B	T			Y	1986-06-25	S	X	Clark	Ford	375958N	0841625W	05100205070 - Boone Creek	North side of KY 1927, just NW of jct KY 1927 and Venable Road, ca 3.6 rd mi W of jct KY 1927 and KY 627.	Marshes, swamps, wooded streams, mangroves, shores of lakes, ponds, lagoons; salt water, brackish, and freshwater situations.
ABNGA11010*010 1940	*Nycticorax nycticorax*	Black-crowned Night-heron	G5	S1S2B	T			Y	1993-05-14	M	D	Clark	Winchester	375923N	0841223W	05100102030 - Strodes Creek (Winchester)	Winchester, ca 0.1 air mi N of KY 1958 and KY 1927 jct. Nest ca 80 yds right on unnamed cul de sac.	
ABNSA01010*010 8856	*Tyto alba*	Barn Owl	G5	S3	S			Y	1989	G	E	Fayette	Lexington East Coletown Clintonville	380113N	0842359W	05100205280 - North Elkhorn Creek 05100205070 - Boone Creek 05100205120 - Hickman Creek	SE block of quad.	Open and partly open country in a wide variety of situations, often around human habitation (B83COM01NA). In northern winter often roosts in dense conifers; also roosts in nest boxes if available (A85MAR01NA).
Mammals																		

Standard Occurrence Report

KSNPC Monitored Bird and Mammal Elements within a 10-mi radius of the Winchester Southeast Bypass project (Clark Co.)

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMAJF02020*011 5103	*Mustela nivalis*	Least Weasel	G5	S2S3	S			Y	1999-04	M	E	Clark	Winchester	375619N	0841118W	05100205005 - Kentucky River/Boonesborough 05100205030 - Fourmile Creek	Knowles Farm, E side of Bybee Rd, ca 0.5 air mi SSE of jct KY 1923 (Two Mile Rd) and Bybee Rd.	Prime habitat unknown. Seems to occur in farmland.
AMACC01040*096 3150	*Myotis grisescens* Post-summer mist-net record	Gray Myotis	G3	S2	T	LE		Y	2001-08-07	S	E	Clark	Ford	375516N	0841618W	05100205050 - Lower Howard Creek	Lower Howards Creek, at ford of old road (096B), and w/in 1000 ft of Halls Restaurant (096A).	Primarily use caves throughout the year, although they move from one cave to another seasonally. Males and young of the year use different caves in summer than females. Smaller colonies also occasionally roost under bridge structures.
AMACC01040*139 12746	*Myotis grisescens* Maternity area mist-net record	Gray Myotis	G3	S2	T	LE		Y	2006-05-30	S	E	Clark	Hedges	375251N	0840722W	05100205010 - Upper Howard Creek	Upper Howard Creek, just above Red River Road.	
AMACC06010*043 4563	*Nycticeius humeralis* Summer mist-net record	Evening Bat	G5	S3	S			Y	2001-08-01	S	E	Clark	Ford	375536N	0841638W	05100205050 - Lower Howard Creek	Lower Howards Creek, at ford of old road to mill.	The evening bat is a colonial species that roosts in trees and houses. It apparently migrates southward in winter.

DR# 13-013_Lower_Howards_creek

KSNPC Records known to occur along Lower Howard's Creek in the within the Lower Howard's Creek State Nature Preserve downstream of the Winchester Southeast Bypass project (Clark Co.)

EOCODE	SNAME	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Species extant in Kentucky																		
Vascular Plants																		
PDAST7K080*012	*Prenanthes crepidinea*	Nodding Rattlesnake-root	G4	S3	S			Y	1999	S	D?	Clark	Ford	375539N	0841641W	05100205050 - Lower Howard Creek	Lower Howard's Creek; upstream of the creek crossing near the mill site (012A) and in the bend of the creek bisected by the powerline (012B).	Calcareous forests and thickets usually in alluvial areas.
PDCAR0X180*016	*Sagina fontinalis*	Water Stitchwort	G3	S1S2	E			Y	2008-04	S	B	Clark	Ford	375549N	0841635W	05100205050 - Lower Howard Creek	Both banks of Lower Howard Creek, N of Lisletown btwn 1.0 and 1.6 stream mi from the mouth. Ca 1.6 stream mi from mouth (016A), ca 1.4 stream mi from mouth (016B), ca 1.1 stream mi from mouth (016C), and ca 1.0 stream mi from mouth (016D).	On permanently wet limestone cliffs or ledges above or along streams in full sun or light shade.
PDFAB40250*022	*Trifolium stoloniferum*	Running Buffalo Clover	G3	S2S3	T	LE		Y	1997-05-22	S	X?	Clark	Ford	375545N	0841626W	05100205050 - Lower Howard Creek	Lower Howards Creek, SW-facing side, ca 1.5 mi along stream from mouth.	Old trails, traces, and roads; grazed bottomlands, streambanks, lawns, shoals, and cemeteries with native vegetation, prairies, well-drained and mesic soils, and filtered to partial light.
PDFAB40250*092	*Trifolium stoloniferum*	Running Buffalo Clover	G3	S2S3	T	LE		Y	2008-06-05	S	C	Clark	Ford	375619N	0841608W	05100205050 - Lower Howard Creek	West Fork, ca 0.4 stream mi N of confl w/ Lower Howard Creek on both sides of creek (092A), and 100 ft. N of confluence fo the two forks of the stream at gravel crossing, along creek and along stream terrace (092B).	
PDCPR070C0*011	*Viburnum molle*	Softleaf Arrowwood	G5	S3?	S			Y	2005-05-17	S	A	Clark	Ford	375545N	0841621W	05100205050 - Lower Howard Creek	Lower Howards Creek, scattered on mostly steep slopes near the mill/bridge site, in the stream bend to the east and at the two streams bends to the south.	Rocky dry to somewhat dry woods usually at about mid-slope.
Mammals																		

KSNPC Records known to occur along Lower Howard's Creek in the within the Lower Howard's Creek State Nature Preserve downstream of the Winchester Southeast Bypass project (Clark Co.)

In

EOCODE	SNAME	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMACC01040*096	*Myotis grisescens*	Gray Myotis	G3	S2	T	LE	STWG	Y	2001-08-07	S	E	Clark	Ford	375516N	0841618W	05100205050 - Lower Howard Creek	Lower Howards Creek, at ford of old road (096B), and w/in 1000 ft of Halls Restaurant (096A).	Primarily use caves throughout the year, although they move from one cave to another seasonally. Males and young of the year use different caves in summer than females. Smaller colonies also occasionally roost under bridge structures.
AMACC06010*043	*Nycticeius humeralis*	Evening Bat	G5	S3	S		STWG	Y	2001-08-01	S	E	Clark	Ford	375536N	0841638W	05100205050 - Lower Howard Creek	Lower Howards Creek, at ford of old road to mill.	The evening bat is a colonial species that roosts in trees and houses. It apparently migrates southward in winter.

-----Original Message-----
From: Woods, Kevin E (EEC) <KevinE.Woods@ky.gov>
To: Storm, James
CC: Willis, Floyd (EEC) <Floyd.Willis@ky.gov>
Sent: Mon Sep 10 12:04:56 2012
Subject: Kentucky's Champion Trees

Mr. Storm,
In regard to your August 14, 2012 request to Floyd Willis here is KDF's link to state and national champion trees in Kentucky. There are currently no known champions in Clark County.

http://forestry.ky.gov/ChampionTrees/Pages/default.aspx

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

May 16, 2013

Mr. Lindy Casebier
Acting Executive Director & State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

SUBJECT: Cultural Historic Baseline Survey for the Proposed Winchester Southeast Bypass
Clark County, Kentucky
Item No. 7-8401.00

Dear Mr. Casebier:

Attached please find one copy of the subject report. Your office previously reviewed the eligibility of 57 sites (see attached letter). Based on the consultant's recommendations and the SHPO letter, only Sites 1 and 2 are eligible for the National Register. The alternatives will have **No Effect** on these sites. Eligibility was initially left undetermined for three inaccessible sites (Sites 13, 15, and 53). The consultant made additional attempts to gain access to the properties, but was not successful. Though eligibility cannot be fully evaluated it appears that the alternatives will have **No Effect** on these resources. Survey forms are attached.

If you have any questions or require additional information, please contact Amanda Abner of my staff at (502) 564-7250.

Very truly yours,

David M. Waldner, P.E., Director
Division of Environmental Analysis

c: D. Adams, D7 (B. Barrick), FHWA (A. Goodman), Third Rock (R. Colvin), CRAI (E. Heavrin), A. Abner

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 8/13/12	4. Sheet 1 of 2
1. Name of Project **Winchester Southeast Bypass**	5. Federal Agency Involved **Federal Highway Administration**	
2. Type of Project **Road Construction - New Alignment**	6. County and State **Clark, Kentucky**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 8-22-12	2. Person Completing Form Steve Jacobs, RSS
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☒ NO ☐		4. Acres Irrigated – / Average Farm Size 164 ac.
5. Major Crop(s) Corn, Tobacco, Hay	6. Farmable Land in Government Jurisdiction Acres: 111,661 % 69.0	7. Amount of Farmland As Defined in FPPA Acres: 91,691 % 56.66
8. Name Of Land Evaluation System Used NRCS - Clark Co.	9. Name of Local Site Assessment System NONE	10. Date Land Evaluation Returned by NRCS 9-4-12

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment Red W.	Red E.	Black W	Black E
A. Total Acres To Be Converted Directly	35.8	114.9	12.5	109.7
B. Total Acres To Be Converted Indirectly, Or To Receive Services	–	–	–	–
C. Total Acres In Corridor	35.8	114.9	12.5	109.7
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	19.8	9.0	8.1	8.5
B. Total Acres Statewide And Local Important Farmland	10.9	27.3	3.8	34.2
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.03	0.03	0.01	0.04
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	35.88	98.52	35.88	98.52
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	84	36	86	41

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15			11	
2. Perimeter in Nonurban Use	10			6	
3. Percent Of Corridor Being Farmed	20			18	
4. Protection Provided By State And Local Government	20			0	
5. Size of Present Farm Unit Compared To Average	10			8	
6. Creation Of Nonfarmable Farmland	25			10	
7. Availability Of Farm Support Services	5			5	
8. On-Farm Investments	20			10	
9. Effects Of Conversion On Farm Support Services	25			10	
10. Compatibility With Existing Agricultural Use	10			5	
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0 78	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	0	0	0 86	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0 78	0
TOTAL POINTS *(Total of above 2 lines)*	260	0	0	0 169	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

5. Reason For Selection:

* Corridor labeling – Acreage given for all corridors is incorrect. Acreage for Red East is that of Red West, that of Red West is for Red East. Black East is that for Black West, Black West is for Black East. See Map. (Note: this has been corrected.)

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 8/13/12	4. Sheet 1 of 2
1. Name of Project **Winchester Southeast Bypass**	5. Federal Agency Involved **Federal Highway Administration**	
2. Type of Project **Road Construction - New Alignment**	6. County and State **Clark, Kentucky**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 8-22-12	2. Person Completing Form Steve Jacobs RSS
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☒ NO ☐		4. Acres Irrigated — / Average Farm Size 166 ac.
5. Major Crop(s) Corn, Tobacco, Hay	6. Farmable Land in Government Jurisdiction Acres: 111,661 % 69.0	7. Amount of Farmland As Defined in FPPA Acres: 91,691 % 56.6
8. Name Of Land Evaluation System Used NRCS - Clark Co	9. Name of Local Site Assessment System NONE	10. Date Land Evaluation Returned by NRCS 9-4-12

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Blue W	Blue E		
A. Total Acres To Be Converted Directly	35.4	119.9		
B. Total Acres To Be Converted Indirectly, Or To Receive Services	-	-		
C. Total Acres In Corridor	35.4	119.9		
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	14.7	6.4		
B. Total Acres Statewide And Local Important Farmland	17.3	31.6		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.03	0.03		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	35.88	98.52		
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	83	38		
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — Maximum Points				
1. Area in Nonurban Use — 15	11	12		
2. Perimeter in Nonurban Use — 10	6	6		
3. Percent Of Corridor Being Farmed — 20	10	15		
4. Protection Provided By State And Local Government — 20	0	0		
5. Size of Present Farm Unit Compared To Average — 10	5	8		
6. Creation Of Nonfarmable Farmland — 25	10	10		
7. Availablility Of Farm Support Services — 5	5	5		
8. On-Farm Investments — 20	10	10		
9. Effects Of Conversion On Farm Support Services — 25	10	10		
10. Compatibility With Existing Agricultural Use — 10	5	5		
TOTAL CORRIDOR ASSESSMENT POINTS — 160	0 72	0 81	0	0
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	0 83	0 38	0	0
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	0 72	0 81	0	0
TOTAL POINTS *(Total of above 2 lines)* — 260	0 155	0 119	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
			YES ☐ NO ☐

5. Reason For Selection:
* Corridor labeling - Acreage given is incorrect, Blue East acreage is that of Blue West, Blue West is that of Blue East. See Map. (Note: this has been corrected)

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

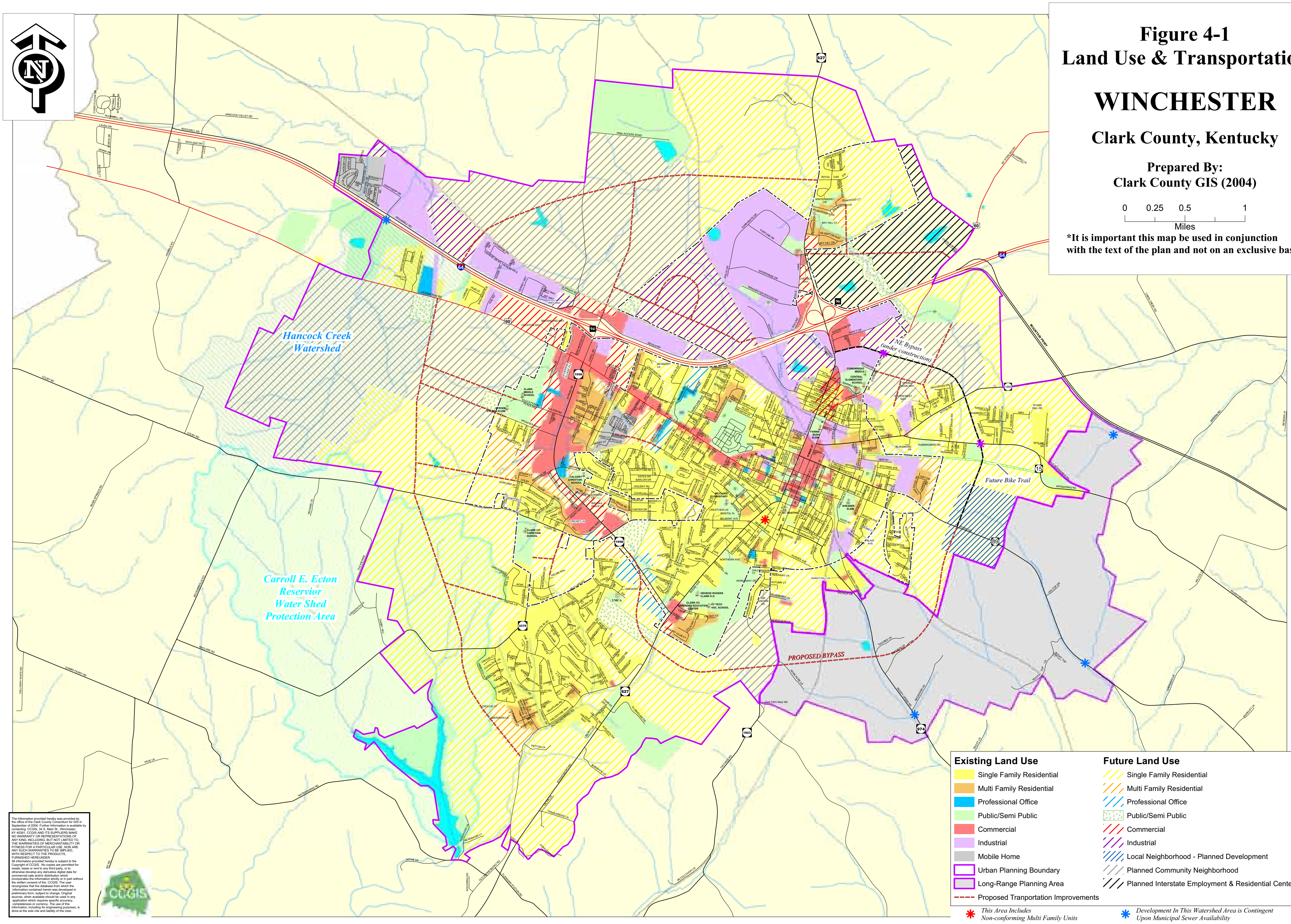
APPENDIX C – LAND USE MAPPING FROM 2004 WINCHESTER/CLARK COUNTY COMPREHENSIVE PLAN

Figure 4-1
Land Use & Transportation

WINCHESTER

Clark County, Kentucky

Prepared By:
Clark County GIS (2004)



***It is important this map be used in conjunction with the text of the plan and not on an exclusive basis.**

September 20, 2004

APPENDIX D – AUGUST 2012 PUBLIC MEETING SUMMARY

WELCOME

The purpose of this meeting is to present to the public the alternates being considered for the extension of the Veterans Memorial Parkway.

You are invited to view displays of the alternates for the project. Kentucky Transportation Cabinet personnel and representatives from the engineering design consultant will be available to answer questions and discuss the project with you.

DESCRIPTION OF THE PROJECT

The Veterans Memorial Parkway Extension project consists of constructing a new facility on the south east side of Winchester. The project begins at KY 89 east of Winchester at the existing intersection of KY 89 and KY 1958 (Veterans Memorial Parkway) and ends at KY 1958 south of Winchester near the existing intersection of KY 1958 and KY 627. Between the project termini, the new route will cross KY 974 (Muddy Creek Road), KY 1923 (Two mile Road), and the CSX Railroad at two separate locations.

This project is needed to reduce congestion through downtown Winchester and to provide reasonable access for the traveling public to I-64 north of Winchester.

This project will complete the vision of an eastern bypass around Winchester. A portion of this bypass already exists between KY 627 north of Winchester and KY 89 east of Winchester.

Three (3) alternate alignments are being considered for this new route. They are described and shown on the public meeting displays as the Red Alternate, Blue Alternate, and Black Alternate.

PROJECT SCHEDULE

The project schedule according to the Kentucky Transportation Cabinet's Recommended Six Year Highway Plan is as follows:

FUNDING	PHASE	YEAR	AMOUNT
SP	R	2014	$12,020,530
SP	U	2014	$10,198,400
SP	C	2016	$20,561,900
	Total		$42,780,830

CONTACT INFORMATION FOR THE PROJECT

You may contact Mr. Ananias Calvin III in the Lexington District Office for additional information as the project moves forward at the following address:

Mr. Ananias Calvin III, P.E.
Project Manager
Kentucky Transportation Cabinet – District 7
Division of Highway Design
763 West New Circle Road
P.O. Box 11127
Lexington, KY 40512-1127
Phone: (859) 246-2355

KENTUCKY TRANSPORTATION CABINET

VETERANS MEMORIAL PARKWAY EXTENSION

CLARK COUNTY

7-8401.00

Public Information Meeting
Monday, August 13, 2012
5:00 – 7:00 PM
George Rogers Clark High School
Winchester, KY

www.transportation.ky.gov

VETERANS MEMORIAL PARKWAY EXTENSION

1958

89

WINCHESTER

Winchester Country Club

George Rogers Clark High School

Irvine Road

974

PROJECT CORRIDOR

627

Boonesboro Road

PROJECT CORRIDOR

1923

Twomile Road

CSX Railroad

CSX Railroad

Muddy Creek Road

Veterans Memorial Parkway Extension
Clark County
Item No. 7-8401.00
August 2012

APPENDIX 2

2021 Traffic Forecast

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
transportation.ky.gov

Andy Beshear
GOVERNOR

Jim Gray
SECRETARY

MEMORANDUM

TO: Kelly Baker, P.E.
Chief District Engineer
District 7 – Lexington

ATTN: Joshua Samples, P.E.

