

CULLODEN INTERCHANGE PROJECT

Cabell and Putnam Counties, West Virginia

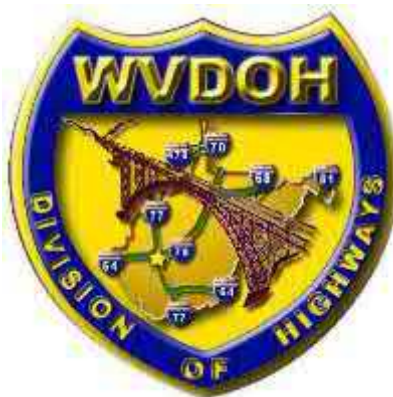
ENVIRONMENTAL ASSESSMENT

State Project Number: U306-64-31.65 00
Federal Project Number: NHPP-2317(001)D

Prepared for:
U.S. Department of Transportation
Federal Highway Administration



West Virginia Department of Transportation
Division of Highways



October 1, 2019

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ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to 42 USC 4332(2)(C)

U.S. Department of Transportation
Federal Highway Administration
West Virginia Division
and
West Virginia Department of Transportation
Division of Highways

10/15/19

Date of Approval

Jeremy Winston, P.E.

West Virginia Department of Transportation
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10/18/19

Date of Approval

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The proposed project consists of constructing a new interchange on I-64 near Culloden, including associated upgrades to Benedict Road, and providing a new connector road between Virginia Avenue and US 60.

Comments on this Environmental Assessment are due by January 9, 2020, and may be submitted via the WVDOH website at <http://go.wv.gov/dotcomment>, via email to: Sondra.L.Mullins@wv.gov or via regular mail to Mr. R.J. Scites, P.E., Director, Engineering Division, Division of Highways, West Virginia Department of Transportation, 1334 Smith Street, Charleston, WV 25301.

NOTICE

OF

INFORMATIONAL WORKSHOP PUBLIC MEETING
And Availability of the Approved Environmental Assessment

STATE PROJECT U306-64-31.65 00
FEDERAL PROJECT NHPP-2317(001)D

CULLODEN INTERCHANGE PROJECT
CABELL COUNTY

The West Virginia Division of Highways (WVDOH) will hold an informational public meeting on Monday, December 9, 2019 in the cafeteria at Culloden Elementary School, located at 2100 US Route 60, Culloden, Cabell County, West Virginia on the proposed Culloden Interchange Project. The project proposes to replace the bridges carrying eastbound and westbound I-64 over County Route 60/21 (Benedict Road), adding a diamond interchange at the location of these bridges (Milepost 32), upgrades to Route 60/21 to a three-lane connector road from the new diamond interchange to Virginia Avenue and alternative from Virginia Avenue to US Route 60. This meeting complies with the public involvement requirements of the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act.

NO FORMAL PRESENTATION WILL BE MADE. The scheduled public meeting is from 4:00 to 7:00 p.m. and the public will be afforded the opportunity to ask questions and give written comments on the project throughout the meeting. A handout with project details will be available at the meeting and on the WVDOH Website.

Those wishing to file written comments may send them to Mr. RJ Scites, P.E., Director, Engineering Division, West Virginia Division of Highways, 1334 Smith Street, Charleston, West Virginia 25301 on or before Thursday, January 9, 2020. Visit the WVDOH Website at <http://go.wv.gov/dotcomment> for project information and the opportunity to comment on the project.

The West Virginia Department of Transportation will, upon request, provide reasonable accommodations including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in our services, programs and activities. Please contact us at (304) 558-3931. Persons with hearing or speech impairments can reach all state agencies by calling (800) 982-8772 (voice to TDD) or (800) 982-8771 (TDD to voice), toll free.

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ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
APE	Area of Potential Effect
ASTM	American Society for Testing and Materials
BER	Business Environmental Risk
CAA	Clean Air Act of 1963
CDP	Census-Designated Place
CEQ	Council on Environmental Quality
CNE	Common Noise Environment
CO	carbon monoxide
CWA	Clean Water Act of 1972
dBA	A-weighted decibel
EA	Environmental Assessment
EDR	Environmental Data Resources
EJ	Environmental Justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPH	Ephemeral
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act of 1981
GIS	Geographic Information System
HMCP	Hazardous Materials Contingency Plan
HPI	Historic Property Inventory
HREC	Historic REC
IJR	Interchange Justification Report
LEP	Limited English Proficiency
LOS	Level of Service
LWCFA	Land and Water Conservation Fund Act
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NWI	National Wetlands Inventory
O ₃	ozone
Pb	lead
PEM	Palustrine emergent
PFO	Palustrine forested
PM _{2.5}	particulate matter 2.5 micrometers or less in diameter
PM ₁₀	particulate matter 10 micrometers or less in diameter

REC	Recognized Environmental Condition
RIC	Regional Intergovernmental Council
ROW	Right-of-Way
SO ₂	sulfur dioxide
STP	Shovel Test Pit
SWVM	Stream and Wetland Valuation Metric
TNM	Traffic Noise Model
TPH-GRO	Total Petroleum Hydrocarbons – Gasoline Range Organics
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
WUS	Waters of the U.S.
WVDEP	West Virginia Department of Environmental Protection
WVDOH	West Virginia Division of Highways
WVDOT	West Virginia Department of Transportation
WVSCI	West Virginia Stream Condition Index
WV SHPO	West Virginia State Historic Preservation Office

EXECUTIVE SUMMARY

ES.1 Project Description

The West Virginia Department of Transportation, Division of Highways (WVDOT), in cooperation with the Federal Highway Administration (FHWA) West Virginia Division, proposes to construct an interchange, modify Benedict Road and construct a connector road between Virginia Avenue and US 60 in Culloden in Cabell and Putnam Counties, West Virginia. The proposed project will address increased traffic and congestion on I-64 between Hurricane and Milton. The interchange will also provide an additional outlet for round-trip daily traffic moving from the community of Hurricane to Huntington.



Project Location

The proposed project will replace the bridges carrying eastbound and westbound I-64 over Benedict Road and introduce an interchange and associated modifications to Benedict Road. To help facilitate the safe and efficient movement of traffic from I-64 to local roads, a new connector road between Virginia Avenue and US 60 is also part of the overall project.

ES.2 Purpose and Need

The purpose of the project is to efficiently and effectively serve the transportation needs of through travelers and residents of the area. The need for the project is to reduce existing and forecasted traffic congestion and delays associated with the Hurricane Creek Road/I-64 interchange and provide additional access for round-trip daily traffic and freight truck movements from Hurricane to Huntington.