FROM: Mikael Pelfrey, P.E. MBP
Director
Division of Planning

DATE: May 19, 2021

SUBJECT: Clark County Traffic Forecast
Winchester Bypass
Item No. 7-8401.00

In response to your February 3, 2021 request, we are providing the following forecasts on the attached report:

- 2020 and 2045 Average Daily Traffic and Design Hourly Volumes
- 2020 and 2045 Truck Percentages
- 2020 and 2045 Turn Movements

If you have any questions, please contact David Souleyrette of this Division at (502) 782-5090 or Jay Balaji of this Division at (502) 782-5045.

MP/DS/JB/BC

Attachments

C/att: Adam Ulrich
Rob Sprague
Casey Smith
Andre Johannes
Adam Ross

Executive Summary

Traffic Forecast Technical Report
Clark County
Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 South of Winchester
Item No. 7-8401.00

Prepared for:

KENTUCKY TRANSPORTATION CABINET

Prepared by:
David Souleyrette
Division of Planning
Kentucky Transportation Cabinet
May 18, 2021

Table of Contents

Commonly Used Abbreviations and Their Descriptions

ADT	Average Daily Traffic	Without any adjustment
DHV	Design Hourly Volume	30th highest hour of a year
FC	Functional Class	Refers to a road's importance
GR	Growth Rate	A value normally compounded annually
PHF	Peak Hour Factor	Considers a 15-minute spike in hourly counts
K-Factor	K-30th hour Factor	DHV divided by ADT (DHV/ADT)
D-Factor	Directional Factor	Percentage of dominant flow to total
MP	Mile Point	Miles increase easterly and northerly
ATR	Automatic Traffic Recorder	A permanent & continuous recording station
KYSTM	Kentucky Statewide Model	A computerized representation of KY roads
AADT	Annual Average Daily Traffic	The total volume of traffic for one year/365
AADTT	Annual Average Daily Truck Traffic	The total volume of truck traffic for a year/365
BCI	Bicycle Comfort Index	A level of service concept for bicyclists

Vicinity Map

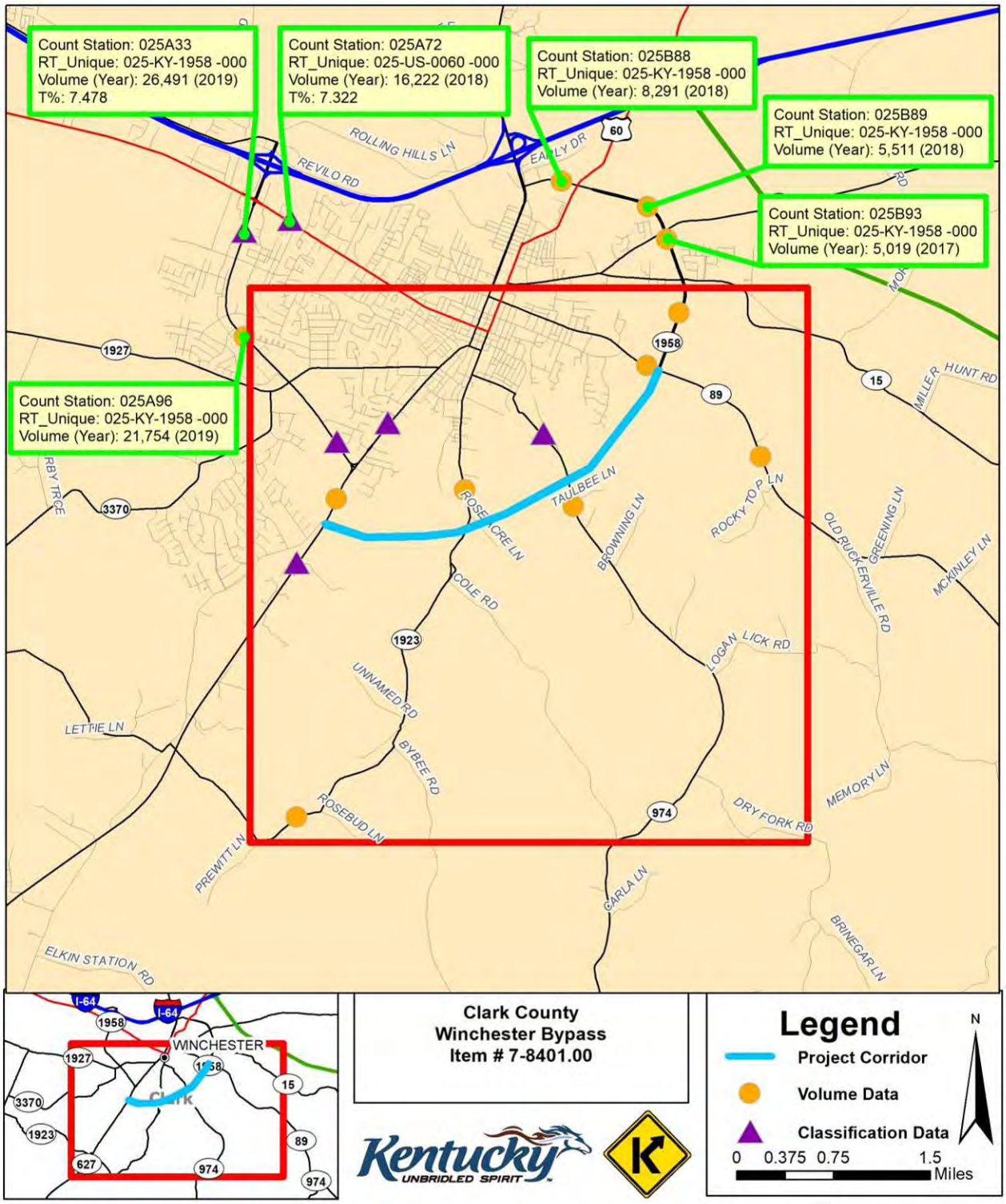


Figure 1.

Vicinity Map (insets)

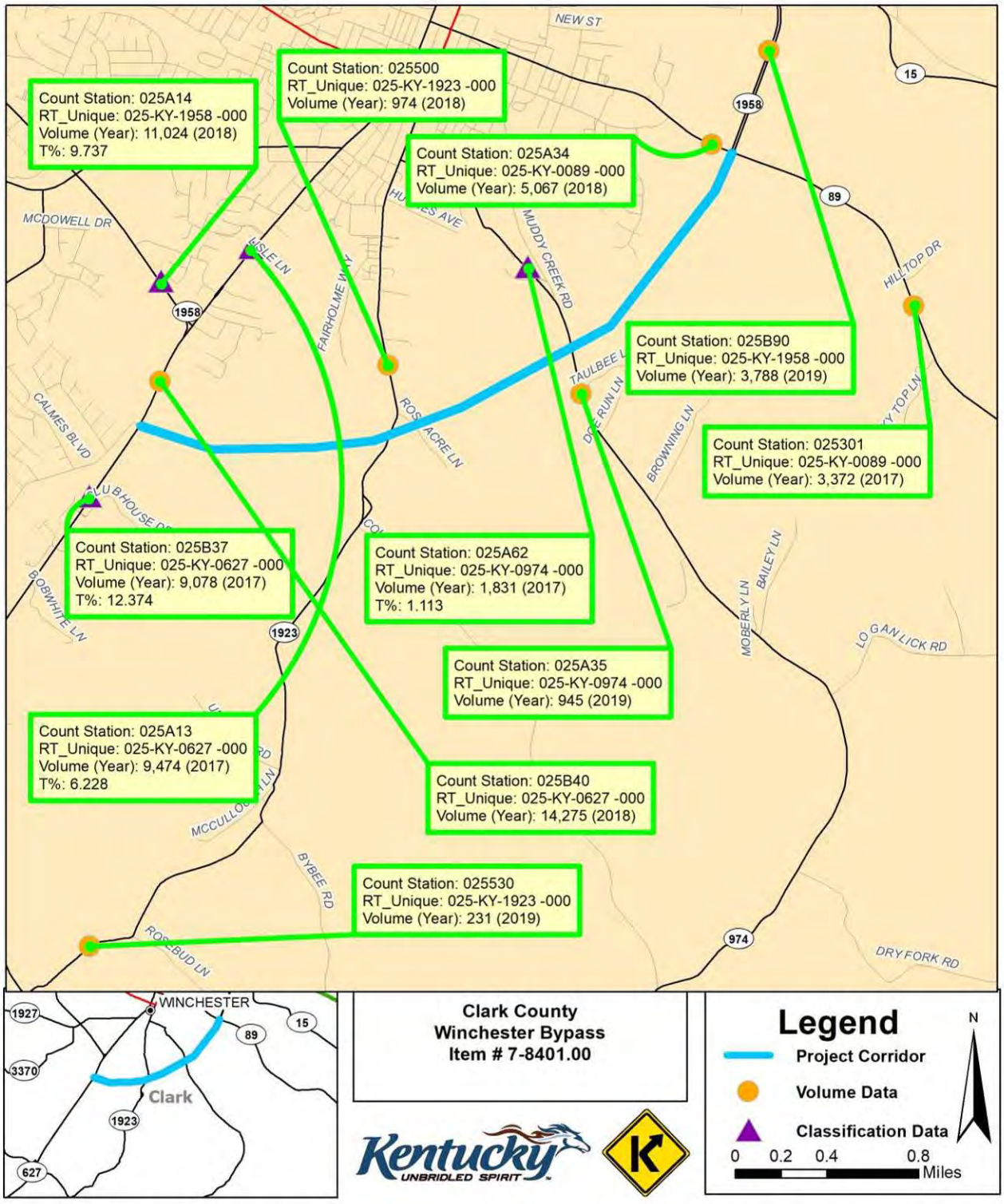


Figure 2. Note that these maps are the insets of Figure 1's areas outlined in red.

Traffic Forecast Executive Summary
Clark County: Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 South of Winchester
Item No. 7-8401.00

FORECAST SUMMARY

The project calls for the extension of the Winchester East Bypass (also known as the Veterans Memorial Parkway or KY 1958) from its southern terminus at KY 89 to the northeastern terminus of Old Boonesboro Road at KY 627 (highlighted in blue on Figures 1 and 2). Hence, the purpose of this forecast was to analyze the future traffic of the new corridor using 2020 as the base year, 2024 as the construction year, and 2045 as the future year.

FORECAST TYPE

The following types of forecasts were developed:

- 2020 and 2045 ADT values
- 2020 and 2045 DHV values
- 2024 and 2045 AADTT values
- 2045 daily and design hourly build alternate turn movements

CURRENT-YEAR VOLUMES

The current-year ADT volumes used in Table 1 on the next page are from KYTC's CTS database, and the model estimate volumes used in Table 1 are based on the results of the 2020 LAMPO planning model no-build scenario run (Scenario 2020_Base_01 shown on Figure 3). Other scenarios used in this report, as well as the LAMPO planning model version used, are shown on Figure 3. Table 1's stations are the stations shown on Figures 1 and 2.

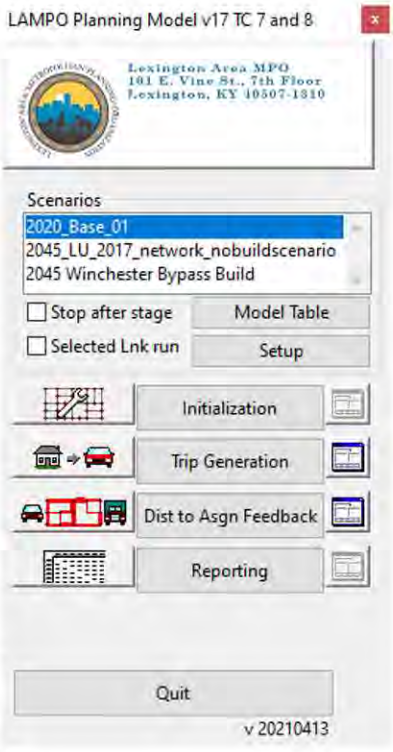


Figure 3. LAMPO Planning Model Graphical User Interface.

Route	Station ID	MP	Count Year	ADT	Model Estimate Volumes
US 60	025A72	5.000	2018	16,222	10,876
KY 1958	025A33	4.600	2019	26,491	27,421
KY 1958	025A96	3.700	2019	21,754	24,507
KY 627	025B37	5.500	2017	9,078	12,022
KY 627	025B40	6.100	2018	14,275	12,022
KY 1958	025A14	2.600	2018	11,024	12,111
KY 627	025A13	6.800	2017	9,474	11,553
KY 1923	025530	8.900	2019	231	333
KY 1923	025500	12.100	2018	974	832
KY 974	025A62	0.800	2017	1,831	2,275
KY 974	025A35	1.400	2019	945	1,335
KY 89	025A34	14.600	2018	5,067	3,810
KY 1958	025B90	1.900	2019	3,788	4,422
KY 89	025301	13.400	2017	3,372	3,296
KY 1958	025B93	1.300	2017	5,019	5,713
KY 1958	025B89	1.000	2018	5,511	8,021
KY 1958	025B88	0.300	2018	8,291	10,059

Table 1. Existing ADT and Model Estimate Volumes.

DESIGN-YEAR/GROWTH FACTORS

Design-year growth rates were determined based on the population projections of the county, the historical growth rates of the stations in Figure 2, and the previously mentioned LAMPO model scenario's run results.

Place	2000 Census	2010 Census	Growth 2000-2010	2040 Projection	Growth 2015-2040
Kentucky	4,041,769	4,339,367	7.4%	4,886,381	0.40%
Clark County	33,144	35,613	7.4%	36,466	0.08%

Table 2. Population Summary (projected from the data from the US Bureau of the Census and the Kentucky State Data Center).

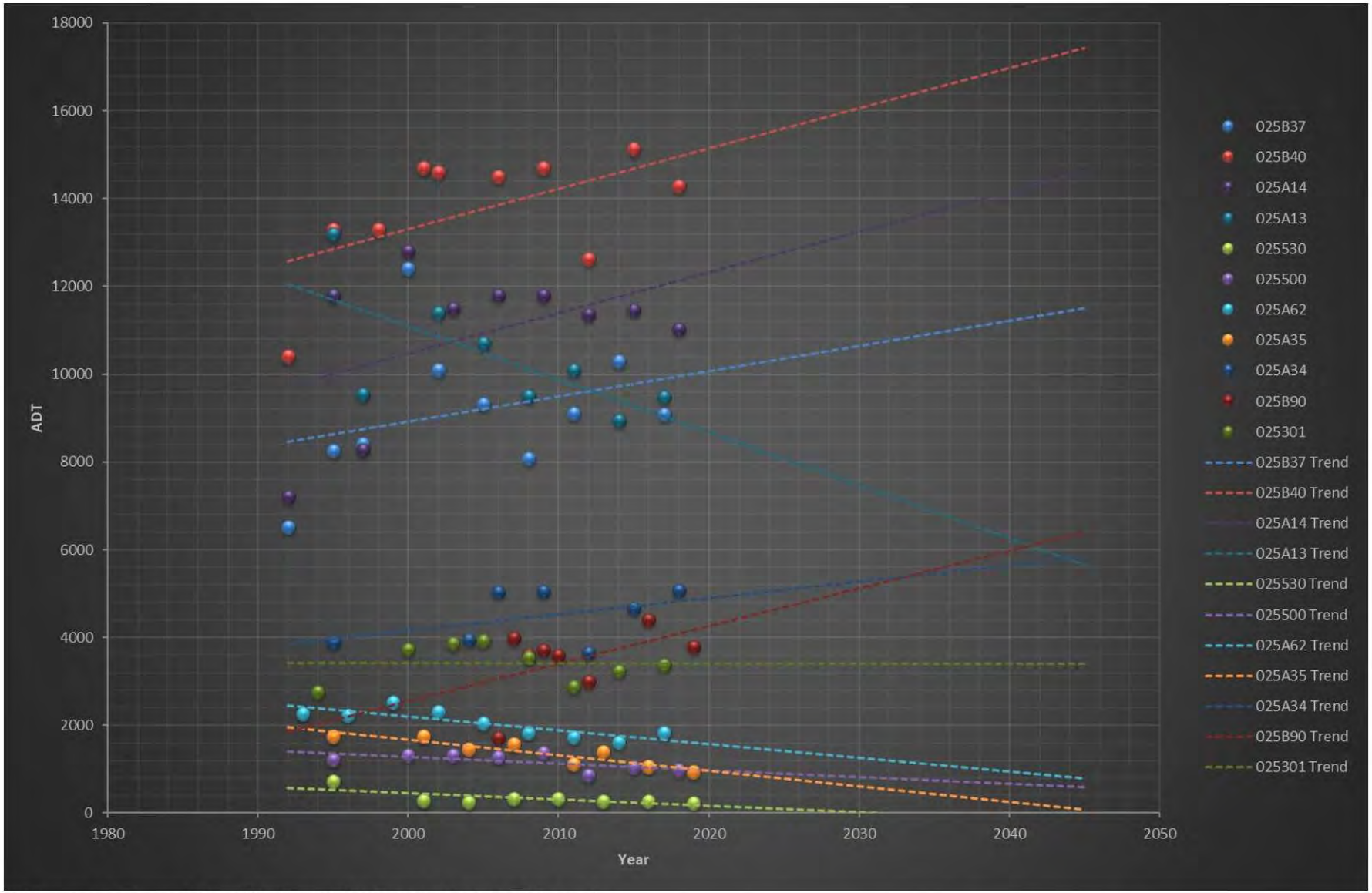


Figure 4. Figure 2 Traffic Count Stations' Historical Growth.

After having taken the information from Table 2, Figure 4, and the model into account, Section A (as defined by Figure 5) had an estimated 2045 ADT of 10,000, and Sections B and C had an ADT of 8,600 each.

DESIGN HOURLY FACTORS FOR 2045

Section A on Figure 5 had a K-factor of 11.3%, Sections 1-3 had a K-factor of 12.0%, and Section B had a K-factor of 10.90%.

TRUCK PERCENTAGES FOR 2045

All truck percentages were calculated from the average distribution factors of each road section's functional class except for Section A. The truck percentages for Section A were calculated from an hourly classification count at 025A14. A GR of 1.0% was used for the trucks on the new route, while 1.3% was used for Section A and 3.4% was used for Section B.

TURN MOVEMENTS

Figures 6 and 7 show the calculated current (no-build) and future (build) turn movements for the intersection of Bypass Road and KY 627. Figure 8 shows the calculated build turn movements for the intersection of the new corridor and KY 627.

Summary Map

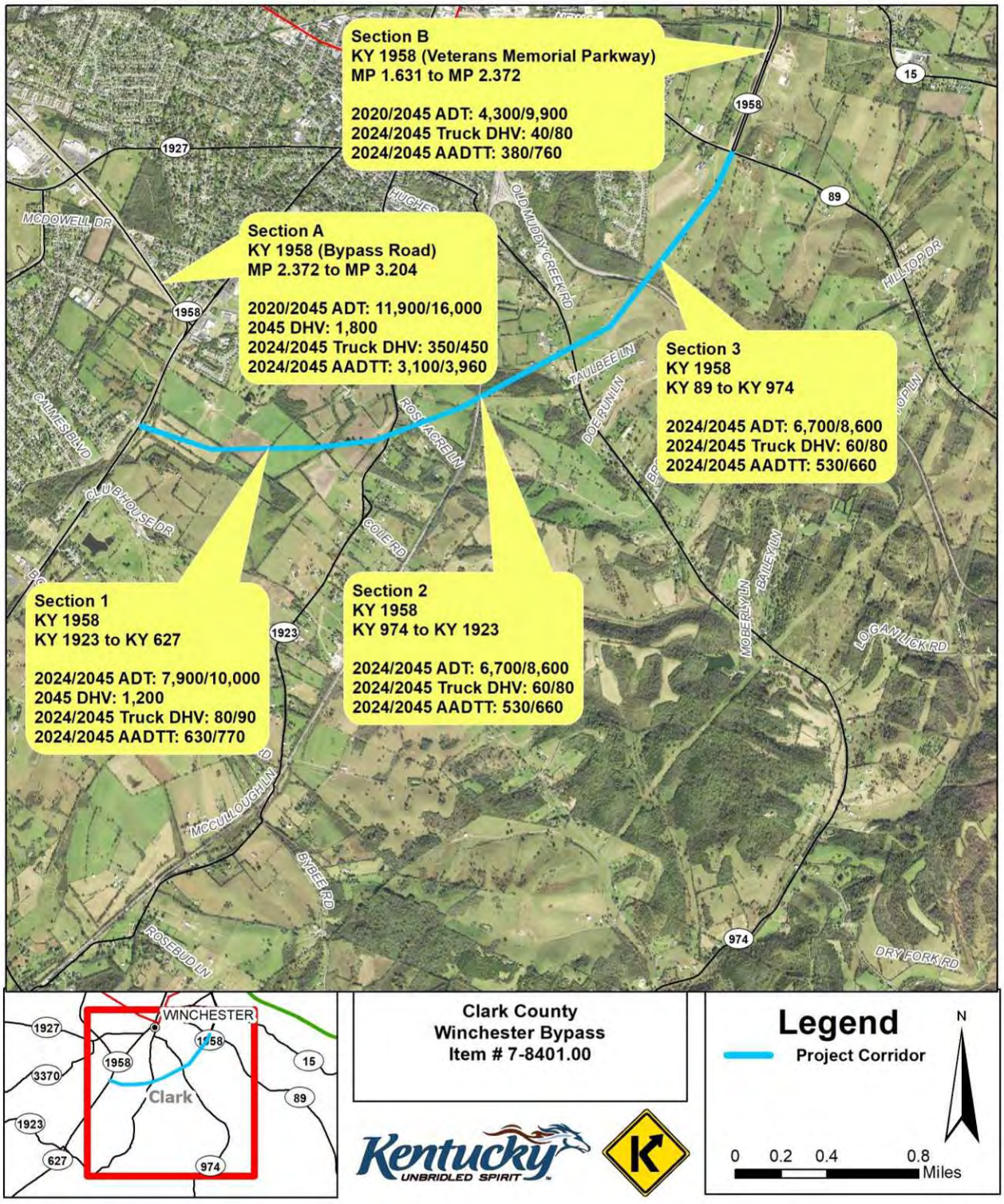


Figure 5.

Pavement Design Factors for Section A

Project information:

Date of Forecast	5/18/2021
Name of Forecaster	David Souleyrette
Item Number	07-8401.00
County Name	Clark
County Number	25
District	07
eMARS Number	8482002D
Function	FD52
Fund	
Project Type	New route
Current Year	2020
Letting Year	2019
Construction Year	2024

Project Description: Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 south of Winchester

Route information:

Route ID	025-KY-1958 -000
Road Name	Bypass Road
BMP	2.372
EMP	3.204
Functional Class	3 - Other Principal Arterial
Total Lanes (Both Ways)	4
1 or 2 Way	Two way
Pavement Type	Asphault
Are Trucks Prohibited in a Lane?	NO

Volume Information:

Volume ADT Source	LAMPO Model
Current Year Volume	11,900
Design Year Volume	16,000

Truck Count and Truck Volume Information:

Truck Count Source	LAMPO Model
Truck Count Volume	2,940
Truck Count Year	N/A
Truck Volume in Design Direction	1,800
Truck Volume in Design Lane of Design Direction	1,600
Construction Year AADTT	**3,100**
Design Year AADTT	**3,960**

Truck % of ADT	24.7%
FC Average Truck %	9.4%
% of Trucks in Design Direction	57.0%
% of Trucks in Design Lane of Design Direction	90.0%
Truck Volume Growth Rate	**1.3%**

Distribution Factors for Functional Class: 3 - Other Principal Arterial

Daily Volume Distribution Factors by Vehicle Class

Vehicle Class		Truck Volume	Truck Percent
Bus	4	424	13.67%
2 axle, 6 tire single unit	5	581	18.73%
3 axles single unit	6	384	12.40%
4 or more axles, single unit	7	143	4.62%
3-4 axles, single trailer	8	210	6.79%
5 axles single trailer	9	685	22.08%
6 or more axles, single trailer	10	339	10.95%
5 or less axles, multi-trailer	11	11	0.36%
6 axles, multi trailer	12	0	0.00%
7 or more axles, multi-trailer	13	323	10.41%
All Vehicle Classes		3,100	100.00%

Hourly Volume Distribution Factors

0	12 AM to 1 AM	28	0.90%
1	1 AM to 2 AM	20	0.63%
2	2 AM to 3 AM	25	0.81%
3	3 AM to 4 AM	11	0.36%
4	4 AM to 5 AM	36	1.18%
5	5 AM to 6 AM	70	2.26%
6	6 AM to 7 AM	101	3.26%
7	7 AM to 8 AM	157	5.07%
8	8 AM to 9 AM	368	11.86%
9	9 AM to 10 AM	174	5.61%
10	10 AM to 11 AM	202	6.52%
11	11 AM to 12 PM	216	6.97%
12	12 PM to 1 PM	174	5.61%
13	1 PM to 2 PM	236	7.60%
14	2 PM to 3 PM	222	7.15%
15	3 PM to 4 PM	182	5.88%
16	4 PM to 5 PM	205	6.61%
17	5 PM to 6 PM	194	6.24%
18	6 PM to 7 PM	115	3.71%
19	7 PM to 8 PM	140	4.52%
20	8 PM to 9 PM	70	2.26%
21	9 PM to 10 PM	76	2.44%
22	10 PM to 11 PM	31	1.00%
23	11 PM to 12 AM	48	1.54%
	ALL Hours	3,100	100.00%

Coal Haul Information:

Annual Coal Tonnage:	
Coal Trucks per Day:	
Percentage of Trucks That Are Coal:	
Percentage of All Vehicles That Are Coal:	

KENTUCKY TRANSPORTATION CABINET

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Table 3.

Pavement Design Factors for Section 1

Project information:

Date of Forecast	5/18/2021
Name of Forecaster	David Souleyrette
Item Number	07-8401.00
County Name	Clark
County Number	25
District	07
eMARS Number	8482002D
Function	FD52
Fund	
Project Type	New route
Current Year	2020
Letting Year	2019
Construction Year	2024

Project Description: Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 south of Winchester

Route information:

Route ID	025-KY-1958 -000
Road Name	
Starting Location	KY 1923
Ending Location	KY 627
Functional Class	4 - Minor Arterial
Total Lanes (Both Ways)	4
1 or 2 Way	Two way
Pavement Type	Asphault
Are Trucks Prohibited in a Lane?	NO

Volume Information:

Volume ADT Source	LAMPO Model
Construction Year Volume	7,900
Design Year Volume	10,000

Truck Count and Truck Volume Information:

Truck Count Source	LAMPO Model
Truck Count Volume	610
Truck Count Year	N/A
Truck Volume in Design Direction	380
Truck Volume in Design Lane of Design Direction	340
Construction Year AADTT	**630**
Design Year AADTT	**770**

Truck % of ADT	7.7%
FC Average Truck %	13.2%
% of Trucks in Design Direction	60.3%
% of Trucks in Design Lane of Design Direction	90.0%
Truck Volume Growth Rate	**1.0%**

Distribution Factors for Functional Class: 4 - Minor Arterial

Daily Volume Distribution Factors by Vehicle Class

Vehicle Class		Truck Volume	Truck Percent
Bus	4	44	7.00%
2 axle, 6 tire single unit	5	346	54.85%
3 axles single unit	6	52	8.20%
4 or more axles, single unit	7	22	3.45%
3-4 axles, single trailer	8	49	7.72%
5 axles single trailer	9	111	17.57%
6 or more axles, single trailer	10	7	1.17%
5 or less axles, multi-trailer	11	0	0.01%
6 axles, multi trailer	12	0	0.01%
7 or more axles, multi-trailer	13	0	0.03%
All Vehicle Classes		630	100.00%

Coal Haul Information:

Annual Coal Tonnage:	
Coal Trucks per Day:	
Percentage of Trucks That Are Coal:	
Percentage of All Vehicles That Are Coal:	

Hourly Volume Distribution Factors

0	12 AM to 1 AM	4	0.59%
1	1 AM to 2 AM	3	0.48%
2	2 AM to 3 AM	3	0.55%
3	3 AM to 4 AM	4	0.69%
4	4 AM to 5 AM	5	0.87%
5	5 AM to 6 AM	13	2.05%
6	6 AM to 7 AM	23	3.71%
7	7 AM to 8 AM	38	6.00%
8	8 AM to 9 AM	43	6.76%
9	9 AM to 10 AM	47	7.38%
10	10 AM to 11 AM	49	7.74%
11	11 AM to 12 PM	47	7.47%
12	12 PM to 1 PM	47	7.47%
13	1 PM to 2 PM	48	7.59%
14	2 PM to 3 PM	49	7.81%
15	3 PM to 4 PM	50	7.92%
16	4 PM to 5 PM	43	6.88%
17	5 PM to 6 PM	35	5.53%
18	6 PM to 7 PM	25	3.98%
19	7 PM to 8 PM	18	2.79%
20	8 PM to 9 PM	13	2.13%
21	9 PM to 10 PM	10	1.65%
22	10 PM to 11 PM	7	1.16%
23	11 PM to 12 AM	5	0.79%
	ALL Hours	630	100.00%

KENTUCKY TRANSPORTATION CABINET

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Table 4. Note that "Truck Count Volume" here is a theoretical value for 2020.

Pavement Design Factors for Section 2

Project information:

Date of Forecast	5/18/2021
Name of Forecaster	David Souleyrette
Item Number	07-8401.00
County Name	Clark
County Number	25
District	07
eMARS Number	8482002D
Function	FD52
Fund	
Project Type	New route
Current Year	2020
Letting Year	2019
Construction Year	2024

Project Description: Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 south of Winchester

Route information:

Route ID	025-KY-1958 -000
Road Name	
Starting Location	KY 974
Ending Location	KY 1923
Functional Class	4 - Minor Arterial
Total Lanes (Both Ways)	4
1 or 2 Way	Two way
Pavement Type	Asphault
Are Trucks Prohibited in a Lane?	NO

Volume Information:

Volume ADT Source	LAMPO Model
Construction Year Volume	6,700
Design Year Volume	8,600

Truck Count and Truck Volume Information:

Truck Count Source	LAMPO Model
Truck Count Volume	510
Truck Count Year	N/A
Truck Volume in Design Direction	320
Truck Volume in Design Lane of Design Direction	290
Construction Year AADTT	**530**
Design Year AADTT	**660**

Truck % of ADT	7.7%
FC Average Truck %	13.2%
% of Trucks in Design Direction	60.3%
% of Trucks in Design Lane of Design Direction	90.0%
Truck Volume Growth Rate	**1.0%**

Distribution Factors for Functional Class: 4 - Minor Arterial

Daily Volume Distribution Factors by Vehicle Class

Vehicle Class		Truck Volume	Truck Percent
Bus	4	37	7.00%
2 axle, 6 tire single unit	5	291	54.85%
3 axles single unit	6	43	8.20%
4 or more axles, single unit	7	18	3.45%
3-4 axles, single trailer	8	41	7.72%
5 axles single trailer	9	93	17.57%
6 or more axles, single trailer	10	6	1.17%
5 or less axles, multi-trailer	11	0	0.01%
6 axles, multi trailer	12	0	0.01%
7 or more axles, multi-trailer	13	0	0.03%
All Vehicle Classes		530	100.00%

Coal Haul Information:

Annual Coal Tonnage:	
Coal Trucks per Day:	
Percentage of Trucks That Are Coal:	
Percentage of All Vehicles That Are Coal:	

Hourly Volume Distribution Factors

0	12 AM to 1 AM	3	0.59%
1	1 AM to 2 AM	3	0.48%
2	2 AM to 3 AM	3	0.55%
3	3 AM to 4 AM	4	0.69%
4	4 AM to 5 AM	5	0.87%
5	5 AM to 6 AM	11	2.05%
6	6 AM to 7 AM	20	3.71%
7	7 AM to 8 AM	32	6.00%
8	8 AM to 9 AM	36	6.76%
9	9 AM to 10 AM	39	7.38%
10	10 AM to 11 AM	41	7.74%
11	11 AM to 12 PM	40	7.47%
12	12 PM to 1 PM	40	7.47%
13	1 PM to 2 PM	40	7.59%
14	2 PM to 3 PM	41	7.81%
15	3 PM to 4 PM	42	7.92%
16	4 PM to 5 PM	36	6.88%
17	5 PM to 6 PM	29	5.53%
18	6 PM to 7 PM	21	3.98%
19	7 PM to 8 PM	15	2.79%
20	8 PM to 9 PM	11	2.13%
21	9 PM to 10 PM	9	1.65%
22	10 PM to 11 PM	6	1.16%
23	11 PM to 12 AM	4	0.79%
	ALL Hours	530	100.00%

KENTUCKY TRANSPORTATION CABINET

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Table 5. Note that "Truck Count Volume" here is a theoretical value for 2020.

Pavement Design Factors for Section 3

Project information:

Date of Forecast	5/18/2021
Name of Forecaster	David Souleyrette
Item Number	07-8401.00
County Name	Clark
County Number	25
District	07
eMARS Number	8482002D
Function	FD52
Fund	
Project Type	New route
Current Year	2020
Letting Year	2019
Construction Year	2024

Project Description: Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 south of Winchester

Route information:

Route ID	025-KY-1958 -000
Road Name	
Starting Location	KY 89
Ending Location	KY 974
Functional Class	4 - Minor Arterial
Total Lanes (Both Ways)	4
1 or 2 Way	Two way
Pavement Type	Asphault
Are Trucks Prohibited in a Lane?	NO

Volume Information:

Volume ADT Source	LAMPO Model
Construction Year Volume	6,700
Design Year Volume	8,600

Truck Count and Truck Volume Information:

Truck Count Source	LAMPO Model
Truck Count Volume	510
Truck Count Year	N/A
Truck Volume in Design Direction	320
Truck Volume in Design Lane of Design Direction	290
Construction Year AADTT	**530**
Design Year AADTT	**660**

Truck % of ADT	7.7%
FC Average Truck %	13.2%
% of Trucks in Design Direction	60.3%
% of Trucks in Design Lane of Design Direction	90.0%
Truck Volume Growth Rate	**1.0%**

Distribution Factors for Functional Class: 4 - Minor Arterial

Daily Volume Distribution Factors by Vehicle Class

Vehicle Class		Truck Volume	Truck Percent
Bus	4	37	7.00%
2 axle, 6 tire single unit	5	291	54.85%
3 axles single unit	6	43	8.20%
4 or more axles, single unit	7	18	3.45%
3-4 axles, single trailer	8	41	7.72%
5 axles single trailer	9	93	17.57%
6 or more axles, single trailer	10	6	1.17%
5 or less axles, multi-trailer	11	0	0.01%
6 axles, multi trailer	12	0	0.01%
7 or more axles, multi-trailer	13	0	0.03%
All Vehicle Classes		530	100.00%

Coal Haul Information:

Annual Coal Tonnage:	
Coal Trucks per Day:	
Percentage of Trucks That Are Coal:	
Percentage of All Vehicles That Are Coal:	

Hourly Volume Distribution Factors

0	12 AM to 1 AM	3	0.59%
1	1 AM to 2 AM	3	0.48%
2	2 AM to 3 AM	3	0.55%
3	3 AM to 4 AM	4	0.69%
4	4 AM to 5 AM	5	0.87%
5	5 AM to 6 AM	11	2.05%
6	6 AM to 7 AM	20	3.71%
7	7 AM to 8 AM	32	6.00%
8	8 AM to 9 AM	36	6.76%
9	9 AM to 10 AM	39	7.38%
10	10 AM to 11 AM	41	7.74%
11	11 AM to 12 PM	40	7.47%
12	12 PM to 1 PM	40	7.47%
13	1 PM to 2 PM	40	7.59%
14	2 PM to 3 PM	41	7.81%
15	3 PM to 4 PM	42	7.92%
16	4 PM to 5 PM	36	6.88%
17	5 PM to 6 PM	29	5.53%
18	6 PM to 7 PM	21	3.98%
19	7 PM to 8 PM	15	2.79%
20	8 PM to 9 PM	11	2.13%
21	9 PM to 10 PM	9	1.65%
22	10 PM to 11 PM	6	1.16%
23	11 PM to 12 AM	4	0.79%
	ALL Hours	530	100.00%

KENTUCKY TRANSPORTATION CABINET

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Table 6. Note that "Truck Count Volume" here is a theoretical value for 2020.

Pavement Design Factors for Section B

Project information:

Date of Forecast	5/18/2021
Name of Forecaster	David Souleyrette
Item Number	07-8401.00
County Name	Clark
County Number	25
District	07
eMARS Number	8482002D
Function	FD52
Fund	
Project Type	New route
Current Year	2020
Letting Year	2019
Construction Year	2024

Project Description: Extend the Winchester East Bypass (KY 1958) from Irvine Road (KY 89) to KY 627 south of Winchester

Route information:

Route ID	025-KY-1958 -000
Road Name	Veterans Memorial Parkway
BMP	1.631
EMP	2.372
Functional Class	4 - Minor Arterial
Total Lanes (Both Ways)	4
1 or 2 Way	Two way
Pavement Type	Asphault
Are Trucks Prohibited in a Lane?	NO

Volume Information:

Volume ADT Source	LAMPO Model
Current Year Volume	4,300
Design Year Volume	9,900

Truck Count and Truck Volume Information:

Truck Count Source	LAMPO Model
Truck Count Volume	330
Truck Count Year	N/A
Truck Volume in Design Direction	230
Truck Volume in Design Lane of Design Direction	210
Construction Year AADTT	**380**
Design Year AADTT	**760**

Truck % of ADT	7.7%
FC Average Truck %	13.2%
% of Trucks in Design Direction	60.3%
% of Trucks in Design Lane of Design Direction	90.0%
Truck Volume Growth Rate	**3.4%**

Distribution Factors for Functional Class: 4 - Minor Arterial

Daily Volume Distribution Factors by Vehicle Class

Vehicle Class		Truck Volume	Truck Percent
Bus	4	27	7.00%
2 axle, 6 tire single unit	5	208	54.85%
3 axles single unit	6	31	8.20%
4 or more axles, single unit	7	13	3.45%
3-4 axles, single trailer	8	29	7.72%
5 axles single trailer	9	67	17.57%
6 or more axles, single trailer	10	4	1.17%
5 or less axles, multi-trailer	11	0	0.01%
6 axles, multi trailer	12	0	0.01%
7 or more axles, multi-trailer	13	0	0.03%
All Vehicle Classes		380	100.00%

Coal Haul Information:

Annual Coal Tonnage:	
Coal Trucks per Day:	
Percentage of Trucks That Are Coal:	
Percentage of All Vehicles That Are Coal:	

Hourly Volume Distribution Factors

0	12 AM to 1 AM	2	0.59%
1	1 AM to 2 AM	2	0.48%
2	2 AM to 3 AM	2	0.55%
3	3 AM to 4 AM	3	0.69%
4	4 AM to 5 AM	3	0.87%
5	5 AM to 6 AM	8	2.05%
6	6 AM to 7 AM	14	3.71%
7	7 AM to 8 AM	23	6.00%
8	8 AM to 9 AM	26	6.76%
9	9 AM to 10 AM	28	7.38%
10	10 AM to 11 AM	29	7.74%
11	11 AM to 12 PM	28	7.47%
12	12 PM to 1 PM	28	7.47%
13	1 PM to 2 PM	29	7.59%
14	2 PM to 3 PM	30	7.81%
15	3 PM to 4 PM	30	7.92%
16	4 PM to 5 PM	26	6.88%
17	5 PM to 6 PM	21	5.53%
18	6 PM to 7 PM	15	3.98%
19	7 PM to 8 PM	11	2.79%
20	8 PM to 9 PM	8	2.13%
21	9 PM to 10 PM	6	1.65%
22	10 PM to 11 PM	4	1.16%
23	11 PM to 12 AM	3	0.79%
	ALL Hours	380	100.00%

KENTUCKY TRANSPORTATION CABINET

Kentucky UNBRIDLED SPIRIT

Table 7.