ES.3 Alternatives Considered

Because of the unique parameters associated with the study area, options for new location alternatives are limited and WVDOH identified only one feasible location for the I-64 interchange and modifications to Benedict Road. WVDOH considered two options to provide a new US 60 connector road.

ES.3.1 No-Build Alternative

Under the No-Build Alternative the proposed project would not be constructed; however, other improvements included in local, state, and regional plans will still proceed as planned.

ES.3.2 Build Alternatives

All Build Alternatives include the following project components, which are proposed without any options or variations:

- **I-64 Interchange:** The diamond interchange and bridge improvements were previously designed in the 1960s and were not modified as part of this project except for the I-64 ramp connection points as affected by the profile grade adjustment and modifications to Benedict Road. The right-of-way (ROW) for this part of the project is already owned by WVDOH.
- **Benedict Road Modifications:** Currently, Benedict Road is a two-lane roadway that connects to Virginia Avenue and provides direct access to 14 residential parcels. The proposed modifications would construct a new three-lane road from the new interchange to Virginia Avenue, including an additional turn lane at Virginia Avenue, and convert existing Benedict Road into a residential frontage road.

Alternative 1

Alternative 1 includes the diamond interchange, bridge improvements, and modifications to Benedict Road; the US 60 connector road under this alternative connects Virginia Avenue to US 60 by extending south across the railroad and meeting US 60 near Thompson Road. This alternative requires a major drainage structure to convey Indian Fork Creek under the proposed connector road. Alternative 1 is carried into detailed analysis in this Environmental Assessment (EA).

Alternative 2

Alternative 2 includes the diamond interchange, bridge improvements, and modifications to Benedict Road; the US 60 connector road under this alternative connects Virginia Avenue to US 60 by extending to the west in the vicinity of Whites Mobile Home Park and south to tie in to US 60 at the intersection of State Street and US 60. Benedict Road is extended further south to tie in to US 60 at the intersection of State Street and US 60. Alternative 2 is carried into detailed analysis in this EA. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative.

ES.2 Traffic Analysis

A traffic analysis conducted as part of the 2019 *I-64 Culloden Interchange at Benedict Road Interchange Justification Report (IJR)* shows the project improves operations at intersections in the study area, especially the unsignalized locations at I-64 ramp locations. The traffic analysis

supports the project purpose and need to efficiently and effectively serve the transportation needs of through travelers and residents of the area, reduce traffic congestion and delays associated with the Milton and Hurricane interchanges, provide additional access for daily traffic and freight movements between the existing Milton and Hurricane interchanges, and enhance accessibility to and from the Culloden area.

ES.5 Agency and Public Involvement

During the early project development process, WVDOH considered comments from agencies, public and project stakeholders and made refinements to the Build Alternatives to avoid and minimize impacts to both the human and natural environment.

On January 17, 2019, an informational public meeting was held at the Culloden Elementary School to answer questions and listen to ideas or concerns from the public about the proposed project and preparation of the EA. WVDOH provided the opportunity to provide written comments at the meeting and accepted additional comments until February 19, 2019. Comments were received from 32 individuals and organizations. The comments received included the Build Alternative preferred by the commenter, and concerns with ROW acquisition and displacements of residences and businesses, increased noise and traffic, potential loss of Teays West Soccer Field, project schedule and duration, access on/through private property during construction, impacts to air quality during construction activities, drainage issues, and safety of residents during construction activities.

WVDOH responses to the comments received are as follows:

Comment/Concern	No. of Comments*	WVDOH Response
Preference for Alternative 1 or 2	8	After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative.
ROW acquisition and displacements of residences and businesses	18	As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the <i>Uniform Relocation and Real Property Acquisition Policies Act</i> , Title VI of the <i>Civil Rights Act</i> , and applicable West Virginia laws.
Increased noise and traffic	11	WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments.
Loss of Teays West Soccer Field	2	As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If use of the soccer field is ultimately necessary, WVDOH will work with the Great Teays Soccer Club to minimize the amount of the field affected.

Comment/Concern	No. of Comments*	WVDOH Response
Access to Culloden Elementary School and Charleys Creek after project completion	1	The Culloden Elementary School and Charleys Creek Road are outside the study area for this project.
Project schedule and duration	2	The public will be informed as soon as the project schedule has been finalized.
Access on/through private property during construction	1	Construction operations will be scheduled to minimize traffic delays and access to residences and businesses will be maintained during construction although temporary disruptions may occur.
Impacts to air quality during construction activities	2	During construction, the use of heavy construction equipment will cause a short-term increase in dust and emissions. All construction equipment will be maintained, repaired, and adjusted to minimize pollutant emissions. Dust generated by construction activities will be minimized by the performance of the work in compliance with WVDOH specifications, manuals, and guidelines, and the requirements of the Clean Air Act.
Drainage issues	2	Appropriate erosion and sedimentation control measures will be considered as part of this project, such as and may include, but not be limited to: diverting stormwater originating off-site away from the construction area; implementing channel construction during low-flow months; using proper materials for temporary stream crossings and causeways; using temporary and permanent seeding and mulching; constructing temporary sedimentation ponds; using silt barrier fence and/or hay bales; and limiting the length of time and amount of unprotected soil that can be exposed. Rock construction entrances will also be implemented at all site entrances that exit onto paved roads.
Safety of residents during construction activities	1	Construction will be performed to comply with all applicable federal, state, and local laws regarding safety, health, and sanitation. All contractors are required to adhere to Occupational Safety and Health Administration guidelines to protect the lives and health of employees, the safety of the public, and the integrity of adjacent properties.

* Some commenters mentioned more than one concern, so the numbers in this column do not reflect the total number of commenters.

Appendix B contains the sign-in sheet from the January 17, 2019 public meeting, all comments received, and WVDOH responses to individual comments.

A public meeting will be held during the public comment period for the EA.

ES.6 Environmental Impacts

The table below presents a summary of the key impacts for the No Build Alternative and the Build Alternatives carried through the EA – Alternative 1 and Alternative 2.