PROJECT: Winchester Bypass
ITEM NUMBER: 07-8401.00
MARS NUMBER: 8482002D
REQUEST DATE: Wednesday, February 3, 2021
ANALYST: David Souleyrette
YEAR: 2020 ADT and Design Hour Volumes
INTERSECTION: KY 1958 (Bypass Road) at KY 627

NOTE: Directional distributions were determined from a calculated turning movement count.

TURN MOVEMENT 1 (2020)

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

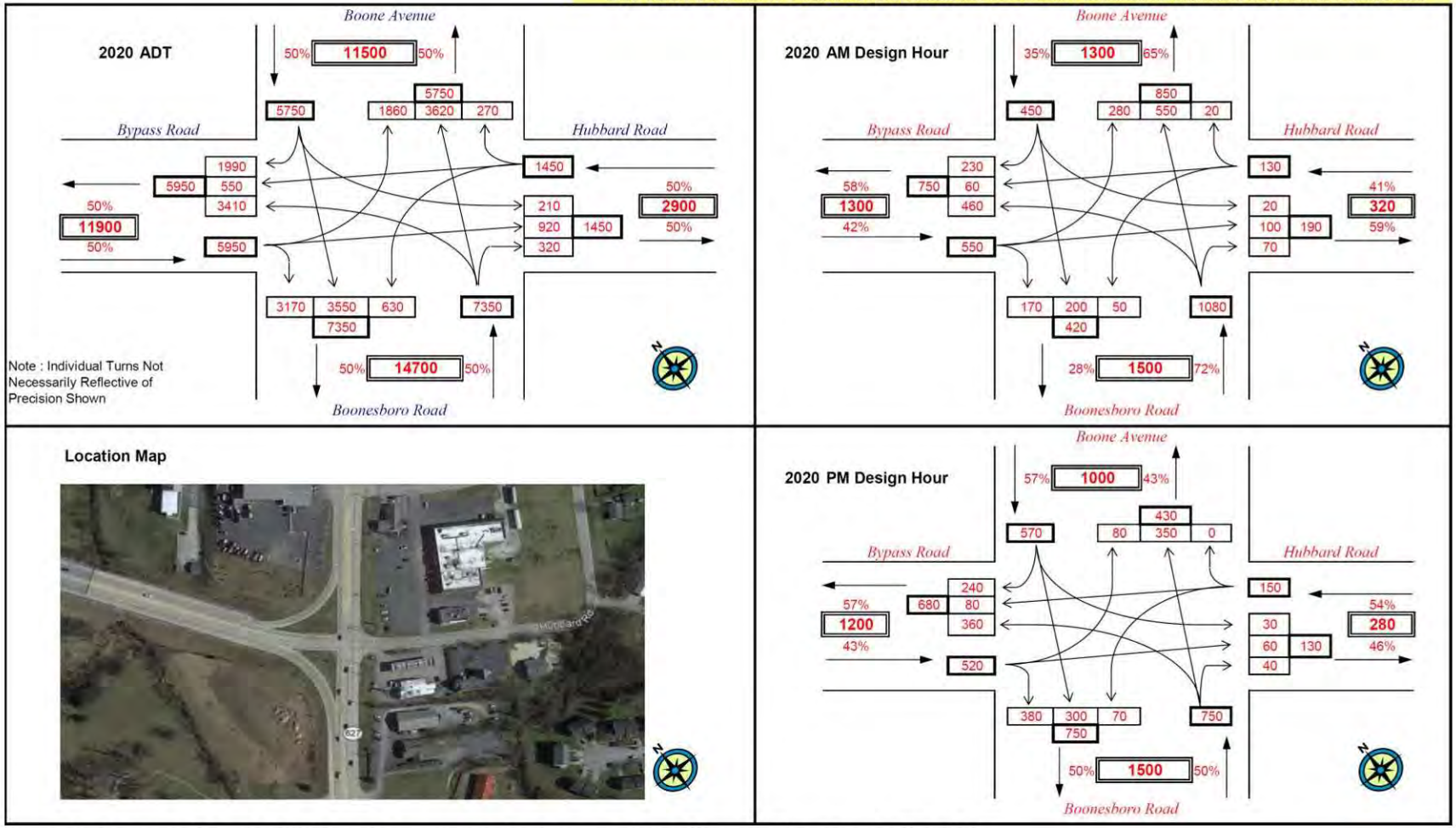


Figure 6. Current (No-Build) Turn Movements for Intersection of Bypass Road and KY 627.

PROJECT: Winchester Bypass
ITEM NUMBER: 07-8401.00
MARS NUMBER: 8482002D
REQUEST DATE: Wednesday, February 3, 2021
ANALYST: David Souleyrette
YEAR: 2045 ADT and Design Hour Volumes
INTERSECTION: KY 1958 (Bypass Road) at KY 627

NOTE: Directional distributions were determined from a calculated turning movement count.

TURN MOVEMENT 1 (2045)

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

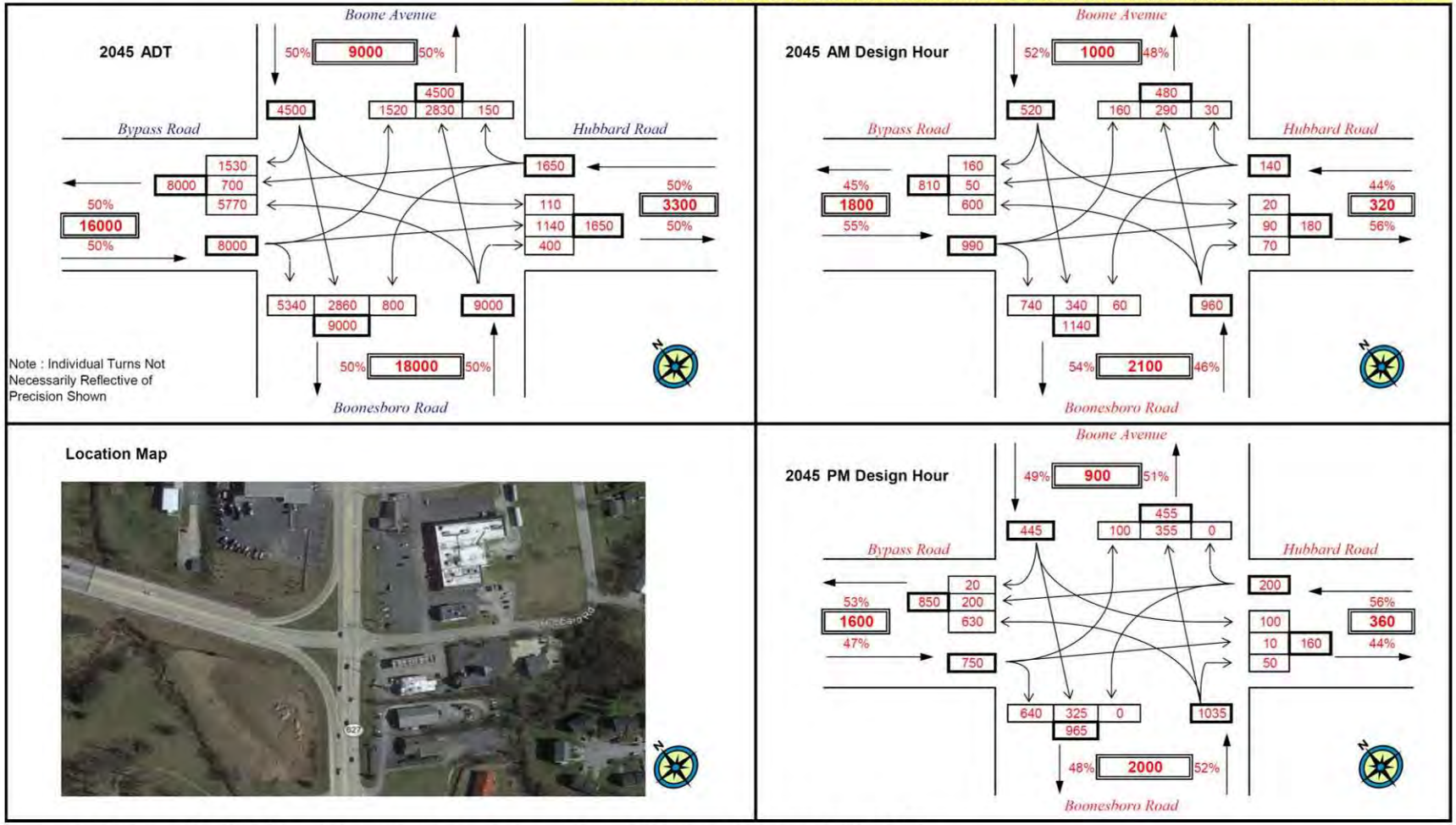


Figure 7. Future (Build) Turn Movements for Intersection of Bypass Road and KY 627.

PROJECT: Winchester Bypass
ITEM NUMBER: 07-8401.00
MARS NUMBER: 8482002D
REQUEST DATE: Wednesday, February 3, 2021
ANALYST: David Souleyrette
YEAR: 2045 **ADT and Design Hour Volumes**
INTERSECTION: New Southeast Bypass at KY 627

NOTE: Directional distributions were determined from a calculated turning movement count.

TURN MOVEMENT 2 (2045)

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

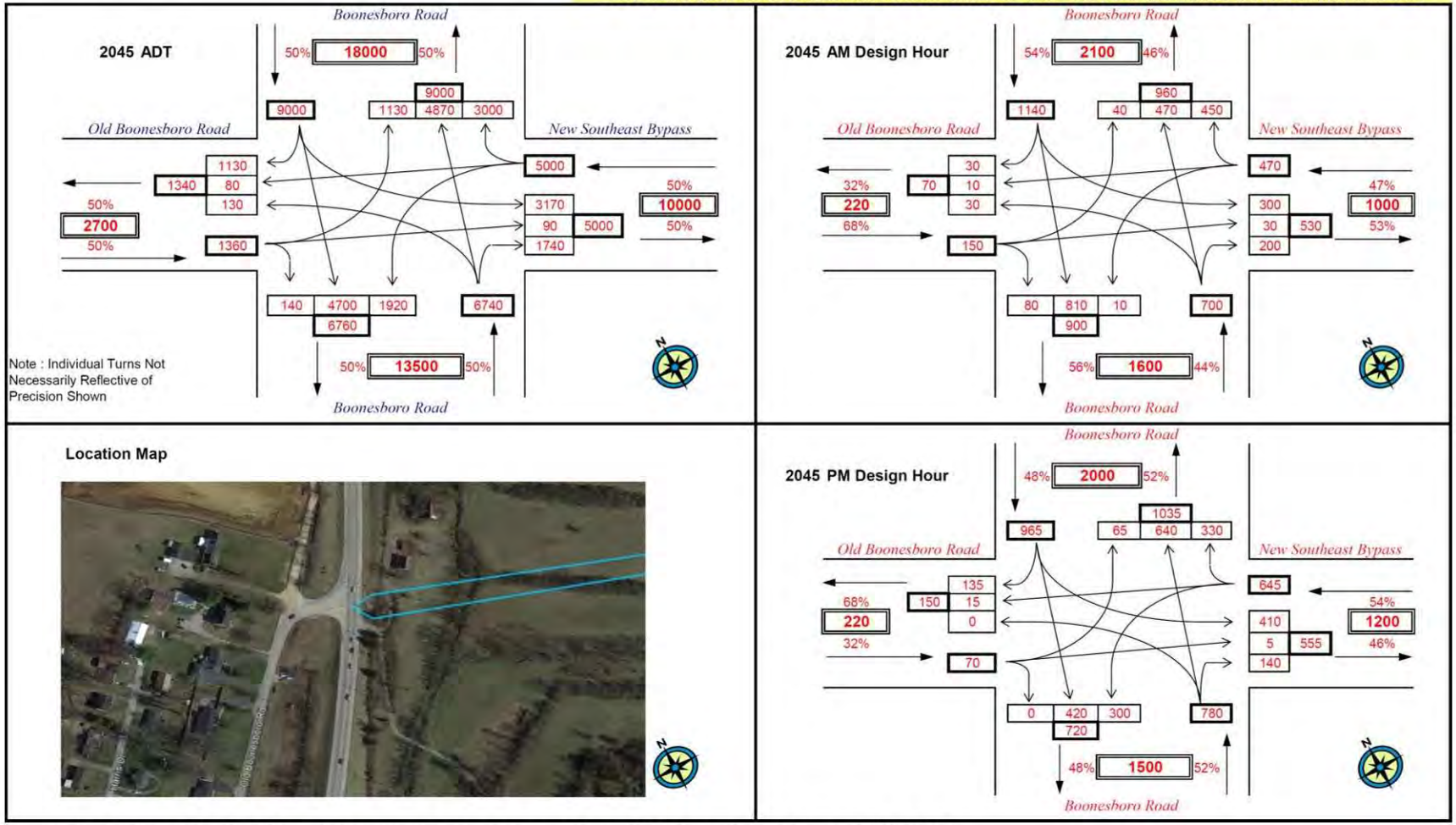


Figure 8. Future (Build) Turn Movements for Intersection of Project Corridor and KY 627.

APPENDIX 3

2014 KYTC Design Executive Summary

Memo To: William Gulick
Acting Director
Division of Highway Design

From: Ananias Calvin III
Project Manager
District Seven Design

Approved DES

Date: December 19, 2013 ACIII

Subject: Clark County
Veterans Memorial Parkway Extension (K
Winchester Bypass (Ky. 89 to Ky. 627)
Item No. 7-8401.00
Revised Design Executive Summary

Submitted herewith is the Revised Design Executive Su
summary is acceptable, it is requested the approval signa

If you have any questions or comments, please contact this office.

ACIII/ac3

Attachments

c: Robert Nunley
Robin Sprague

KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF HIGHWAY DESIGN

DESIGN EXECUTIVE SUMMARY

COUNTY	ITEM #	FEDERAL PROJECT #	eMARS PROGRAM #
Clark	7-8401.00	N/A	8482001D

STATE PROJECT NUMBER(S)
FD04 025 1958 000-000

PROJECT DESCRIPTION (VETERANS MEMORIAL PARKWAY)
The Veterans Memorial Parkway Extension project constructs a new facility on the southeast side of Winchester. The project begins at KY 89 east of Winchester and ends at KY 1958 south of Winchester. The project will also upgrade a portion of KY 627 from Old Boonesboro Road to KY 1958. This project will complete the Eastern Winchester bypass.

ROADWAY CLASSIFICATION
☐ Local ☐ Collector X Arterial ☐ Interstate | X Rural X Urban

ADT (*current*)	ADT	DHV
5,200 (2016)	6,800 (2032)	800 (2032)

POSTED SPEED LIMIT
☐ 55 (*rural*) ☐ 35 (*urban*) X Other (*Specify.*) N/A

DESIGN SPEED (*selected by the project team*)
60 MPH (Rural) 45 MPH (Urban)

☐ Concurrence in noted typical exceptions to be obtained from the Director of Highway Design

DESIGN CRITERIA	EXISTING	TYPICAL**	PROJECT TEAM RECOMMENDATION
Number of lanes	N/A	4-Lanes	4-Lanes
Pavement width	N/A	48'	48'
Shoulder width, slope	N/A	8',4.0% (outside) 6',4.0% (inside)	12',4.0% (outside)* 6',4.0% (inside)
Bridge width	N/A	38'	42'
Minimum radius (e_{max}=6%)**	N/A	1330' (rural) 643' (urban)	1400' (rural) 1000' (urban)
Maximum grade	N/A	4.0% (rural) 7.0% (urban)	4.0% (rural) 2.7% (urban)
Minimum sight dist.	N/A	570' (rural) 360' (urban)	570' (rural) 1300' (urban)
Border area (*urban*)			
Other			

DESIGN CRITERIA NOTES
*The 12' shoulder was selected to match the existing bypass shoulder to maintain continuity with this project.
Partially controlled access spacing – 1200' (rural) ; 600' (urban)
**Typical criteria taken from the 2011, A Policy on Geometric Design of Highways and Streets, 6th edition.

KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF HIGHWAY DESIGN

DESIGN EXECUTIVE SUMMARY

COUNTY	ITEM #	FEDERAL PROJECT #	eMARS PROGRAM #
Clark	7-8401.00	N/A	8482001D

STATE PROJECT NUMBER(S)
FD04 025 1958 000-000

PROJECT DESCRIPTION (KENTUCKY 627)
The project will also upgrade a portion of KY 627 from Old Boonesboro Road to KY 1958. This project will complete the Eastern Winchester bypass.

ROADWAY CLASSIFICATION
☐ Local ☐ Collector X Arterial ☐ Interstate | Rural X Urban

ADT (*current*)	ADT	DHV
5,200 (2016)	6,800 (2032)	800 (2032)

POSTED SPEED LIMIT
☐ 55 *(rural)* ☐ 35 *(urban)* X Other *(Specify.)* 45

DESIGN SPEED *(selected by the project team)*
45 MPH (Urban)

☐ Concurrence in noted typical exceptions to be obtained from the Director of Highway Design

DESIGN CRITERIA	EXISTING	TYPICAL**	PROJECT TEAM RECOMMENDATION
Number of lanes	2	4-Lanes	4-Lanes
Pavement width	24'	48'	48'
Shoulder width, slope	10',6%	Curb & gutter with berm	Curb & gutter with berm *
Bridge width	N/A	N/A	N/A
Minimum radius (e_{max}=4%)**	3819'	711'	1000'
Maximum grade	4.6%	7.0%	2.15%
Minimum sight dist.	800'	360'	897'
Border area *(urban)*		8'	11'
Other			

DESIGN CRITERIA NOTES
*The curb & gutter with berm was selected to match the existing KY 627 to maintain continuity with this project. Partially controlled access spacing – 600'
**Typical criteria taken from the 2011, A Policy on Geometric Design of Highways and Streets, 6th edition.

KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF HIGHWAY DESIGN

TC 61-9
Rev.07/2013

DESIGN EXECUTIVE SUMMARY

ACCESS CONTROL TYPE
Partially Controlled Access

ENVIRONMENTAL ACTION
Environmental Assessment

COMPLETION DATE *(scheduled or actual)*
June 21, 2013

EXISTING PAVEMENT DEPTHS
N/A

ATTACHMENTS
1. Map showing project location
2. Typical sections, including bridges *(on 8.5 X 11*
3. Cost comparison table of alternatives vs. Six-year

DISCUSSIONS
1. Alternatives considered including preferred and no build
2. If preferred alternate cost is 15% or more above Six-Year Plan cost
3. Maintenance of traffic plan
4. Avoidance alternatives to water-related impacts
5. Consideration for bicycle and pedestrian facilities
6. Purpose and need statement

SUBMITTED BY PROJECT ENGINEER (☐ *Dept. of Highways* or X *Consultant*) — **DATE** 12/17/13

RECOMMENDED BY PROJECT MANAGER Francis Calvin III — **DATE** 12-19-13

RECOMMENDED BY LOCATION ENGINEER Robert A. Caudill — **DATE** 01/06/13

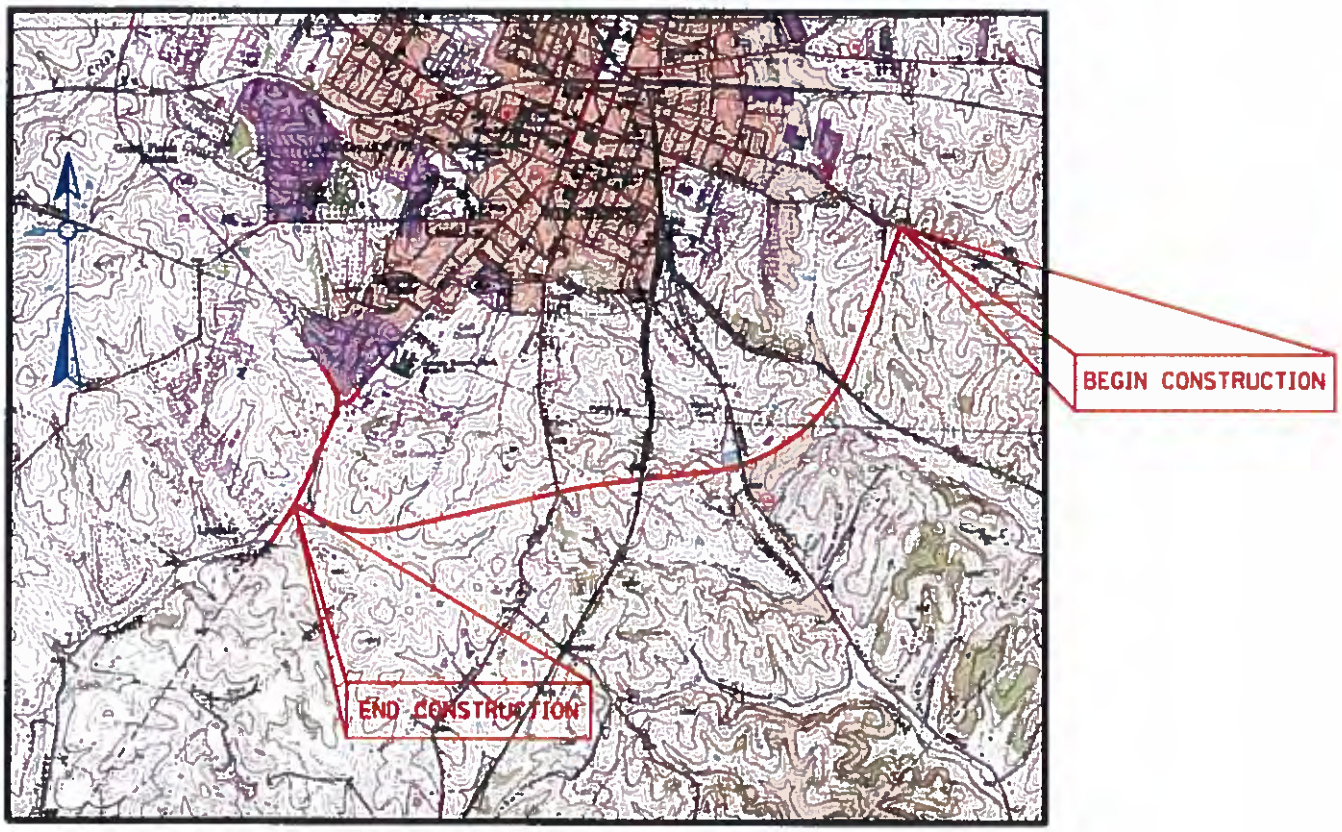
RECOMMENDED BY TEBM *(for location)* Brad Eldridge — **DATE** 1/6/13

COMMENTS

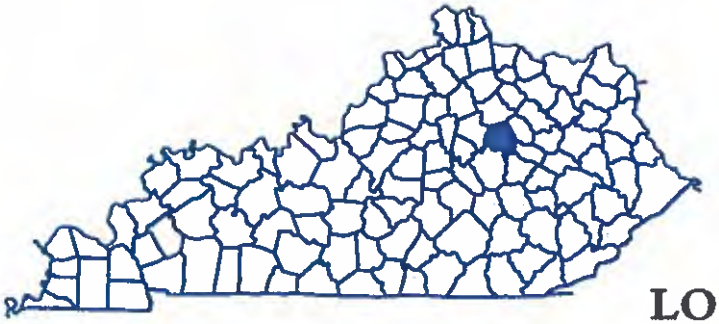
GEOMETRIC APPROVAL GRANTED BY

SIGNATURE *(Director, Division of Highway Design)* — **DATE** 1/8/14

CLARK COUNTY



VICINITY MAP
NOT TO SCALE



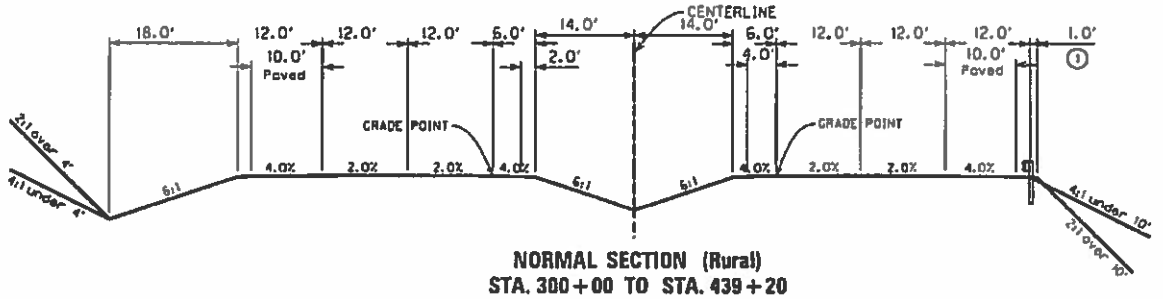
LOCATION MAP

LOCATION & VICINITY MAP
VETERANS MEMORIAL PARKWAY EXTENSION
Winchester Bypass

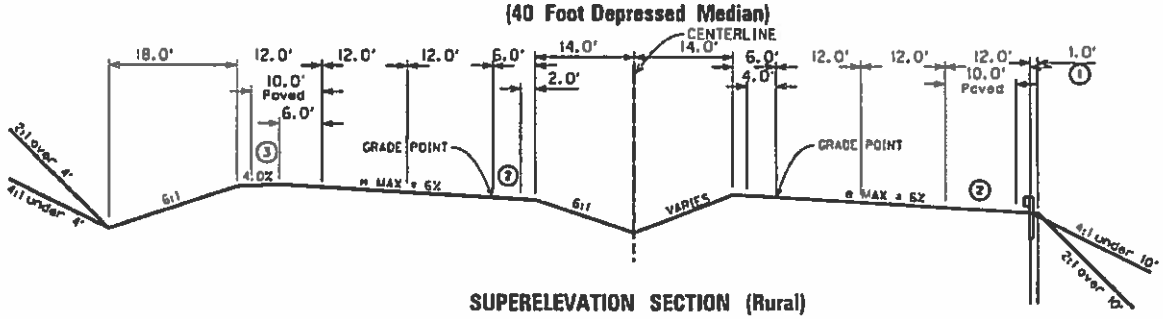
FD04 024 NEW ROUTE
Item No. 7–8401.00

CLARK COUNTY

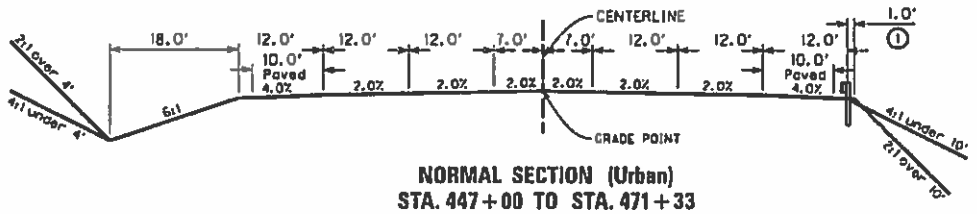
TYPICAL SECTIONS
BYPASS
CLARK COUNTY
(Veterans Memorial Parkway)



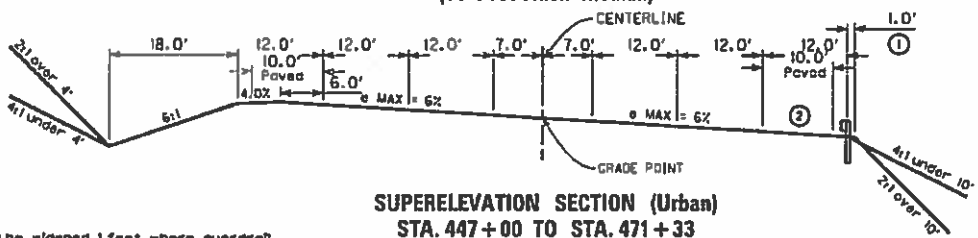
NORMAL SECTION (Rural)
STA. 300+00 TO STA. 439+20
(40 Foot Depressed Median)



SUPERELEVATION SECTION (Rural)
STA. 300+00 TO STA. 439+20
(40 Foot Depressed Median)



NORMAL SECTION (Urban)
STA. 447+00 TO STA. 471+33
(14 Foot Flush Median)



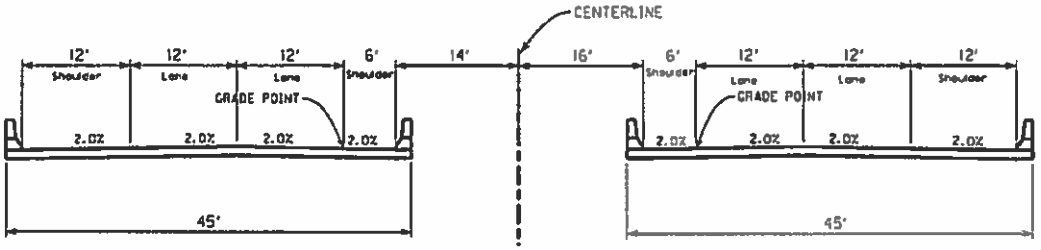
SUPERELEVATION SECTION (Urban)
STA. 447+00 TO STA. 471+33
(14 Foot Flush Median)

NOTES:

1. Shoulders shall be widened 1 feet where guardrail is to be installed.
2. Superelevated shoulders shall be constructed to the standard superelevation, except not flatter than the slopes indicated for normal shoulders.
3. For the "roll-over" between superable and nonsuperable shoulder, the algebraic difference in rate of cross-slope is not to exceed 12 percent.

VETERANS MEMORIAL PARKWAY EXTENSION
CLARK COUNTY
ITEM NO. 7-8401.00

TYPICAL SECTIONS
BYPASS
CLARK COUNTY
(Veterans Memorial Parkway)

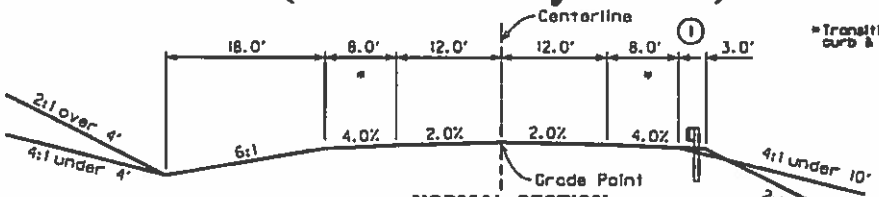


BRIDGE SECTION
(rural)
(40 Foot Depressed Median)

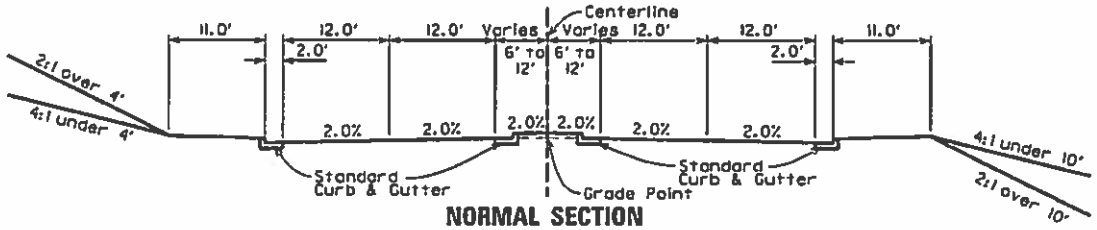
VETERANS MEMORIAL PARKWAY EXTENSION
CLARK COUNTY
ITEM NO. 7-8401.00

TYPICAL SECTIONS
BYPASS
CLARK COUNTY
(Kentucky 627)

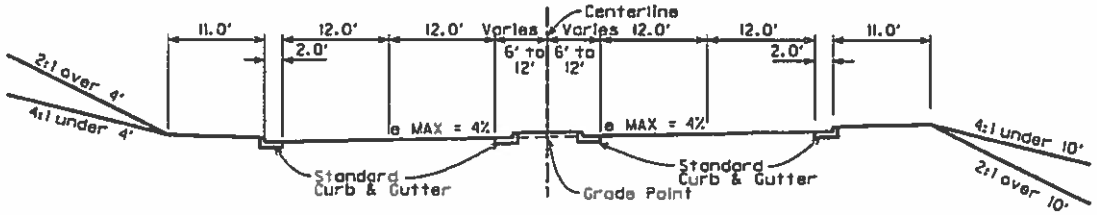
NOTES:
① Shoulders shall be widened 3 feet where guardrail is to be installed.



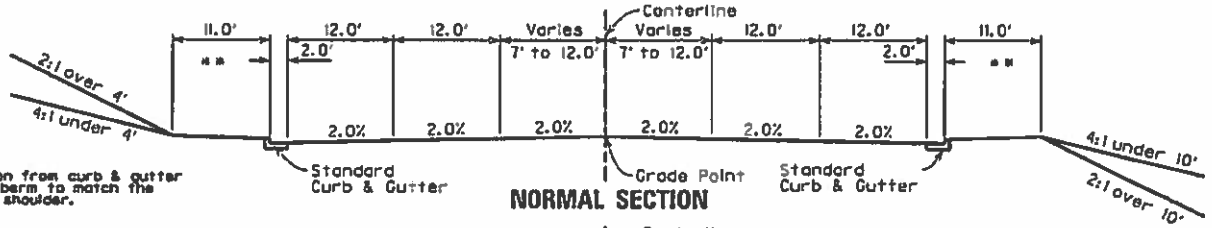
NORMAL SECTION
STA. 28+31.97 TO STA. 38+82.20
(Median varies 0' to 12')



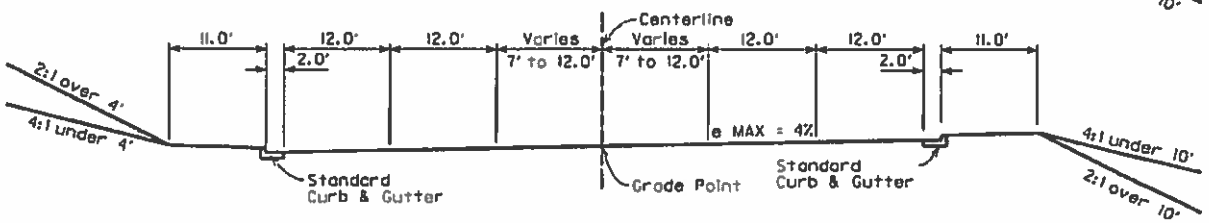
NORMAL SECTION



SUPERELVATED SECTION
STA. 38+82.20 TO STA. 64+95.67



NORMAL SECTION



SUPERELEVATED SECTION
STA. 64+95.67 TO STA. 72+81.86

VETERANS MEMORIAL PARKWAY EXTENSION
CLARK COUNTY
ITEM NO. 7-8401.00

PROJECT DESCRIPTION

The Veterans Memorial Parkway Extension project consists of constructing a new facility on the south east side of Winchester that will connect the two segments already constructed. The Project Team recommended a design speed of 60 mph for rural and 45 mph for urban. The rural segment begins at KY 89 and ends in the vicinity of the Winchester County Club golf course. The urban segment begins in the vicinity of the Winchester County Club golf course and ends at KY 627 and Old Boonesboro Road. Three (3) alternate alignments were considered for this new route. They were the Red Alternate, the Blue Alternate, and the Black Alternate. The typicals for these alternates are four (4) lanes with a 40 foot depressed median (rural) and a 14 foot flush median (urban). A study was done for a two (2) lane initial four (4) lane ultimate construction. This study reviewed the transitions from four (4) lanes to two (2) lanes at the beginning and ending of the project to match the existing routes. The study compared the level of service and the cost of the two (2) lanes versus the four (4) lane roadway; the savings was marginal resulting in the project team recommending the four (4) lane construction for this project. The twelve (12) foot outside shoulder was selected to match the existing bypass shoulder and to maintain continuity with this project.

A Public Information Meeting was held on August 13, 2012. The three (3) alternate alignments were broken into two (2) segments each, described as east and west, for the purpose of the possible combining or mixing of alternates.

DISCUSSION OF ALTERNATIVES

The three (3) alternate alignments were broken into two (2) segments described as east and west. This was done as to provide a way of combining or mixing alternates.

Do nothing alternate

Two portions of the bypass already exist around the City of Winchester. The do-nothing alternative would not complete the vision of a complete bypass around Winchester. The do-nothing alternative does not reduce the traffic congestion through downtown Winchester.

Red East Alternate

The Red East Alternate (rural segment) begins at the intersection of KY 89 and KY 1958 (Veterans Memorial Parkway) and ends at approximate station 257+00 in the vicinity of the Winchester County Club golf course. This alternate travels in a southwest direction from KY 89 to the CSX Railroad tracks overpassing the tracks approximately 5428 feet southeast of its intersection with Old Muddy Creek Road. The alignment then continues in a southwest direction

intersecting Muddy Creek Road (KY 974) approximately 880 feet southeast of Taulbee Lane. The alignment then follows a westerly direction to the CSX Railroad tracks overpassing the tracks approximately 4840 feet southwest of its intersection with Muddy Creek Road. The alignment continues in a westerly direction intersecting Two Mile Road approximately 767 feet southwest of its intersection with Rose Acre Lane. The alignment then continues in a westerly direction to its southern termini.

Blue East Alternate

The Blue East Alternate (rural segment) begins at the intersection of KY 89 and KY 1958 (Veterans Memorial Parkway) and ends at approximate station 456+00 in the vicinity of the Winchester Country club golf course. This alternate travels in a southwest direction from KY 89 to the CSX Railroad tracks overpassing the tracks approximately 4754 feet southeast of its intersection with Old Muddy Creek Road. The alignment then continues in a southwest direction intersecting Muddy Creek Road (KY 974) approximately 243 feet north of Taulbee Lane. The alignment then follows a westerly direction to the CSX Railroad tracks overpassing the tracks approximately 4032 feet southwest of its intersection with Muddy Creek Road. The alignment continues in a westerly direction intersecting Two Mile Road approximately at the intersection of Rose Acre Lane. The alignment then continues in a westerly direction to its southern termini.

Black East Alternate

The Black East Alternate (rural segment) begins at the intersection of KY 89 and KY 1958 (Veterans Memorial Parkway) and ends at approximate station 750+00 in the vicinity of the Winchester County Club golf course. This alternate travels in a southwest direction from KY 89 to the CSX Railroad tracks overpassing the tracks approximately 5095 feet southeast of its intersection with Old Muddy Creek Road. The alignment then continues in a southwest direction intersecting Muddy Creek Road (KY 974) approximately 111 feet southeast of Taulbee Lane. The alignment then follows a westerly direction to the CSX Railroad tracks overpassing the tracks approximately 4474 feet southwest of its intersection with Muddy Creek Road. The alignment continues in a westerly direction intersecting Two Mile Road approximately 440 feet southwest of its intersection with Rose Acre Lane. The alignment then continues in a westerly direction to its southern termini.