Summary of Impacts

Resource/Element	No-Build Alternative	Alternative 1	Alternative 2
Cost	None	\$33.75 million	\$29.65 million.
Socioeconomics and Human Environment			
Economics and tax base	No impact	Potential beneficial impact due to improved accessibility/mobility to/from I-64 and surrounding areas	Potential beneficial impact due to improved accessibility/mobility to/from I-64 and surrounding areas
Community facilities/services	No impact	Potential beneficial impact due to improved emergency response times. Potential adverse impact due to loss of Great Teays Soccer Fields West.	Potential beneficial impact due to improved emergency response times. Potential adverse impact due to loss of Great Teays Soccer Fields West.
Community cohesion	No impact	Potential beneficial impact due to new access to I-64, improved roadway capacity and intersection Level of Service (LOS), and improvements to local roadways.	Potential beneficial impact due to new access to I-64, improved roadway capacity and intersection LOS, and improvements to local roadways.
Utilities	No impact	Potential relocation of existing utilities or installation of new utilities may cause temporary disruptions to local properties, services, and traffic.	Potential relocation of existing utilities or installation of new utilities may cause temporary disruptions to local properties, services, and traffic.
Transportation	Adverse impact from anticipated increases in traffic congestion.	Beneficial impact from anticipated decreases in traffic congestion.	Beneficial impact from anticipated decreases in traffic congestion.
Residential/business displacements	None	3 residential 0 business	11 residential 1 business
Environmental Justice populations	No impact	No impact	No impact
Natural Resources			
Land use and land cover	No impact	12.11 acres of forest 11.97 acres of grassland/ pastureland/agricultural land 3.38 acres of barren/developed land	12.19 acres of forest 10.61 acres grassland/ pastureland/agricultural land 3.58 acres of barren/developed land
Rare, threatened, and endangered species	No impact	No impact	No impact
Wetlands	No impact	1.42 acres	0.53 acres
Streams	No impact	750 linear feet	631 linear feet
National/State Scenic Rivers	No impact	No impact	No impact
Floodplains	No impact	No impact	No impact
Prime farmlands/farmlands of state/local importance	No impact	No impact	No impact
Geology	No impact	No impact	No impact
Groundwater	No impact	No impact	No impact

Resource/Element	No-Build Alternative	Alternative 1	Alternative 2
Physical Resources			
Air quality	No impact	Minor, temporary impacts in dust/emissions from construction equipment.	Minor, temporary impacts in dust/emissions from construction equipment.
Noise	No impact	Minor, temporary increases in noise during construction. Nine Common Noise Environments (CNEs) contained receptors with predicted future noise levels approaching or exceeding the Noise Abatement Criteria (NAC); noise abatement not feasible.	Minor, temporary increases in noise during construction. Nine CNEs contained receptors with predicted future noise levels approaching or exceeding the NAC; noise abatement not feasible.
Hazardous waste sites	No impact	Potential impact to 3 sites that have or potentially have identified environmental conditions.	Potential impact to 9 sites that have or potentially have identified environmental conditions.
Section 4(f) and 6(f) resources	Resource not present	Resource not present	Resource not present
Cultural Resources			
Architectural resources	Resource not present	Resource not present	Resource not present
Archaeological resources	Resource not present	Resource not present	Resource not present
National Historic Landmarks	Resource not present	Resource not present	Resource not present
Sites/districts eligible for the National Register of Historic Places (NRHP)	Resource not present	Resource not present	Resource not present

1.0 INTRODUCTION

The West Virginia Department of Transportation, Division of Highways (WVDOH), in cooperation with the Federal Highway Administration, West Virginia Division (FHWA), proposes to construct an interchange, modify Benedict Road, and construct a connector road between Virginia Avenue and US 60 in Culloden in Cabell and Putnam Counties, West Virginia (Figure 1), to address increased traffic and congestion on I-64 between Hurricane and Milton. The interchange would also provide an additional outlet for round-trip daily traffic moving between the communities of Hurricane and Huntington.

The WVDOH has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), and FHWA's Environmental Impact and Related Procedures (23 CFR 771).

This EA describes the existing conditions within the study area and the potential environmental impacts associated with the No-Build Alternative and two Build Alternatives, including the Preferred Alternative.

1.1 Project Description

An interchange on I-64 near Culloden was originally conceived in the 1960s when I-64 was designed and constructed, and right-of-way (ROW) was acquired for the future interchange. In the 1990s, the interchange idea was reinitiated as an additional access point for a proposed regional airport. The project began at that time with interchange ramp design and ROW acquisition but did not proceed to construction. The study was restarted due to growing concerns regarding increased traffic and congestion on I-64 between Hurricane and Milton, West Virginia.

With the proposed project, WVDOH is studying opportunities to replace the bridges carrying eastbound and westbound I-64 over Benedict Road (County Route 60/21) in Cabell County and introduce an interchange and associated modifications to Benedict Road near the location of these bridges (milepost 32). To help facilitate the safe and efficient movement of traffic from I-64 to local roads, a new connector road between Virginia Avenue (County Route 60/10) and US 60 (US 60 connector road) is also part of the overall project.

The proposed project is consistent with state, regional, and local plans. At the state level, the project is consistent with West Virginia Department of Transportation's (WVDOT's) *Statewide Transportation Improvement Program 2016-2017* (WVDOT 2016) and the *KYOVA Interstate Planning Commission 2040 Integrated Metropolitan Transportation Plan* (KYOVA 2017a). At the regional level, the project is consistent with the *Final Kanawha-Putnam 2045 Regional Transportation Plan* (RIC 2017a) and an addendum to that plan which specifically added the proposed project (RIC 2017b). At the local level, the project is consistent with the *Cabell County Land Use and Corridor Study* (KYOVA 2000) and the *Putnam County Community Plan: Bridging to the Future* (Putnam County 2014); and is expected to be consistent with the Cabell County comprehensive plan, that is under development.



Figure 1. Project Location

1.2 Purpose and Need

The purpose of the project is to efficiently and effectively serve the transportation needs of through travelers and residents of the area. The current project resulted from growing concerns regarding increased traffic and congestion on I-64 between Hurricane and Milton.

The need for the project is to reduce existing and forecasted traffic congestion and delays associated with the Hurricane Creek Road/I-64 interchange and provide additional access for round-trip daily traffic and freight truck movements from the Hurricane area to Huntington. Overall existing traffic Levels of Service (LOS) are good; however, the forecast future travel demand shows that several intersections and movements are anticipated to reach unacceptable levels of service and delay by 2040. This anticipated degradation in traffic operations supports the need for additional roadway capacity and/or access options.

2.0 ALTERNATIVES

An Alternatives Analysis was conducted for the project and is summarized below.

Because of the unique parameters associated with the study area, options for new location alternatives are limited and WVDOT identified only one feasible location for the I-64 interchange and modifications to Benedict Road. WVDOT considered two different configurations for a new US 60 connector road.

Early in the preliminary design phase, a roundabout concept was considered as an additional intersection improvement at the 5-legged intersection of US 60/Virginia Avenue/1st Street and Walton Road; the roundabout would have worked in conjunction with the diamond interchange. However, the roundabout results in increased travel delays and an unacceptable LOS and therefore was not studied further.