Red West Alternate

The Red West Alternate (urban segment) begins at approximate station 257+00 in the vicinity of the Winchester County Club golf course and ends at station 319+24 at KY 1958. This alternate travels in a northwest direction and overpasses KY 627 approximately 2010 feet southwest of its intersection with KY 1958. The alignment then follows a northerly direction to KY 1958 approximately 1623 feet northwest of its intersection with KY 627.

Blue West Alternate

The Blue West Alternate (urban segment) begins at approximate station 456+00 in the vicinity of the Winchester Country Club golf course and ends at station 518+87 at KY 1958. This alternate travels in a northwest direction and overpasses KY 627 approximately 2010 feet southwest of its intersection with KY 1958. The alignment then follows a northerly direction to KY 1958 approximately 3433 feet northwest of its intersection with KY 627. Interchanges studied as part of this alternate "Single Point Diamond Interchange," "Diamond Interchange," "Tight Diamond Interchange," and "Diverging Diamond Interchange." The cost associated with the construction of the interchanges along with the impact to the property owners and the acceptable level of traffic operations all factored into elimination of the interchanges.

Black West Alternate

Black West Alternate (Offset "T" Intersection)

The Black West Alternate (urban segment) begins at approximate station 750+00 in the vicinity of the Winchester Country Club golf course and ends at the intersection of KY 627 and Old Boonesboro Road. This alternate studied improvements to KY 627 from Old Boonesboro Road to the intersection of KY 627 and KY 1958. This alternate was eliminated from further consideration due to an unacceptable level of service.

Black West Alternate (Reconfigured "T" Intersection)

The Black West Alternate (urban segment) begins at approximate station 750+00 in the vicinity of the Winchester Country Club golf course and ends at the intersection of KY 627 and Old Boonesboro Road. This alternate studied improvements to KY 627 from Old Boonesboro Road to the intersection of KY 627 and KY 1958. In order to alleviate traffic capacity problems associated with the existing intersection of KY 627 and KY 1958, a horizontal curve was placed between KY 627 and KY 1958 to create a new through movement of the intersection and improve capacity.

PREFERRED ALTERNATE

The project team recommends the Preferred Alternate as the Blue East Alternate (rural segment) combined with the Black West Alternate (Reconfigured "T" Intersection) (urban segment). The Blue East Alternate was recommended because of the low impact to the existing utilities and property owners. The Black West Alternate (Reconfigured "T" Intersection) was recommended because of cost saving from not constructing the interchanges, less right of way acquisition, and acceptable traffic level of service.

COST ESTIMATES

The estimated cost of each alternative is shown below.

Cost Comparison Table

	Six-year Plan	Blue E/Blue W	Black E/Black W	Red E/Red W
Right of Way	$12,020,530	$ 6,500,000	$ 5,300,000	$ 7,400,000
Utilities	$10,198,400	$10,500,000	$13,000,000	$11,000,000
Construction	$29,561,900	$22,287,054	$20,074,199	$21,971,177
Total	**$51,780,830**	**$39,287,054**	**$38,374,199**	**$40,371,177**

	Blue E/Black W	Black E/Blue W	Red E/Black W
Right of Way	$ 3,956,000	$ 7,844,000	$ 4,561,000
Utilities	$10,500,000	$10,500,000	$11,000,000
Construction	$19,252,650	$23,108,602	$20,549,026
Total	**$33,708,650**	**$41,452,602**	**$36,110,026**

	Blue E/Red W	Black E/Red W	Red E/Blue W	Preferred
Right of Way	$ 6,795,000	$ 8,139,000	$ 7,105,000	$ 6,500,000
Utilities	$10,500,000	$13,000,000	$11,000,000	$10,500,000
Construction	$20,674,801	$21,496,349	$23,583,430	$21,811,329
Total	**$37,969,801**	**$42,635,349**	**$41,688,430**	**$38,111,329**

E-East
W-West
Black W alternate is the Offset "T" Intersection
Preferred alternate is the Blue E/Black W (Reconfigured "T" Intersection)

The construction costs of the interchanges are the same for the Blue West and the Red West alternates. The construction cost of the "Single Point Diamond Interchange" is approximately $6, 421,854. The construction cost of the "Diamond Interchange" is approximately $4,367,309. The construction cost of the "Tight Diamond Interchange" is approximately $4,440,415. The construction cost of the "Diverging Diamond Interchange" is approximately $5,231,650.

MAINTENANCE OF TRAFFIC

The facility is a new alignment minimizing conflict with the existing traffic except on approach roads. The maintenance of traffic for the construction of the approaches at Muddy Creek Road, Two Mile Road, KY 1958 and KY 627 will be accomplished under traffic with the use of diversions and phase construction.

AVOIDANCE ALTERNATIVES TO WATER-RELATED IMPACTS

Several alternatives were studied for this project. With the terrain and the location of the alternatives most of the blue line streams flow perpendicular to the alignments making the blue line crossings unavoidable. The following shows the estimated blue line stream impacts on each alternative.

Stream	Estimated Impact Length		
	Red East Alt	Black East Alt	Blue East Alt
Tributary Fourmile Creek	358'	396'	361'
Fourmile Creek	220'	212'	222'
Tributary Howard Creek	181'	203'	204'
	Red West Alt	Black West Alt	Blue West Alt
Howard Creek	221'	155'	216'
Howard Creek (KY 627)		96'*	
Howard Creek (KY 1958)		50'*	

*Culvert extensions

BICYCLE AND PEDESTRIAN

There are no bicycle or pedestrian facilities on the existing bypass segments. There is also no local comprehensive plan for bicycle and pedestrian facilities in this area at this time. Due to the nature of this project, the control of access and with the absence of existing facilities to maintain continuity, the project team does not feel that it is feasible to provide accommodations for bicycle and pedestrian traffic on this project. With the completion of the pavement design the shoulders may be paved which will allow for bicycles and pedestrians to utilize the shoulder. To maintain continuity with the existing KY 627 berms will be designed to accommodate future sidewalks.

PURPOSE AND NEED

The purpose and need for the project is to complete the Winchester Bypass to reduce congestion through downtown Winchester and to provide a reasonable and safer environment for the traveling public to I-64 north of Winchester.

WATER RELATED IMPACTS SUMMARY

County	Clark	**Route No.**	Ky. 1958	**Item No.**	7-8401.00
Date	9-6-13	**Program #**	8482001D		
Federal Project No.					
State Project No.	FD04 025 1958 000-000				
Location Engineer	Keith Caudill				

Section 1: Impact Checklist

Complete this section for each alternative considered at the conclusion of Phase 1 design.

Blue East Alternate

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study	X	210278
No FEMA Study		

* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X

Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.

Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 787 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	
Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Blue West Alternate

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study		
No FEMA Study	X	

* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X

Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.

Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 216 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	

Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Black East Alternate

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study	X	210278
No FEMA Study		
* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.		

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X
Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual. Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.				

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 811 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	

Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Black West Alternate (Offset "T" Intersection)

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study		
No FEMA Study	X	

* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X

Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.

Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 251 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	

Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Black West Alternate (Reconfigured "T" Intersection)

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study		
No FEMA Study	X	

* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X

Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.

Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 301 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	

Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Red East Alternate

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study	X	210278
No FEMA Study		

* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X

Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.

Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 759 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	

Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Red West Alternate

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study		
No FEMA Study	X	
* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.		

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X
Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual. Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.				

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 221 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	

Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Blue East/Black West Alternate (Reconfigured "T" Intersection)

FLOODPLAIN IMPACTS		
FEMA Study Type	**Yes**	**Community No.**
Detailed FEMA Study with delineated floodway*		
Detailed FEMA Study without delineated floodway*		
Approximate FEMA Study	X	210278
No FEMA Study		

* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? ____ acres	Yes		No	X
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes		No	X

Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.

Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.

STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 1088 LF	Yes	X	No	

Will temporary stream crossings be needed?	Yes	X	No	
Will excess material sites that require permitting be needed?	Yes		No	X
Will bridges be constructed?	Yes		No	X
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Section 2: Impact Discussion

Complete this section for the chosen alternate. Discuss the selected alternate's influence on each of the impacts listed above. Discuss any avoidance, minimization and/or mitigation measures included in the project.

The preferred alternate is a combination of the Blue East Alternate and the Black West Alternate. With the terrain and the location of this alternate the blue line streams flow perpendicular to the alignment making the stream crossing unavoidable. Temporary erosion and sediment control structures, such as silt checks, silt traps, and silt fences, shall be utilized during construction to minimize impact to creeks. The tributary of Fourmile Creek will require a 6'x5' box culvert with a length of approximately 361 feet. Fourmile Creek will require an 8'x6' box culvert with a length of approximately 222 feet. The tributary of Howard Creek will require a 7'x4' box culvert with a length of approximately 204 feet. Howard Creek will require a 12'x8' box culvert with a length of approximately 155 feet. The existing 16'x6' box culvert on KY 627 will be extended a length of approximately 96 feet and the existing 14'x6' box culvert on KY 1958 will be extended a length of approximately 50 feet.

APPENDIX 4

Updated and Revised Technical Reports and Coordination

LOCHNER

Memorandum

To:	Project File
From:	Derek Adams, MPH NEPA Specialist, LOCHNER
Subject:	Traffic Noise Analysis Update Veterans Memorial/Winchester Southeast Bypass – New Route KYTC Item No. 07-8401.00
Date:	October 20, 2021

As part of a baseline review for an Environmental Assessment, KYTC requested Lochner review the current land use along the preferred corridor associated with the Winchester Southeast Bypass project and evaluate whether the Traffic Noise Baseline Assessment completed in 2012 remains valid. Methods for evaluation and conclusions are documented with this memo.

Lochner completed an evaluation of existing land use and determined that overall, land use has not changed along the corridor. The current mixture of urban (commercial and residential) and rural (mainly agricultural) is comparable to the land use evaluated in 2012.

A Traffic Noise and Air Quality Baseline Assessment was prepared by Third Rock Consultants and approved in 2012. Third Rock built a representative noise model using the FHWA approved Traffic Noise Model Version 2.5 (TNM). Traffic data used for predicting noise levels was taken from Stantec's Winchester Southeast Bypass Traffic Forecast and ESALs (2012). Since the Third Rock Consulting TNM was considered validated and approved by KYTC in 2012 and land use has not significantly changed, Lochner did not recreate a Traffic Noise Model. Instead, Lochner simply updated the original 2012 TNM with the traffic volumes taken from the 2021 Traffic Forecast Technical Report prepared by KYTC Division of Planning. Traffic volumes were updated by KYTC staff to reflect current projections using existing (2020/2024) and design year (2045) volumes.

The 2012 study identified several impacts along the proposed corridors. During the 2021 update, only one receiver's status changed as a result of the new traffic volumes. The 2012 study identified an impact at Receiver 10 due to a substantial increase in noise levels compared to the existing noise levels. As a result of the updated 2021 Traffic Forecast, Receiver 10 is now predicted to receive a Noise Abatement Criteria (NAC) impact (>66 DBa) associated with the traffic noise. This change in status is not significant given the fact that a noise wall was considered for the predicted substantial increase in 2012 and was found not to be reasonable for construction. With the newly identified NAC impact, there is still a lack of feasibility and therefore no recommendation for mitigation. For this reason, no additional investigation is warranted for predicted impacts to Receiver 10. Furthermore, no additional receivers were shown as being impacted by the updated 2021 Traffic Forecast.

Subsequent to the 2012 study, a combination of alternatives was determined to be the preferred alternative to address the purpose and need of the project. Consequently, an area along KY 627 not previously covered by the 2012 noise study was identified. In consultation with KYTC, Lochner determined that these additional areas should be investigated to see if a noise study was warranted. Lochner conducted a screening in TNM 2.5 using traffic volumes from the 2045 forecast. Based on 2045 DHV, impacts were predicted to occur

within 100 feet from the roadway edge of pavement. Five newly identified receptors are all at least 275 feet from the centerline, three being greater than 400 feet. In addition, Lochner determined that if impacts were predicted to occur, based on the 2020 KYTC Noise Policy, the mitigation to protect these receptors would not be acoustically feasible because there are not three receivers within a 115 foot radius of each other.

In conclusion, Lochner conducted a re-assessment of land use, used updated traffic volumes to predict noise levels for the existing (2020), no-build (2045) and build year 2045, and evaluated a previously undocumented area following the 2020 KYTC Noise Policy. Upon review of the results from this evaluation, no further analysis of abatement is necessary.

United States Department of Agriculture
Farm Production and Conservation
Natural Resources Conservation Service
Owensboro Service Center
3100 Alvey Park Drive W
Owensboro, KY 42303

September 7, 2021

Derek Adams, MPH
LOCHNER
2365 Harrodsburg Road
Suite B400
Lexington, KY 40504

RE: WINCHESTER SOUTHEAST BYPASS

Dear Mr. Adams:

Enclosed is the Farmland Protection Policy Act (FPPA) site assessment for the proposed road project in Clark County, Kentucky. The Natural Resources Conservation Service (NRCS) is mandated to provide information on the soils and/or impact to farmland according to the Farmland Protection Policy Act (P.L. 97-98) for projects that will be utilizing federal monies.

Based on the data outlining the proposed project areas, it was determined that each alternative has the potential to impact PRIME FARMLAND and FARMLAND OF STATEWIDE IMPORTANCE.

Red Alternative has a relative LESA value of **53**, as based on a scale of 0 to 100 points *(see CPA-106)*. The percentage of farmland in Clark County having the same or higher value is 64.19%. The percentage of Clark County farmland to be converted as a result of the proposed action is 0.08%.

Black Alternative has a relative LESA value of **53**, as based on a scale of 0 to 100 points *(see CPA-106)*. The percentage of farmland in Clark County having the same or higher value is 64.19%. The percentage of Clark County farmland to be converted as a result of the proposed action is 0.07%.

Blue Alternative has a relative LESA value of **36**, as based on a scale of 0 to 100 points *(see CPA-106)*. The percentage of farmland in Clark County having the same or higher value is 67.98%. The percentage of Clark County farmland to be converted as a result of the proposed action is 0.06%.

Preferred Alternative has a relative LESA value of **48**, as based on a scale of 0 to 100 points *(see CPA-106)*. The percentage of farmland in Clark County having the same or higher value is 67.98%. The percentage of Clark County farmland to be converted as a result of the proposed action is 0.08%.

Please do not hesitate to contact me if I may be of additional assistance.

Sincerely,

Perri P. Brown
Resource Soil Scientist
Perri.Brown@usda.gov

Enclosure

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request **8/12/21**	4. Sheet 1 of 1
1. Name of Project **Winchester Southeast Bypass**	5. Federal Agency Involved **Federal Highway Administration**	
2. Type of Project **Road Construction-New Alignment**	6. County and State **Clark County, Kentucky**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS **8/12/21**	2. Person Completing Form **Perri P. Brown**
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated | Average Farm Size
5. Major Crop(s) **Corn**	6. Farmable Land in Government Jurisdiction **Acres: 111, 661 ac. % 69.0**	7. Amount of Farmland As Defined in FPPA **Acres: 91,691 ac. % 56.6**
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS **9/7/21**

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment ____ Red	Black	Blue	Preferred
A. Total Acres To Be Converted Directly	150.7	122.2	155.3	136.3
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0.0	0.0	0.0	0.0
C. Total Acres In Corridor	150.7	122.2	155.3	136.3
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	31.61	18.72	8.56	16.35
B. Total Acres Statewide And Local Important Farmland	40.75	45.84	50.98	54.91
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.08	0.07	0.06	0.08
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	64.19	64.19	67.98	67.98
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	53	53	36	48

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points	Red	Black	Blue	Preferred
1. Area in Nonurban Use	15	9	7	9	7
2. Perimeter in Nonurban Use	10	9	7	9	8
3. Percent Of Corridor Being Farmed	20	12	10	12	10
4. Protection Provided By State And Local Government	20	0	0	0	0
5. Size of Present Farm Unit Compared To Average	10	6	6	7	7
6. Creation Of Nonfarmable Farmland	25	0	0	0	0
7. Availablility Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	10	10	10	10
9. Effects Of Conversion On Farm Support Services	25	5	5	5	5
10. Compatibility With Existing Agricultural Use	10	5	5	5	5
TOTAL CORRIDOR ASSESSMENT POINTS	160	61	55	62	57
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	53	53	36	48
Total Corridor Assessment (From Part VI above or a local site assessment)	160	61	55	62	57
TOTAL POINTS *(Total of above 2 lines)*	260	114	108	98	105

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Blue-Black T Intersection (Preferred)	**136.3**	TBD	YES ☐ NO ☑

5. Reason For Selection:

Project team identified the Blue-Black T-Intersection as the preferred alternative due to the reduced utility and ROW costs. An additional factor was the fact that the blue alternative lessened the segmentation of farms along the corridor. The upgrade of KY 627 was preferred because it uses the existing facility and decreases community impacts.

Signature of Person Completing this Part:  DATE **9/22/21**

NOTE: Complete a form for each segment with more than one Alternate Corridor

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

LOCHNER

Memorandum

To: Project File

From: Mary Hieronymus
LOCHNER

Subject: Socioeconomic Census Data Update
Veterans Memorial/Winchester Southeast Bypass – New Route
KYTC Item No. 07-8401.00

Date: August 16, 2021

Updated Community Profile and Demographics

The majority of the bypass corridor is located in unincorporated Clark County and lies within Census Tracts (CT) 201.03, 201.05, and 201.06. Data from the US Census Bureau and the 2019 American Community Survey 5-Year Estimates was examined at the state, county, and census tract level to identify demographic data for the project area. No Block Group data was available in the area where project impacts will occur. This data is included in Table 1.

TABLE 1 – DEMOGRAPHIC DATA (2019 ACS 5-Year Estimates)

	Kentucky	Clark County	CT 201.03	CT 201.05	CT 201.06
Total Population	4,449,052	35,971	3,686	3,278	3,008
% Minority	13	7.4	3.1	3.5	6.1
% Hispanic or Latino	3.7	3	1.6	4	3.4
Median Household Income	50,589	54,953	67,333	62,273	30,000
Per Capita Income	28,178	28,802	29,150	31,139	29,290
% Family Household	65.5%	68.5%	76.2%	64.3%	64.7%
% Home Ownership	67.2%	67.4%	86.4%	67.6%	44.6%
% Population Living Below Poverty Level	17	14.4	8	13.3	29.1
Median Age	38.9	42.3	45.8	40.8	37.7

In 2019, Clark County contained 35,971 residents, a 1% increase from the 2010 decennial census. Data from the Kentucky State Data Center predicts the county's population will increase by 3.8% to 39,423 by 2030 and an additional 1.3% to 39,933 by 2040.

The median age in Kentucky is 38.9, which is lower than that of Clark County (42.3), CT 201.03 (45.8) and CT 201.05 (40.8). CT 201.06 has a lower median age (37.7) than the state average. CT 201.03, 201.05, and 201.06 contain a smaller percentage of minority residents than both Clark County and Kentucky populations ranging from 3.1%, 3.5%, and 6.1% respectively.

A higher percentage of households in CT 201.03 are family households (76.2%) than in the other areas studied. The percentages of family households in CT 201.05 (64.3%) and CT 201.06 (64.7%) are lower than those in both Kentucky (65.5%) and Clark County (68.5%) populations. Home ownership varies throughout the corridor. The highest percentage lies within CT 201.03 with 86.4% of residents owning their own homes. In CT 201.05, 67.6% of residents own their homes, as compared to 44.6% of CT 201.06 residents. Around 67% of Kentucky and Clark County residents own their homes.

Residents of Clark County and CT 201.03 and CT 201.05 have higher median household and per capita incomes and are less likely to be living below the poverty level than residents of Kentucky as a whole. On average, however, residents of CT 201.06, which comprises the eastern half of the project corridor, have much lower median household and per capita incomes than elsewhere in the project corridor, county, and state. A higher percentage of this census tract's residents are living below the poverty level as well. Because Block Group data is not available in CT 201.06, and a significant area of the block group is urban, it is assumed the rural area of CT201.06 would more closely follow the trend of CT 201.05 having a lower average. Per the 2019 American Community Survey, the residents of CT 201.06 also have a higher unemployment rate (7.9%) than the rest of the study area (CT 201.03 and CT 201.05). Overall, the unemployment rate was higher in the study areas than in the Kentucky (3.3%) and in Clark County (3.4%) as a whole.

ABSTRACT

In November and December of 2011, Cultural Resource Analysts, Inc., personnel completed a cultural historic baseline survey for the proposed Winchester Southeast Bypass (KY 1958) in Clark County, Kentucky (Item Number 7-8401.00). The proposed project involved the development of a 4 mi section of bypass to the south and southeast of Winchester from the existing KY 89 northeast of the city at the Northeast Bypass to the existing KY 1958 southwest of the city, and would ultimately complete bypass construction around the eastern side of Winchester. The original area of potential effects for the proposed project was defined as a 1,000 ft buffer surrounding the environmental footprint provided by the Kentucky Transportation Cabinet. During the 2011 field survey, Cultural Resource Analysts, Inc., personnel identified a total of 57 cultural historic sites within the area of potential effects, including 18 previously surveyed properties (CK 544, CK 467, CK 785, CK 466, CK 786, CK 465, CK 464, CK 507, CK 787, CK 46, CK 524, CK 508, CK 509, CK 789, CK 798, CK 120, CKW 768, and CK 827) and 39 previously undocumented properties (CK 788, CK 790–CK 797, CK 799–CK 822, CKW 1101, CK 1102, and CK 823–CK 826). Field investigations revealed that two previously surveyed resources, the Strode House (CK 120) and a late nineteenth-century frame T-plan residence (CK 827) were no longer extant. The 2011 survey also determined that the National Register of Historic Places-listed Henry W. Calmes House (CK 47) was not located within the area of potential effects for the 2011 project. Of the 57 properties documented within the area of potential effects, 17 (CK 544, CK 467, CK 85, CK 466, CK 465, CK 464, CK 507, CK 787, CK 524, CK 508, CK 791, CK 794–795, CK 798, CK 815, CK 820–821) were selected for evaluation in the overview study based on their potential significance and integrity. Thirty-seven of the remaining properties (CK 786, CK 46, CK 788, CK 790, CK 792–793, CK 796–797, CK 799–814, CK 816–819, CK 822, CKW 1101-1102, CK 823–824, CK 826, CK 120, CKW 768, and CK 827) were summarized and pictured in the report but not described in detail, as they either represented common property types with no known significant associations or were altered to such an extent that they did not retain the integrity required for listing in the National Register of Historic Places. Cultural Resource Analysts, Inc., recommended that the residence associated with the J.W. Tuttle Farm (CK 544) was eligible for listing in the National Register of Historic Places as an early twentieth-century Bungalow retaining excellent integrity with regard to material and design. Cultural Resource Analysts, Inc., further recommended that CK 467, CK 785, CK 466, CK 786, CK 465, CK 464, CK 507, CK 787, CK 46, CK 524, CK 508, CK 788, CK 790–822, CKW 1101–1102, CK 823–824, CK 826, CK 120, CKW 768, and CK 827 were ineligible for listing in the National Register of Historic Places under Criterion A, B, or C. CK 509, CK 789, and CK 825 could not be surveyed from the public right-of-way, and permission to access these properties directly had not been obtained at the time of the 2011 survey. As such, the documentation of CK 509, CK 789, and CK 825 was pending at the time of the report's publication in January 2012 (McMahan and Higgins 2012a).

In September 2012, Cultural Resource Analysts, Inc., submitted a cultural historic baseline survey for the proposed Winchester Southeast Bypass (KY 1958) project in Clark County, Kentucky (Item Number 7-8401.00). The baseline report included Cultural Resource Analysts, Inc.'s final recommendations for this project, including assessments of effect for the three proposed alternative alignments that were under consideration for the proposed project. The three alternatives each followed slightly different alignments and featured different tie-in options at the west end of the project area. In the baseline survey report, Cultural Resource Analysts, Inc., recommended that the J.W. Tuttle Farm (CK 544) is eligible for listing in the National Register of Historic Places under Criterion C as an early twentieth-century Bungalow retaining excellent integrity with regard to material and design. CK 467, which was recommended ineligible in the January 2012 report was also recommended eligible for listing in the National Register of Historic Places under Criterion C as an example of the popular application of the Greek Revival style to a mid-nineteenth-century farmhouse in Clark County. Cultural

Resource Analysts, Inc., further recommended that CK 785, CK 466, CK 786, CK 465, CK 464, CK 507, CK 787, CK 46, CK 524, CK 508, CK 788, CK 790–822, CKW 1101–1102, CK 823–824, CK 826, CK 120, CKW 768, and CK 827 were ineligible for listing in the National Register of Historic Places under Criterion A, B, or C. Due to the lack of access during the field survey in November and December 2011, the eligibility of Sites CK 509, CK 789, and CK 825 remained undetermined in the September 2012 report. However, CK 509 was previously recommended eligible in 1999 and, although it could not be fully evaluated, was presumed to remain eligible in the baseline report (Amos 1999:30 in McMahan and Higgins 2012b). In a review letter dated May 28, 2013, the Kentucky Heritage Council concurred with the recommendations presented in the September 2012 report (Lindy Casebier to David Waldner, personal correspondence, May 28, 2013).

In November 2020, the Kentucky Transportation Cabinet requested that Cultural Resource Analysts, Inc., conduct an addendum baseline survey and report for the construction of the Winchester Southeast Bypass (KY 1958), also known as the Veterans Memorial Parkway Extension. This project would complete a four-lane bypass route around the western, southern, and eastern sides of the City of Winchester in Clark County. The proposed project will connect the eastern and western segments of the existing Winchester Bypass route and improve east–west connectivity between the main roads that provide access to center of Winchester. Since the Kentucky Heritage Council issued the concurrence letter for the September 2012 report in 2013, the project team has determined a preferred alternative for the Winchester Southeast Bypass (KY 1958) project. The preferred alternative combines the western portion of the black alternative and the eastern portion of the blue alternative addressed in the September 2012 report. It also includes improvements to Boonesboro Road (KY 627) from Old Boonesboro Road to the existing bypass (KY 1958). The area of potential effects for the addendum baseline survey was defined as a 1,000 ft buffer extending from the proposed centerline and includes those properties that extend into the area of potential effects. The current area of potential effects encompasses a portion of the area of potential effects for the September 2012 report and also includes a new section to the southwest.

Prior to initiating fieldwork, personnel initiated a review of records maintained by the Kentucky Heritage Council (State Historic Preservation Office) to determine if previously recorded cultural historic resources were located in the revised area of potential effects. Geographic Information System data provided by the Kentucky Heritage Council indicated that 11 previously surveyed resources (CK 46, CK 47, CK 79, CK 464–467, CK 507–509, and CK 524) are located within or in the vicinity of the area of potential effects for the addendum report. However, the field survey revealed that two resources, CK 47 and CK 79, are located outside the area of potential effects. The remaining nine resources (CK 46, CK 464–467, CK 507–509, and CK 524) have an undetermined status in the Kentucky Heritage Council database.

The nine previously surveyed resources (CK 46, CK 464–467, CK 507–509, and CK 524) included in the records review results, as well as 37 additional resources (CK 544, CK 785–787, CK 789–790, CK 792–808, CK 813–815, CK 818–822, CK 824–827, and CKW 1101–1102) not listed in the Kentucky Heritage Council (State Historic Preservation Office) records review results, were evaluated in the September 2012 report for the Winchester Southeast Bypass project. Of these resources, two (CK 467 and CK 544) were recommended eligible for listing in the National Register of Historic Places. Thirty-nine resources (CK 46, CK 464–466, CK 507–508, CK 524, CK 785–787, CK 790, CK 792–808, CK 813–814, CK 818–822, CK 825–826, and CKW 1101–1102) were recommended ineligible for listing in the National Register. Three sites, resources (CK 509, CK 789 and CK 824) were given an undetermined status in the September 2012 report due to a lack of access (McMahan and Higgins 2012b). Two resources (CK 815 and CK 827) included in the 2012 survey were found to be non-extant in the field. A review of previous cultural historic reports did not reveal any additional previously surveyed resources within the area of potential effects.

From January through March 2021, Cultural Resource Analysts, Inc., completed a cultural historic baseline survey for an addendum to the Winchester Southeast Bypass (KY 1958) project. During the field survey, Cultural Resource Analysts, Inc., personnel identified a total of 148 cultural historic sites within the area of potential effects, 104 of which (CKW 1146–1203 and CK 842–887) were previously undocumented. Forty-four resources (Sites 59–60, 62–65, 67–68, 72, 94–95, 107–112, 114, 116–118, 120–121, 123–134, 138–140, 143–148 [CK 822, CK 821, CK 820, CK 46, CKW 1102, CKW 1101, CK 827, CK 789, CK 818, CK 524, CK 819, CK 813–814, CK 825–826, CK 509, CK 508, CK 787, CK 507, CK 798, CK 467, CK 799, CK 785, CK 802, CK 800, CK 801, CK 803–805, CK 466, CK 793, CK 465, CK 806–808, CK 464, CK 790, CK 786, CK 794, CK 824, CK 795–796, CK 544, CK 797]) were previously surveyed. Two resources, Sites 122 and 152 [CK 467 and CK 544]), were previously recommended eligible in the September 2012 report for the Winchester Southeast Bypass project. Thirty-nine of the previously surveyed resources (Sites 59–60, 62–65, 67, 72, 94, 99, 111–114, 116, 118, 120–121, 124–125, 127–138, 142–144, 148, 150–151, and 153 [CK 822, CK 821, CK 820, CK 46, CKW 1102, CKW 1101, CK 827, CK 818, CK 524, CK 819, CK 813–814, CK 825–826, CK 508, CK 787, CK 507, CK 798, CK 799, CK 785, CK 802, CK 800, CK 801, CK 803–805, CK 466, CK 793, CK 465, CK 806–808, CK 464, CK 790, CK 786, CK 794, CK 795–796, CK 797]) were recommended ineligible for listing in the National Register in the September 2012 report. Three resources (Sites 68, 115, and 149 [CK 509, CK 789, and CK 824]) were assigned an undetermined status due to an inability to access the property during the field survey. Cultural Resource Analysts, Inc., recommends that Sites 1–102, 104–110, 112–117, 119–135, CK 138–146, and 148 (CKW 1146–1202, CK 842, CK 822, CK 821, CK 843, CK 46, CKW 1102, CKW 1101, CK 1203, CK 827, CK 789, CK 844–846, CK 818, CK 847–867, CK 524, CK 819, 868–874, CK 876–878, CK 813–814, CK 825–826, CK 508, CK 879, CK 787, CK 880, CK 507, CK 798, CK 881, CK 799, CK 785, CK 882, CK 802, CK 800–801, CK 803–805, CK 466, CK 793, CK 465, CK 806–808, CK 883, CK 464, CK 790, CK 786, CK 886–887, CK 794, CK 824, CK 795–797) are not eligible for listing in the National Register of Historic Places. Cultural Resource Analysts, Inc., further recommends that Sites 118 and 147 (CK 467 and CK 544) retain the necessary integrity and significance to remain eligible for listing in the National Register of Historic Places under Criterion C as an excellent example of a Greek Revival farmhouse from the mid-nineteenth century in Clark County and as an excellent example of an early twentieth-century Bungalow in Clark County, respectively. Cultural Resource Analysts, Inc., also recommends that Fairholme (Site 111 [CK 509]) is eligible for listing in the National Register of Historic Places under Criterion A and B for its historic associations with Richard Fairbairn and the horse racing industry in Clark County during the early to mid-twentieth century. An undetermined National Register status is recommended for Sites 103, 136, and 137 (CK 875, CK 884, and CK 885) as they were not visible and/or accessible in the field, and were not previously documented in the 2012 report.

According to current design plans for the Winchester Southeast Bypass (KY 1958) project, the preferred alternative extends through the property associated with Sites 111 (CK 509) and 118 (CK 467). The proposed project extends through the west side of the 148-acre farm property associated with Site 111 (CK 509), which is separate from the parcel containing the primary resource, and will result in the loss of a barn on the northwest corner of the property. However, the path of the preferred alternative is located outside the recommended National Register boundary for the site and will not impact any of the resources associated with its historic significance. Additionally, the barn located within the project area does not date to the site's recommended period of significance and therefore does not contribute to the site's overall significance. As such, the loss of the resource will not affect the site's ability to communicate its historic significance in association with Richard Fairbairn and the horse racing industry in Clark County. Therefore, the proposed project will not have a direct effect on the recommended National Register-eligible resource. The preferred alternative for the proposed project extends through the east corner of the property associated with Site 118 (CK 467). However, it is located outside the recommended National Register boundary for the resource and as such, the project will not directly affect the recommended National Register-eligible resource and will not alter the

residence's character-defining features associated with its Greek Revival style. The preferred alternative for the proposed Winchester Southeast Bypass (KY 1958) project is located outside the property and recommended National Register boundary for Site 147 (CK 544). Therefore, it will not have a direct effect on the site. The proposed project will be visible from Sites 111, 118, and 147 (CK 509, CK 467, and CK 544) both during and after completion. The setting and viewshed for all three sites has been previously disturbed by alterations to the surrounding rural landscape, including the loss of historic structures, the introduction of modern infill, and the construction of a modern subdivision. Additionally, it should be noted that the setting and viewshed does not contribute to the significance of Sites 118 and 147 (CK 467 and CK 544), and the rolling terrain and vegetation surrounding the resources associated with Site 111 (CK 509) will continue to provide a degree of screening during and after construction. Therefore, Cultural Resource Analysts, Inc., recommends a finding of No Adverse Effect for the proposed project.

May 18, 2021

Carl Shields, Cultural Resource Branch Manager
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, KY 40622

RE: Management Summary for Phase I Archaeological Survey of the Proposed Winchester East Bypass Extension (KY1958) from Irvine Road (KY 89) to KY 627, Clark County, Kentucky KYTC Item No. 7-8401.00

At a request from the Kentucky Transportation Cabinet (KYTC), archaeologists from Cardno, Inc. (Cardno) conducted a Phase I survey for the proposed Winchester East Bypass Extension (KY1958) from Irvine Road (KY89) to KY 627 in Clark County, Kentucky. Fieldwork was conducted from April 26-May 14, 2021. The APE for the project consist of a corridor more than 3.5 miles (mi) (5.6 kilometers [km]) in length with an extent of about 138 acres (ac) (55.8 hectares [ha]). The APE includes new Right-of-Way for the proposed roadway, as well as temporary and permanent easements. The APE contained a variety of land use, including pasture and agricultural fields, wooded areas, residential lawns, and commercial properties. Existing impacts to the corridor include modern roadways, railroad tracks, an oil pipeline, and utility lines. Moreover, two previously identified sites, 15CK3 and 15CK4 were located within the APE. Both sites were revisited during this Phase I Survey. At the time of survey visibility over the majority of the APE was poor necessitating the use of systematic shovel testing as the primary survey method. Fieldwork was initiated on April 26, 2021 and was completed on May 13, 2021. The entire APE was surveyed

During the course of this Phase I survey a total of 1285 shovel tests were systematically excavated at a 20 m interval across the APE (Figures 1-4). Seventy-One shovel tests were positive and 1150 were negative. Additionally 64 shovel tests had disturbed profiles. Shovel tests were not excavated in 216 locations due to extreme slopes, drainages, or obvious disturbances from roads, railroads, etc. Soil profiles over the APE were consistent. The representative profile consists of a 10-40 cm thick AP horizon consisting of dark yellowish brown (10YR4/4) silt loam underlain by a yellowish brown (10YR5/6) clay loam or clay B horizon.

The survey resulted in the identification of nine new archaeological sites and seven isolated finds (Figures 1-4; Table 1). Field Sites 1-6 were all extensive low density scatters of lithic debitage. All of the recovered artifacts were recovered from the Ap horizon. No diagnostic artifacts were recovered from any of these sites, and shovel tests excavated at each site did not identify any intact sub-plowzone deposits or features. None of these sites is recommended as being eligible for nomination to the NRHP. Field Site 6-9 are all historic sites dating from the 19th to 20th century. Field Site 7 represents a high density garbage dump. Artifacts recovered include container glass, nails, unidentified metal, and ceramic. Field Site 8 consists of a scatter of nails. No evidence for architectural remains were identified in the vicinity of this site. Field Site 9 represents the yard of an extant house. Nails, container glass and, ceramics recovered from the site suggest s date from the mid to late 19th century. The house is still occupied today. No evidence for intact features or deposits was identified in any of the shovel tests excavated at this site. We recommend that Field Sites 6-9 are not eligible for nomination to the NRHP.

Additionally, seven isolated finds were also identified during this Phase I survey. Isolated Finds 1-4 and Isolated Find 6 are all isolated flakes. Isolated Find 5 is a single sherd of historic ceramic, and Isolated Find 7 consists of a bottle neck. Given the singular nature of these finds, we do not consider them to meet the criteria necessary for archaeological sites. No additional work is recommended for any of these isolated finds.

In addition to the new sites and isolated finds two previously recorded sites, 15CK3 and 15CK 4 were revisited during this Phase I survey. Both sites are recorded in the OSA database as Late Prehistoric Stone box graves. Both

sites were initially reported by Webb and Funkhouser(1932) in the *Archaeological Survey of Kentucky* (p. 83). In both cases the exact location of the sites is unclear, thus, the location of these sites in the OSA database is an approximation. The portion of 15CK3 within the current project APE has been disturbed by the construction of Old Boonesboro Road and the current Boonesboro Road (KY627). Shovel tests excavated in this area were met with immediate refusal on dense gravel fill associated with the road construction. At site 15CK4, four shovel tests were excavated within the mapped boundary of the site. All were negative. This site is situated just upslope from Field Site 4. However, no evidence for stone box burials or intact deposits was identified at this field site. Based on these finding we recommend no additional work for Sites 15CK3 or 15CK4.

Finally, one modern cemetery, the Wilson Family Cemetery was identified within the project APE near Muddy Creek Road (Figure 3). The cemetery measures 18.5 m (60.7 ft) north-south by 12.3 m (40.4 ft) east-west (area = 0.05 ac [0.2 ha]) and consists of three double headstones with three graves dating from1988 to 2008 (Figure 5). At the time of survey the cemetery was well maintained. Given the dates for the individuals interred here, this cemetery does not represent an archaeological site. However, given its location within the project APE, we recommend this cemetery be avoided. Moreover, a landowner reported an additional isolated headstone to the south of the APE (Figure 3). The landowner indicated that the headstone may belong to a Civil War veteran. Because this isolated grave was outside of the APE, and based on the wishes of the landowner this isolated grave was not recorded as

an archaeological site. Offers were made to record the site if the landowner changed his mind. Given the distance from the project APE, this grave will not be affected by the proposed road construction.

Based on these findings, we recommend no additional archaeological work for the APE

References Cited

Funkhouser, W. D. and William S. Webb
1932 *Archaeologocal Survey of Kentucky*. Reports in Archaeology and Anthropology Volume II. University of Kentucky, Lexington.