2.1 No-Build Alternative

The No-Build Alternative serves as the benchmark against which the Build Alternatives were evaluated. Under the No-Build Alternative the proposed project would not be constructed; however, other improvements included in local, state, and regional plans will still proceed as planned. These improvements are included in WVDOT's *Statewide Transportation Improvement Program 2016-2017* (WVDOT 2016); the KYOVA Interstate Planning Commission *2040 Integrated Metropolitan Transportation Plan* (KYOVA 2017a); the *Final Kanawha-Putnam 2045 Regional Transportation Plan* (RIC 2017a); the *Cabell County Land Use and Corridor Study* (KYOVA 2000); and the *Putnam County Community Plan* (Putnam County 2014).

Under the No-Build Alternative, the interchange and a new US 60 connector road would not be constructed and no modifications to Benedict Road would occur. This alternative does not meet the purpose and need and would result in increased traffic and congestion on I-64 between Hurricane and Milton. An additional outlet for round-trip daily traffic moving from the community of Hurricane to Huntington would not be provided. The No-Build Alternative was dismissed as a viable option but is carried forward in the EA as a basis of comparison for the comparison of other alternatives, as required by NEPA.

2.2 Build Alternatives

Both Build Alternatives include the following project components, which are proposed without any options or variations:

- **I-64 Interchange:** The diamond interchange and bridge improvements were previously designed in the 1960s and were not modified as part of this project except for the I-64 ramp connection points as affected by the profile grade adjustment, and modifications to Benedict Road.
- **Benedict Road Modifications:** Currently, Benedict Road is a two-lane roadway with a posted speed limit of 25 mile per hour. Benedict Road connects to Virginia Avenue and provides direct access to 14 residential parcels. The proposed modifications construct a new three-lane road from the new interchange to Virginia Avenue, including an additional turn lane at Virginia Avenue, and converts existing Benedict Road into a residential frontage road.

Each Build Alternative also includes a new US 60 connector road in different configurations.

2.2.1 Alternative 1

Alternative 1 includes the diamond interchange, bridge improvements, and modifications to Benedict Road as described in Section 2.2; the US 60 connector road connects Benedict Road to US 60 by extending south across the railroad and meeting US 60 near Thompson Road (Figure 3). Alternative 1 requires a major drainage structure to convey Indian Fork Creek under the proposed US 60 connector road.

Alternative 1 meets the purpose and need for the project and is retained for analysis in this EA.

2.2.2 Alternative 2

Alternative 2 includes the I-64 interchange and bridge improvements described in Section 2.2; the US 60 connector road connects Benedict Road to US 60 by extending to the west in the vicinity of Whites Mobile Home Park and south (Figure 4). Alternative 2 avoids crossing over the railroad and requires a major drainage structure to convey Indian Fork Creek under the proposed US 60 connector road.

Alternative 2 meets the purpose and need for the project and is retained for analysis in this EA.

2.3 Traffic Analysis

A traffic analysis was conducted as part of the *I-64 Culloden Interchange at Benedict Road Interchange Justification Report* (IJR; HNTB 2019), which was compiled in 2019 to satisfy the operational and safety analysis requirements of the 2017 FHWA *Policy on Access to the Interstate System*. Information from the IJR is summarized in this section.

2.3.1 Traffic Modeling

A prior 2015 study conducted by WVDOH (*Preliminary Traffic Analysis of a Potential New Interchange on Interstate 64 between Milton and Hurricane, West Virginia*) created a travel demand model for the Culloden Interchange that incorporated information from the Metropolitan Planning Organizations that cover Cabell and Putnam Counties – KYOVA Interstate Planning Commission and the Regional Intergovernmental Council. The model outputs from the 2015 study were used to estimate traffic patterns under different scenarios in the 2019 IJR and were applied to Existing Year (2018), Opening Year (2025), and Design Year (2045) traffic volumes.

2.3.2 Traffic Operations

For traffic operational analysis, Highway Capacity Software was used for freeway and interchange segments and Synchro was used for intersections. Existing and No-Build conditions were analyzed to compare as baselines for the Build scenario. The traffic operations were analyzed for one hour during the weekday AM and PM peak periods for the Existing Year, Opening Year, and Design Year. The peak hours for the study area were 7:15 AM to 8:15 AM and 4:45 PM to 5:45 PM. For the purposes of this EA, Existing Year (2018) and Design Year (2045) information is presented.

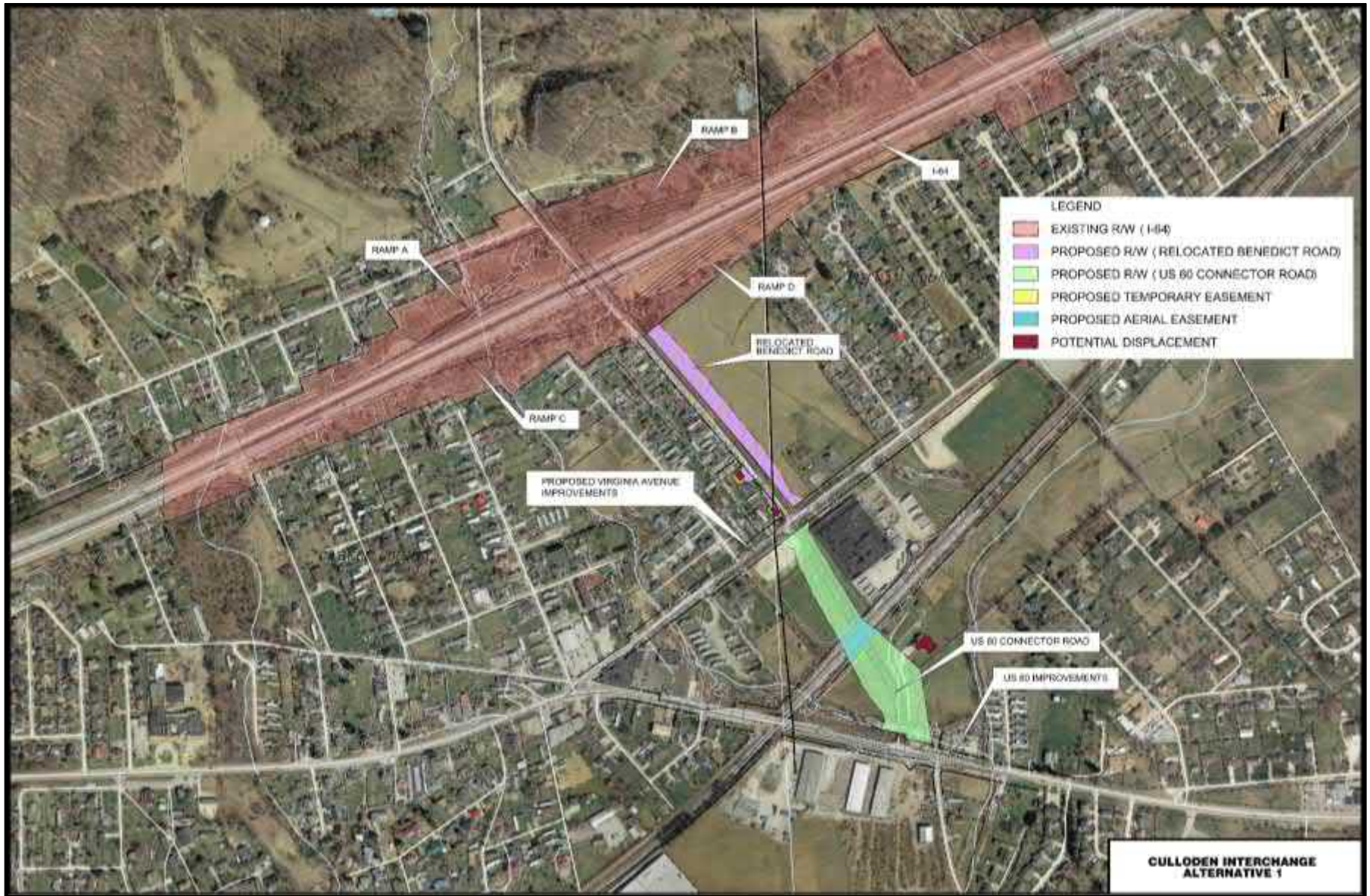


Figure 2. Alternative 1

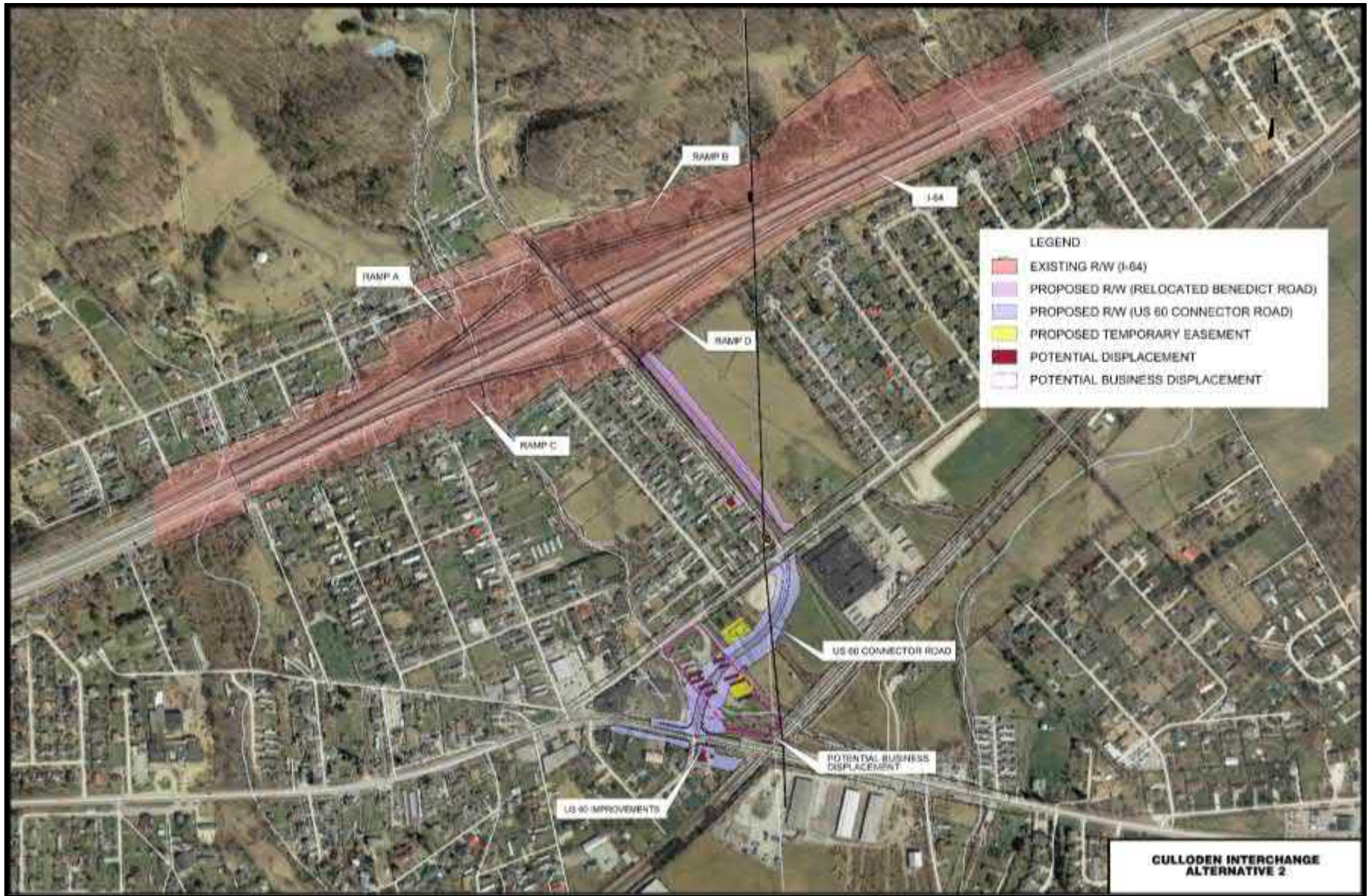


Figure 3. Alternative 2

It is assumed that the No-Build scenario maintains the same roadway geometry as existing conditions. The Build scenario encompasses both Alternative 1 and Alternative 2, described in Section 2.2, because the modifications to Benedict Road are included in both Build Alternatives and the alignment differences for the US 60 connector road are not specifically factored into the model.

The AM and PM peak intersection LOS values for signalized intersections and delay values for both signalized and unsignalized intersections in the vicinity of the study area are shown in Table 1 for the different analysis scenarios. It should be noted that the No-Build condition includes signal timing adjustments and improvements when compared to existing conditions. For the Build scenario, the intersections of the westbound and eastbound I-64 ramp termini at Benedict Road are included. Additionally, the Benedict Road/Virginia Avenue intersection is unsignalized under existing conditions but is proposed as signalized under the Build scenario.