APPENDIX 5

Cultural Resource Correspondence

ANDY BESHEAR
GOVERNOR

JACQUELINE COLEMAN
LT. GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL
THE STATE HISTORIC PRESERVATION OFFICE
410 HIGH STREET
FRANKFORT, KENTUCKY 40601
(502) 564-7005
www.heritage.ky.gov

MICHAEL E. BERRY
SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR &
STATE HISTORIC
PRESERVATION OFFICER

June 7, 2022

Mr. Daniel R. Peake
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street Frankfort, KY 40622

Re: Letter-Report for the Proposed Winchester Southeast Bypass (KY 1958) in Clark County, Kentucky (Item No. 7-8401.00) Revised SHPO Comment on Eligibility and Effects for Site 111 (CK-509)

Dear Mr. Peake,

Thank you for the additional information regarding Fairholme, CK-509, a historic horse farm. We understand from the letter-report (November 3, 2021) from Trent Spurlock of CRA to Jonna Mabelitini of your staff that the property is currently divided into a 6.21-acre residential parcel and a 148-acre farm parcel. We also understand that KYTC recommended that the NRHP boundary for the site encompass the entirety of the current 6.21-acre residential parcel and the historic driveway (Resources A-D) accessible from Two Mile Road and that the 148-acre farm parcel and the buildings therein (Resources E–H) were excluded from the recommended NRHP boundary as they did not date to the period of significance (Poole and Hanna 2021).

We also understand from additional photos and an email dated January 26, 2022, from Jonna Mabelitini of your staff, that the barn associated with the site is a hay barn and not associated with horse-racing and does not exhibit any special construction methods. We also understand that there is no stylized fencing present that would typically be associated with a horse farm and that the presence of a new development has greatly compromised integrity of setting of CK-509.

We further understand that due to the compromised integrity of the 148-acre parcel's associations to its horse farm history and the associated structures' (Resource E, F, and H) lack of historic significance that KYTC continues to hold that the NRHP boundary included in April 2021 report appropriately accounts for the period of significance and the most significant resources associated with the 6.21-acre parcel and historic driveway (Resources A-D).

We understand that that the preferred alternative for the proposed Winchester Southeast Bypass project would extend through the southwest portion of the farm parcel and that KYTC's official determination is **No Adverse Effect to Historic Properties**.

Based the additional photos and information our office finds the NRHP boundary for CK-509 from the April 2021 report to be appropriate and **Concur** with KYTC's finding of **No Adverse Effect to Historic Properties** for the preferred alternative. Please note that our comment pertains only to CK-509 and does not alter or change our comments on the overall project.

Should you have any questions, please feel free to contact Nicole Konkol of my staff at nicole.konkol@ky.gov.

Sincerely,

Craig A. Potts,
Executive Director and State Historic Preservation Officer

CP: my, KHC #65522; 62528; 63164
CC: Jonna Mabelitini

ANDY BESHEAR
GOVERNOR

JACQUELINE COLEMAN
LT. GOVERNOR

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FRANKFORT, KENTUCKY 40601
(502) 564-7005
www.heritage.ky.gov

MICHAEL E. BERRY
SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR &
STATE HISTORIC
PRESERVATION OFFICER

09/21/2021

Danny Peake, Director
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street,
Frankfort, KY 40622

RE: Revised Addendum Cultural Historic Survey Baseline Survey for the Proposed Winchester Southeast Bypass (KY-1958)
Winchester, Clark County, Kentucky
KYTC Item No. 7-8401

Dear Mr. Peake:

Thank you for your submittal of a revised addendum cultural historic baseline report and 148 survey forms for the above-referenced project. Our office previously reviewed a baseline report for this undertaking in 2012 and 2013. Since that initial review, a preferred alternative has been selected and a revised addendum has been submitted to this office for our review, with revisions requested in April of 2021.

We understand that the purpose of this undertaking is to complete a four-lane bypass route around the western, southern, and eastern sides of the City of Winchester. A portion of the Winchester Bypass project has already been completed, and in this portion of the project, the undertaking will connect the eastern and western segments of the existing Winchester Bypass (KY-1958) route. The preferred alternative for this portion of the route combines the western portion of the black alternative and the eastern portion of the blue alternative addressed in the 2012 report. It also includes improvements to Boonesboro Road (KY-627) from Old Boonesboro Road to the existing bypass.

Consultation between SHPO and KYTC has defined the APE for the addendum baseline survey as a 1000-foot buffer from the proposed centerline. This includes a portion of the original APE as defined in the 2012 report, as well as a new section to the southwest. The APE extends between Boonesboro Road and Irvine Road (KY-89), crossing Two Mile Road (KY-1923) and Muddy Creek Road (KY 974) before terminating in the northeast at the existing Bypass (Veterans Memorial Parkway, KY-1958) Two lines of CSX railroad extend through the center of the APE.

This undertaking was originally reviewed by our office in 2012, with the original baseline survey identifying 57 sites within the APE, including 39 previously undocumented resources. At the time, field reconnaissance identified two previously recorded resources, CK-120 and CK-827, were no longer extant.

RE: Revised Addendum Cultural Historic Survey Baseline Survey for the Proposed Winchester Southeast Bypass (KY-1958) in Winchester, Clark County, Kentucky
KYTC Item No. 7-8401

Prior to initiating fieldwork for this baseline addendum, CRA identified 11 previously recorded resources within the APE, however an additional two resources (CK-47 and CK-79) were found to be incorrectly mapped. While site check results did identify nine previously recorded resources within the current APE, 37 of the previously recorded resources in the 2012 report did not populate in site check results. Two previously recorded resources that were identified in the 2012 report, CK-815 and CK-827, were found to be non-extant during current field survey. In total, CRA identified 148 historic resources within the current APE, including 44 previously recorded resources and 104 newly identified resources.

Identified in the 2012 report and still within the current APE, our office commented on the following 44 structures:

- CK-46, 464-466, 507-508, 785-787, 793-796, 798, 800-801, 803-808, 813-814, 818-822, and CK 825, as well as CKW-1101-1102, all residential structures, are Ineligible for the NRHP.

- CK-799, a stone wall, is Ineligible for the NRHP.

- CK-524, 790, 797, 802, 826, and CK-827, all outbuildings, are Ineligible for the NRP.

Presented in the current report in table format and imagery, our office reaffirms our original findings regarding these structures.

Of the 104 newly identified resources presented in the current revised addendum report, our office concurs with the following new eligibility recommendations:

- Due to inaccessibility, CK-875, 880, and CK-884-85 are left Undetermined.

- CKW-1146-1164, 1166-1188, 1190-1198, CK-789, 824, 844-874, 876-878, 881, and CK-887, all residential structures, are Ineligible for the NRHP.

- CKW-1165, a culvert, and CKW-1189, a school, are Ineligible for the NRHP.

- CKW-1199-1202, all commercial structures, are Ineligible for the NRHP.

- CK-842-43, 882-83, 886, and CK-1203, all outbuildings, are Ineligible for the NRHP.

Four resources, (CK-875, CK-880, CK-884, and CK-885), were all left Undetermined for the NRHP due to accessibility issues. For each resource, the proposed undertaking will be located outside of the property boundaries, ranging from 650-feet to 0.25 miles from the closest point. Each resource will be separated from the undertaking by existing topography and mature trees, factors that protect these resources from being adversely impacted by this undertaking. Therefore, our office is withholding comment on their NRHP eligibility, but not requesting additional information at this time.

RE: Revised Addendum Cultural Historic Survey Baseline Survey for the Proposed Winchester Southeast Bypass (KY-1958) in Winchester, Clark County, Kentucky
KYTC Item No. 7-8401

Both CK-467, the Burgher House, and CK-544, the J.W. Tuttle Farm, were recommended Eligible for the NRHP under Criterion C in 2012. In the current report, both structures and outbuildings are recommended Ineligible for the NRHP under Criterions A and B, but still Eligible for the NRHP under Criterion C. Our office reaffirms our original findings, that CK-467 and CK-544 are Eligible for the NRHP under Criterion C.

Furthermore, our office concurs with the recommended NRHP boundary for both sites, which are comprised of the residence and immediate domestic yard. And finally, our office concurs that, though the proposed bypass will be visible from both sites during and after construction, the proposed changes shall not introduce an adverse effect to CK-467, the Burgher House, and CK-544, the J.W. Tuttle Farm.

CK-509, Fairholme, was first surveyed in the late 1970s and recommended Eligible for the NRHP under Criterion C. Later survey in the 1990s for an earlier version of this undertaking also recommended the structure Eligible under Criterion C. Due to the loss of the 1990s survey form, it is unclear if SHPO concurred with this recommendation, however, due to the similarities in conditions at the time, it is fair to say that our office reaffirmed its initial finding. During the 2012 survey, this site was left undetermined due to access restrictions, and the current survey recommends this structure as Ineligible for the NRHP under Criterion C. Our office disputes this recommendation.

Imagery provided in the initial 1976 survey indicates the structure retains the majority of the characteristics it did fifty years ago. And while our office concurs there have been alterations, similar to CK-467, those alternations do not constitute such a change to make it Ineligible under C as an example of a rural Clark County Greek Revival home. Therefore, our office echoes the previous claims of 1976 and 1999, and maintains that CK-509 is Eligible for the NRHP under Criterion C.

In the current report, CRA recommends Fairholme as Eligible for the NRHP under Criterions A and B for its associations with Kentucky horse raising in Clark County and Richard Fairbairn. The proposed period of significance is 1925 to 1943, to account for Fairbairn's period of influence. Our office concurs that CK-509 is Eligible under Criterion B for its association with Richard Fairbairn, and agrees that, under Criterion B, the proposed period of significance is appropriate spanning 1925 to 1943.

However, our office disagrees on the Eligibility and period of significance under Criterion A. While we agree this structure is Eligible under Criterion A for its association with Clark County horse racing history, our office disagrees that this period only extends to 1943 and Fairbairn's influence. As made clear by CRA's in-depth research, after Fairholme was sold to M.A. Waldheim in 1950, the farm continued operating as a breeding stock farm, and was well known for breeding Keeneland and Derby winners as Bwamazon Farms. Therefore, our office asserts that the period of significance under Criterion A should extend from the period of Fairbairn's to Waldheim's influence, from 1923-1970, when the stud farming activities were moved to Pairs, KY.

RE: Revised Addendum Cultural Historic Survey Baseline Survey for the Proposed Winchester Southeast Bypass (KY-1958) in Winchester, Clark County, Kentucky
KYTC Item No. 7-8401

Regarding the auxiliary resources, our office asserts that the four resources associated with the residential parcel comprised of Resource A, the c.1950 gateposts, Resource B, the secondary residence that dates between 1950 and 1958, Resource C, the barn that dates between 1925 and 1949, and Resource D, the horse stable dating to the same period, are Eligible as contributing resources under Criterion A. Additionally our office asserts the three additional auxiliary resources on the farm parcel, Resource E, the c. 1965 garage, Resource F, the c. 1950-1958 tenant house, and Resource H, the livestock barn constructed between 1950 and 1958, are also Eligible as contributing resources under Criterion A. We recommend resource G, a non-historic outbuilding on the farm parcel constructed c. 2016, to be Ineligible as a contributing resource under all criterion.

Furthermore, our office disagrees with the proposed NRHP boundary for CK-509 and asserts it should encompass all auxiliary structures as noted recommended contributing above, as well as the domestic and farm setting.

As noted in the report, the proposed undertaking will bisect CK-509, and result in the loss of Resource H, the livestock barn recommended contributing under Criterion A. Therefore, our office cannot concur with the recommended finding of No Adverse Effect and recommends a finding of **Adverse Effect** for this undertaking. This is due to the loss of Resource H, as well as splitting the farm and residential parcels, disrupting the farming history, setting, landscape, and association of the site.

We look forward to receiving paper copies of the revised addendum report and survey forms, and further consultation regarding the mitigation of Adverse Effect. Should you have any questions, please contact Gabrielle Fernandez of my staff at Gabrielle.Fernandez@ky.gov.

Sincerely,

Craig A. Potts,
Executive Director and
State Historic Preservation Officer

CP: gf, KHC # 62528
cc. Jonna Mabelitini, DEA

ANDY BESHEAR
GOVERNOR

JACQUELINE COLEMAN
LT. GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL
THE STATE HISTORIC PRESERVATION OFFICE
410 HIGH STREET
FRANKFORT, KENTUCKY 40601
(502) 564-7005
www.heritage.ky.gov

MICHAEL E. BERRY
SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR &
STATE HISTORIC
PRESERVATION OFFICER

June 15, 2022

Mr. Daniel Peake, Director
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Re: *Phase I Cultural Resources Investigation Winchester East Bypass Extension (KY1958) from Irvine Road (KY89) to KY627, Clark County, Kentucky (KYTC Item No. 7-8401.00)* by Michael Loughlin and Duane Simpson, Cardno, Inc.
KYTC Item No. 7-8401.000

Dear Mr. Peake,

Thank you for the digital submission of the above-referenced archaeology report. Concurrent review between Carl Shields (KYTC) and Vanessa Hanvey (KHC) was completed with the result that the report was accepted without comment. The report details the findings of an archaeological survey covering approximately 156 acres of land. Methods included pedestrian survey and shovel testing. Eight archaeological sites (15Ck616, 15Ck617, 15Ck618, 15Ck619, 15Ck620, 15Ck621, 15Ck622, and 15Ck623) and eight isolated finds were identified during the survey. Attempts to relocate previously recorded sites 15Ck3 and 15Ck4 were unsuccessful. Both sites were originally documented in the 1930s.

Sites 15Ck616, 15Ck617, and 15Ck623 were each described as a low density subsurface lithic scatter of unknown temporal affiliation and were each recorded as a prehistoric open habitation without mounds. Documentation of each site was limited to the area of potential effect (APE), and these sites may extend to the north and south beyond the APE.

Sites 15Ck618 and 15Ck620 were each described as a low density subsurface lithic scatter of unknown temporal affiliation and were each recorded as a prehistoric open habitation without mounds. Documentation of each site was limited to the APE, and these sites may extend to the north beyond the APE.

Site 15Ck619 was described as a low density subsurface lithic scatter of unknown temporal affiliation and was recorded as a prehistoric open habitation without mounds. Documentation of the site was limited to the APE, and the site may extend to the south beyond the APE.

Re: *Phase I Cultural Resources Investigation Winchester East Bypass Extension (KY1958) from Irvine Road (KY89) to KY627, Clark County, Kentucky (KYTC Item No. 7-8401.00)* by Michael Loughlin and Duane Simpson, Cardno, Inc.
KYTC Item No. 7-8401.000

Site 15Ck621 was described as a small concentration of historic trash dating to the twentieth century. Documentation of the site was limited to the APE, and the site may extend to the east beyond the APE.

Site 15Ck622 was described as a small subsurface scatter of historic artifacts dating to the twentieth century and was recorded as a historic farm/residence.

A modern cemetery was noted within the APE. This cemetery does not constitute an archaeological site. According to an email from Carl Shields (KYTC) dated June 15, 2022, this cemetery will be moved in accordance with the Kentucky Transportation Cabinet's right-of-way process for cemetery relocations.

The report authors recommend no further archaeological investigations for this undertaking. Site 15Ck622, and the portions of Sites 15Ck616, 15Ck617, 15Ck618, 15Ck619, 15Ck620, 15Ck621, and 15Ck623 that fall within the APE, were recommended as not eligible for inclusion in the National Register of Historic Places. We agree with these recommendations. The KYTC requests concurrence with a finding of No Historic Properties Affected. We concur with a finding of *No Historic Properties Affected*.

Should you have any questions or concerns, please do not hesitate to contact Patti Hutchins of my staff via email at patricia.hutchins@ky.gov.

Sincerely,

Craig A. Potts,
Executive Director and
State Historic Preservation Officer

KHC # 65447
CP/peh

KENTUCKY TOURISM, ARTS & HERITAGE CABINET

EASTERN SHAWNEE
CULTURAL PRESERVATION DEPARTMENT
70500 East 128 Road, Wyandotte, OK 74370

November 9, 2021
FHWA-Kentucky Division
330 West Broadway
Frankfort, KY 40601

RE: *7-8401 Highway Project, Clark County, Kentucky, Clark County, Kentucky*

Dear Mr. Ballantyne,

The Eastern Shawnee Tribe has received your letter regarding the above referenced project(s) within Clark County, Kentucky. The Eastern Shawnee Tribe is committed to protecting sites important to Tribal Heritage, Culture and Religion. Furthermore, the Tribe is particularly concerned with historical sites that may contain but not limited to the burial(s) of human remains and associated funerary objects.

As described in your correspondence, and upon research of our database(s) and files, we find our people occupied these areas historically and/or prehistorically. However, the project proposes **NO Adverse Effect** or endangerment to known sites of interest to the Eastern Shawnee Tribe. Please continue project as planned. However, should this project inadvertently discover an archeological site or object(s) we request that you immediately contact the Eastern Shawnee Tribe, as well as the appropriate state agencies (within 24 hours). We also ask that all ground disturbing activity stop until the Tribe and State agencies are consulted. Please note that any future changes to this project will require additional consultation.

In accordance with the NHPA of 1966 (16 U.S.C. § 470-470w-6), federally funded, licensed, or permitted undertakings that are subject to the Section 106 review process must determine effects to significant historic properties. As clarified in Section 101(d)(6)(A-B), historic properties may have religious and/or cultural significance to Indian Tribes. Section 106 of NHPA requires Federal agencies to consider the effects of their actions on all significant historic properties (36 CFR Part 800) as does the National Environmental Policy Act of 1969 (43 U.S.C. § 4321-4347 and 40 CFR § 1501.7(a). This letter evidences NHPA and NEPA historic properties compliance pertaining to consultation with this Tribe regarding the referenced proposed projects.

Thank you, for contacting the Eastern Shawnee Tribe, we appreciate your cooperation. Should you have any further questions or comments please contact our Office.
Sincerely,

Paul Barton, Tribal Historic Preservation Officer (THPO)
Eastern Shawnee Tribe of Oklahoma
(918) 666-5151 Ext:1833

From: John.Ballantyne@dot.gov
Cc: John.Ballantyne@dot.gov
Subject: Tribal Consultation Request for 7-8401 Highway Project, Clark County, Kentucky
Date: Wednesday, September 29, 2021 7:59:05 PM
Attachments: 7-8401 Clark Archaeology.pdf

Hello:

The Federal Highway Administration (FHWA), in partnership with the Kentucky Transportation Cabinet (KYTC), invites you, as a federally recognized Indian Tribe, to consult on this federally funded bridge repair under the Bridging Kentucky Program. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties of significance to Indian tribes. We are requesting your assistance in identifying areas with potential cultural and/or religious significance to your tribe, which may be impacted by this Federal-aid highway project.

A Phase I archaeological survey for the Winchester East Bypass Extension (7-8401) in Clark County, Kentucky was conducted in accordance with accepted guidelines. The archaeological work documented six archaeological sites (15Ck616, 15Ck617, 15Ck618, 15Ck619, 15Ck620, and 15Ck623) which contained native American artifacts. Based on the lack of site integrity and a lack of potential for buried deposits, no additional work is recommended for these site. Enclosed is a digital copy of the archaeological report which is being coordinated with the KY SHPO.

There was no evidence of prehistoric human remains. Should evidence of prehistoric human remains be discovered, work will cease immediately pending notification of your tribe. All findings will be properly secured and protected.

We respectfully request your response to this invitation within 30 days of receipt. If we do not hear from you within this time period, we will conclude that you have not identified any significant issues to your tribe and consider our archaeological process and findings for this project adequate. If you need additional information, or would like an extension of the response time, please advise us via email, telephone, or in writing.

We look forward to working with you on this project. Please direct your comments and/or inquiries to John Ballantyne by email at John.Ballantyne@dot.gov or by phone at (502) 223-6747.

Thank you,

John Ballantyne

John Ballantyne, FHWA-KY
Planning, Environment, Systems Performance Team Leader
330 W. Broadway, Rm 264

USDOT Federal Highway Administration (FHWA)
Frankfort, KY 40601-1981
P:502 223 6747
C:502 320 2965
John.Ballantyne@dot.gov
http://www.fhwa.dot.gov/kydiv/index.htm