Table 1. Intersection Level of Service

Intersection	Existing (2018)				No-Build (2045)				Build (2045)			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
John Morris Rd & Myers Branch Rd	0.2	-	0.0	-	0.2	-	0.0	-	0.1	-	0.0	-
John Morris Rd & I-64 WB Ramps	147.2	-	329.3	-	1,479.4	-	1,475.6	-	649.0	-	995.3	-
John Morris Rd & I-64 EB Ramps	2.7	-	29.8	-	4.0	-	162.4	-	2.7	-	91.9	-
John Morris Rd & Harbour Way	10.6	B	12.1	B	28.0	C	20.6	C	19.5	B	14.9	B
Benedict Rd & Park Avenue	2.0	-	2.2	-	2.0	-	2.2	-	2.0	-	2.2	-
Benedict Rd & I-64 WB Ramps	-	-	-	-	-	-	-	-	15.8	B	21.4	C
Benedict Rd & I-64 EB Ramps	-	-	-	-	-	-	-	-	4.9	A	10.9	B
Benedict Rd & Virginia Avenue	3.3	-	2.0	-	3.9	-	2.3	-	12.4	B	8.8	A
Hurricane Creek Rd & Grace Rd	8.4	A	13.4	B	9.0	A	13.7	B	9.0	A	14.2	B
Hurricane Creek Rd & I-64 WB Ramps	18.7	B	16.4	B	21.6	C	25.9	C	16.0	B	18.1	B
Hurricane Creek Rd & I-64 EB Ramps	22.6	C	13.1	B	21.1	C	17.3	B	20.6	B	19.7	B
Hurricane Creek Rd & Teays Valley Rd	73.2	E	159.3	F	87.0	F	123.1	F	42.7	D	73.7	E

As shown in Table 1, the Build scenario improves operations at intersections in the study area, especially the unsignalized locations at I-64 ramp locations.

- The three intersections with the highest delay values under all scenarios are:
 - John Morris Road and I-64 WB Ramps
 - John Morris Road and I-64 EB Ramps
 - Hurricane Creek Road and Teays Valley Road

- At John Morris Road and I-64 westbound ramps, the AM and PM peak hour delay decreased from 1,479 and 1,476 seconds/vehicle in the 2045 No-Build condition to approximately 650 and 995 seconds, respectively, in the 2045 Build condition.
- At John Morris Road and I-64 eastbound ramps, the PM peak hour delay decreased from 162 seconds/vehicle in the 2045 No-Build condition to approximately 92 seconds in the 2045 Build condition.
- At Hurricane Creek Road and Teays Valley Road, the AM and PM peak hour delay decreased from 87 and 123 seconds/vehicle in the 2045 No-Build condition to approximately 43 and 74 seconds in the 2045 Build condition AM and PM peak hours.

The Hurricane Creek Road and Teays Valley Road operates at LOS E and F in the AM and PM peak hours, respectively, under Existing Conditions; LOS F in both the AM and PM peak hours under the 2045 No-Build condition; and improves to LOS D and E in the AM and PM peak hours, respectively, under the 2045 Build condition.

The AM and PM peak freeway LOS values along eastbound and westbound I-64 in the vicinity of the study area are shown in Table 2 for the different analysis scenarios. Since the Build condition includes the new interchange between the existing Milton and Hurricane interchanges, the new ramps to and from Benedict Road result in additional merge and diverge segments. Similarly, the segments identified in the Existing and No-Build conditions between the Milton and Hurricane interchanges do not apply to the Build condition. As shown in Table 2, freeway LOS on I-64 is similar under the future No-Build and Build conditions and all segments operate at LOS D or better.

2.3.3 Traffic Analysis Summary

The traffic analysis supports the project purpose to efficiently and effectively serve the transportation needs of through travelers and residents of the area, as the proposed interchange does not have a significant adverse impact on the operations of I-64 or the local street network. The traffic analysis also supports the project need to reduce traffic congestion and delays associated with the Milton and Hurricane interchanges, provide additional access for daily traffic and freight movements between the existing Milton and Hurricane interchanges, and enhance accessibility to and from the Culloden area. Based on per-vehicle delay, the Build scenario improves operations at intersections in the study area, including significant improvements at the unsignalized intersections at I-64 ramp locations. Freeway operations on I-64 are similar under the future No-Build and Build conditions.

Table 2. Freeway Level of Service

Freeway Segment	Existing (2018)		No-Build (2045)		Build (2045)	
	AM Peak LOS	PM Peak LOS	AM Peak LOS	PM Peak LOS	AM Peak LOS	PM Peak LOS
I-64 Eastbound						
West of Milton Interchange	B	B	B	C	B	C
Diverge to Milton Interchange	B	B	B	C	B	C
Between Diverge and Merge at Milton Interchange	A	A	A	B	B	B
Merge from Milton Interchange	B	B	B	B	B	B
Between Milton Interchange and Hurricane Interchange	B	B	B	B	-	-
Between Milton and Benedict Interchanges	-	-	-	-	B	C
Diverge to Benedict Interchange	-	-	-	-	C	C
Between Diverge and Merge at Benedict Interchange	-	-	-	-	B	B
Merge from Benedict Interchange	-	-	-	-	C	C
Between Benedict and Hurricane Interchanges	-	-	-	-	C	C
Diverge to Hurricane Interchange	B	B	C	C	C	C
Between Diverge and Merge at Hurricane Interchange	A	A	B	B	B	B
Merge from Hurricane Interchange	B	B	C	C	C	C
East of Hurricane Interchange	C	B	C	B	D	C
I-64 Westbound						
East of Hurricane Interchange	B	C	B	D	C	D
Diverge to Hurricane Interchange	B	C	C	D	C	D
Between Diverge and Merge at Hurricane Interchange	A	B	B	B	B	C
Merge from Hurricane Interchange	B	B	B	C	B	C
Between Hurricane Interchange and Milton Interchange	B	B	B	C	-	-
Between Hurricane and Benedict Interchanges	-	-	-	-	B	C
Diverge to Benedict Interchange	-	-	-	-	C	D
Between Diverge and Merge at Benedict Interchange	-	-	-	-	B	C
Merge from Benedict Interchange	-	-	-	-	C	C
Between Benedict and Milton Interchanges	-	-	-	-	B	C
Diverge to Milton Interchange	B	C	B	C	C	C
Between Diverge and Merge at Milton Interchange	A	B	B	B	B	B
Merge from Milton Interchange	B	B	C	C	C	C
West of Milton Interchange	B	B	B	C	C	C

2.4 Agency and Public Involvement Activities

During the early project development process, WVDOH considered comments from agencies, public and project stakeholders and made refinements to the Build Alternatives to avoid and minimize impacts to both the human and natural environment.

Public involvement for the project includes an informational public meeting held prior to preparation of the EA and a public meeting to be held during the public comment period for the EA.

On December 17, 2018, WVDOH sent early scoping letters to federal, tribal, state, and local agencies, as well as West Virginia senators and delegates. Scoping letters and agency responses received to date are included in Appendix A.

On January 17, 2019, an informational public meeting was held at the Culloden Elementary School to answer questions and listen to ideas or concerns from the public about the proposed project and preparation of the EA. Project maps and other information were on display for the 163 meeting attendees to review. A handout was distributed at the meeting and posted to the WVDOH website both prior to and after the meeting. At the meeting, full-scale maps were exhibited with information on purpose and need, illustrations of the proposed project and the alternatives for the new connector road between Virginia Avenue and US 60 and potential environmental impacts. Attendees included residents, business owners, and elected officials. WVDOH provided the opportunity to provide written comments at the meeting and accepted additional comments until February 19, 2019. Comments were received from 32 individuals and organizations. Ten of the comments were in support of the interchange project; four were in opposition to the project, and 18 raised questions or concerns. The comments received included the Build Alternative preferred by the commenter, and concerns with ROW acquisition and displacements of residences and businesses, increased noise and traffic, potential loss of Teays West Soccer Field, project schedule and duration, access on/through private property during construction, impacts to air quality during construction activities, drainage issues, and safety of residents during construction activities.

WVDOH responses to the comments received are as follows:

Comment/Concern	No. of Comments*	WVDOH Response
Preference for Alternative 1 or 2	8	After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative.
ROW acquisition and displacements of residences and businesses	18	As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the <i>Uniform Relocation and Real Property Acquisition Policies Act</i> , Title VI of the <i>Civil Rights Act</i> , and applicable West Virginia laws.
Increased noise and traffic	11	WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments.
Loss of Teays West Soccer Field	2	As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If use of the soccer field is ultimately necessary, WVDOH will work with the Great Teays Soccer Club to minimize the amount of the field affected.
Access to Culloden Elementary School and	1	The Culloden Elementary School and Charleys Creek Road are outside the study area for this project.

Comment/Concern	No. of Comments*	WVDOH Response
Charleys Creek after project completion		
Project schedule and duration	2	The public will be informed as soon as the project schedule has been finalized.
Access on/through private property during construction	1	Construction operations will be scheduled to minimize traffic delays and access to residences and businesses will be maintained during construction although temporary disruptions may occur.
Impacts to air quality during construction activities	2	During construction, the use of heavy construction equipment will cause a short-term increase in dust and emissions. All construction equipment will be maintained, repaired, and adjusted to minimize pollutant emissions. Dust generated by construction activities will be minimized by the performance of the work in compliance with WVDOH specifications, manuals, and guidelines, and the requirements of the Clean Air Act.
Drainage issues	2	Appropriate erosion and sedimentation control measures will be considered as part of this project, such as and may include, but not be limited to: diverting stormwater originating off-site away from the construction area; implementing channel construction during low-flow months; using proper materials for temporary stream crossings and causeways; using temporary and permanent seeding and mulching; constructing temporary sedimentation ponds; using silt barrier fence and/or hay bales; and limiting the length of time and amount of unprotected soil that can be exposed. Rock construction entrances will also be implemented at all site entrances that exit onto paved roads.
Safety of residents during construction activities	1	Construction will be performed to comply with all applicable federal, state, and local laws regarding safety, health, and sanitation. All contractors are required to adhere to Occupational Safety and Health Administration guidelines to protect the lives and health of employees, the safety of the public, and the integrity of adjacent properties.

* Some commenters mentioned more than one concern, so the numbers in this column do not reflect the total number of commenters.

Appendix B contains the sign-in sheet from the January 17, 2019 public meeting, all comments received, and WVDOH responses to individual comments.

A public meeting will be held during the public comment period for the EA.

2.5 Cost Estimates

The total estimated cost for Alternative 1 for construction of the interchange, Benedict Road modifications, and a US 60 connector road is \$33.75 million.

The total estimated cost for Alternative 2 for construction of the interchange, Benedict Road modifications, and a US 60 connector road is \$29.65 million.

2.6 Summary of Impacts and Identification of a Preferred Alternative

This EA evaluated the No-Build Alternative and two Build Alternatives. The potential impacts from the No-Build and Build Alternatives are summarized in Table 3.

Table 3. Summary of Impacts

Resource/Element	No-Build Alternative	Alternative 1	Alternative 2
Cost	None	\$33.75 million	\$29.65 million.
Socioeconomics and Human Environment			
Economics and tax base	No impact	Potential beneficial impact due to improved accessibility/mobility to/from I-64 and surrounding areas	Potential beneficial impact due to improved accessibility/mobility to/from I-64 and surrounding areas
Community facilities/services	No impact	Potential beneficial impact due to improved emergency response times. Potential adverse impact due to loss of Great Teays Soccer Fields West.	Potential beneficial impact due to improved emergency response times. Potential adverse impact due to loss of Great Teays Soccer Fields West.
Community cohesion	No impact	Potential beneficial impact due to new access to I-64, improved roadway capacity and intersection Level of Service (LOS), and improvements to local roadways.	Potential beneficial impact due to new access to I-64, improved roadway capacity and intersection LOS, and improvements to local roadways.
Utilities	No impact	Potential relocation of existing utilities or installation of new utilities may cause temporary disruptions to local properties, services, and traffic.	Potential relocation of existing utilities or installation of new utilities may cause temporary disruptions to local properties, services, and traffic.
Transportation	Adverse impact from anticipated increases in traffic congestion.	Beneficial impact from anticipated decreases in traffic congestion.	Beneficial impact from anticipated decreases in traffic congestion.
Residential/Business displacements	None	3 residential 0 business	11 residential 1 business
Environmental Justice populations	No impact	No impact	No impact
Natural Resources			
Land use and land cover	No impact	12.11 acres of forest 11.97 acres of grassland/ pastureland/agricultural land 3.38 acres of barren/developed land	12.19 acres of forest 10.61 acres of grassland/ pastureland/agricultural land 3.58 acres of barren/developed land
Rare, threatened, and endangered species	No impact	No impact	No impact
Wetlands	No impact	1.42 acres	0.53 acres
Streams	No impact	750 linear feet	631 linear feet
National/State Scenic Rivers	No impact	No impact	No impact
Floodplains	No impact	No impact	No impact
Prime farmlands/farmlands of state/local importance	No impact	No impact	No impact
Geology	No impact	No impact	No impact

Resource/Element	No-Build Alternative	Alternative 1	Alternative 2
Groundwater	No impact	No impact	No impact
Physical Resources			
Air quality	No impact	Minor, temporary impacts in dust/emissions from construction equipment.	Minor, temporary impacts in dust/emissions from construction equipment.
Noise	No impact	Minor, temporary increases in noise during construction. Nine Common Noise Environments (CNEs) contained receptors with predicted future noise levels approaching or exceeding the Noise Abatement Criteria (NAC); noise abatement not feasible.	Minor, temporary increases in noise during construction. Nine CNEs contained receptors with predicted future noise levels approaching or exceeding the NAC; noise abatement not feasible.
Hazardous waste sites	No impact	Potential impact to 3 sites that have or potentially have identified environmental conditions.	Potential impact to 9 sites that have or potentially have identified environmental conditions.
Section 4(f) and 6(f) resources	Resource not present	Resource not present	Resource not present
Cultural Resources			
Architectural resources	Resource not present	Resource not present	Resource not present
Archaeological resources	Resource not present	Resource not present	Resource not present
National Historic Landmarks	Resource not present	Resource not present	Resource not present
Sites/districts eligible for the National Register of Historic Places (NRHP)	Resource not present	Resource not present	Resource not present

During the NEPA process, WVDOH reviewed the No-Build and the two Build Alternatives for impacts on the human, natural, and cultural environment, as well as the ability to meet the purpose and need for the project. The Build Alternatives have similar impacts to most resources; they differ primarily in the acreage of wetlands impacted, the number of residential and business displacements, and the number of hazardous waste sites affected. However, Alternative 2 avoids involvement with the railroad and the need to construct an overpass bridge, which would substantially increase overall project and lifecycle maintenance costs and construction schedule duration. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative.

3.0 AFFECTED ENVIRONMENT AND MITIGATION

NEPA requires Federal Agencies to evaluate potential social, economic and natural environmental impacts for all reasonable alternatives under consideration for a proposed project. This chapter provides a description of the current conditions in the study area, and a description of impacts that could be expected for the human and natural environment with the proposed project.

This chapter provides the basis for comparison of the No-Build Alternative and the Build Alternatives. The No-Build Alternative is carried into detailed study as a baseline for establishing the potential resource impacts for the build alternatives. Each section within this chapter identifies the probably impacts to the resources of the study area and proposed mitigation efforts and strategies to address the potential impacts to these resources, where appropriate.

Table 4 indicates whether specific resources or features exist within the study area and includes the methods used to identify them.

Table 4. Project Resources/Features

Resource/Element	Present within Study Area	Method of Identification
Socioeconomics and Human Environment		
Economics and tax base	Yes	Background research, review of project mapping, and consultation with local officials
Residences, businesses	Yes	Background research, review of project mapping, and consultation with local officials
Community facilities/services	Yes	Background research, review of project mapping, and consultation with local officials
Community cohesion	Yes	Field investigation, review of project mapping, and consultation with local officials
Utilities	Yes	Background research and review of project mapping
Environmental Justice populations	No	Background research and review of US census data
Natural Resources		
Land Use and Land Cover	Yes	Background research, review of 2011 Land Use/Land Cover data, and field investigation
Rare, threatened, and endangered species	Yes	Consultation with USFWS
Wetlands and Waters of the US	Yes	Review of NWI mapping, USGS topographic maps, U.S. Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS) soil survey, and floodplain maps; field delineation; and consultation with U.S. Corps of Engineers (USACE) and West Virginia Department of Environmental Protection (WVDEP)
Streams/water quality	Yes	Review of National Wetlands Inventory (NWI) mapping and U.S. Geological Survey (USGS) topographic maps, field delineation, agency consultation

Resource/Element	Present within Study Area	Method of Identification
Wild and Scenic Rivers	No	Review of National Wild and Scenic Rivers System and Nationwide Rivers Inventory
Floodplains	No	Review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs)
Prime farmlands and farmlands of state/local importance	Yes	Background research and review of USDA/NRCS soil survey
Geology	Yes	Review of USDA/NRCS soil survey
Groundwater	Yes	Review of USGS maps and West Virginia geological data sources
Physical Resources		
Sensitive air quality sites	Yes	Review of project mapping and other research
Sensitive noise receptors	Yes	Field investigation, including field testing and noise modeling
Hazardous waste sites	Yes	Field investigation, review of Environmental Data Resources (EDR) report, and other research
Section 4(f) and 6(f) resources	No	Review of project mapping, consultation with state and local officials
Cultural Resources		
Architectural resources	No	Background research, review of WV State Historic Preservation Office (SHPO) files, architectural field survey, and consultation with/concurrence from WV SHPO and Tribal Historic Preservation Officers (THPOs)
Archaeological resources	No	Background research, review of WV SHPO files, archaeological field survey, and consultation with/concurrence from WV SHPO and THPOs
National Historic Landmarks	No	Review of WV SHPO files and consultation with WV SHPO
NRHP-eligible sites/districts	No	Architectural field survey, archaeological field survey, review of WV SHPO files and consultation with WV SHPO

3.1 Socioeconomics

The study area is rural/suburban in nature, with a mixture of single-family residences, businesses, a few community facilities, and considerable open space. Residential development exists throughout the study area but at a relatively low to moderate density. The closest towns are Hurricane, about 2 miles to the east, and Milton, about 4 miles to the west. The Hurricane area is provided access to I-64 via the existing Hurricane Creek Road interchange and Milton has access to I-64 via the existing John Morris Road interchange. These existing interchanges are approximately 6.5 miles apart.

Socioeconomic conditions that may be affected by the proposed project include business or residential displacements, restricted or improved access to businesses or community facilities, adverse or positive effects on emergency services, and adverse or positive effects on neighborhood character or cohesion because of new land uses or adverse environmental impacts. Potential socioeconomic benefits from the proposed project include increased employment opportunities and improvements to public transportation.

3.1.1 Demographics

The study area includes a small portion of eastern Cabell and western Putnam Counties, the City of Hurricane, WV, and the census-designated place (CDP), Culloden, WV. A CDP is a census-designated concentration of population for statistical purposes and includes small rural/suburban communities and unincorporated communities. The study area captures data from five census tracts (Figure 5) and six census block groups (Figure 6). Data was obtained at both the county and census tract level, depending on the components being analyzed.

Data sources included the U.S. Census Bureau (USCB) 2000 census and American Community Survey (ACS) 2012 to 2016 data, Geographic Information System (GIS) mapping layers, and municipal property search databases. Population estimates for the study area are shown in Table 5.

Table 5. Population

Jurisdiction	Total Population	Estimated Population within the Study Area	Estimated Percent of County Population within the Study Area
Cabell County	96,623	686	0.7%
Putnam County	56,743	325	0.6%
Total	153,366	1011	0.7%

Source: USCB 2012-2016 ACS Five-Year Estimates

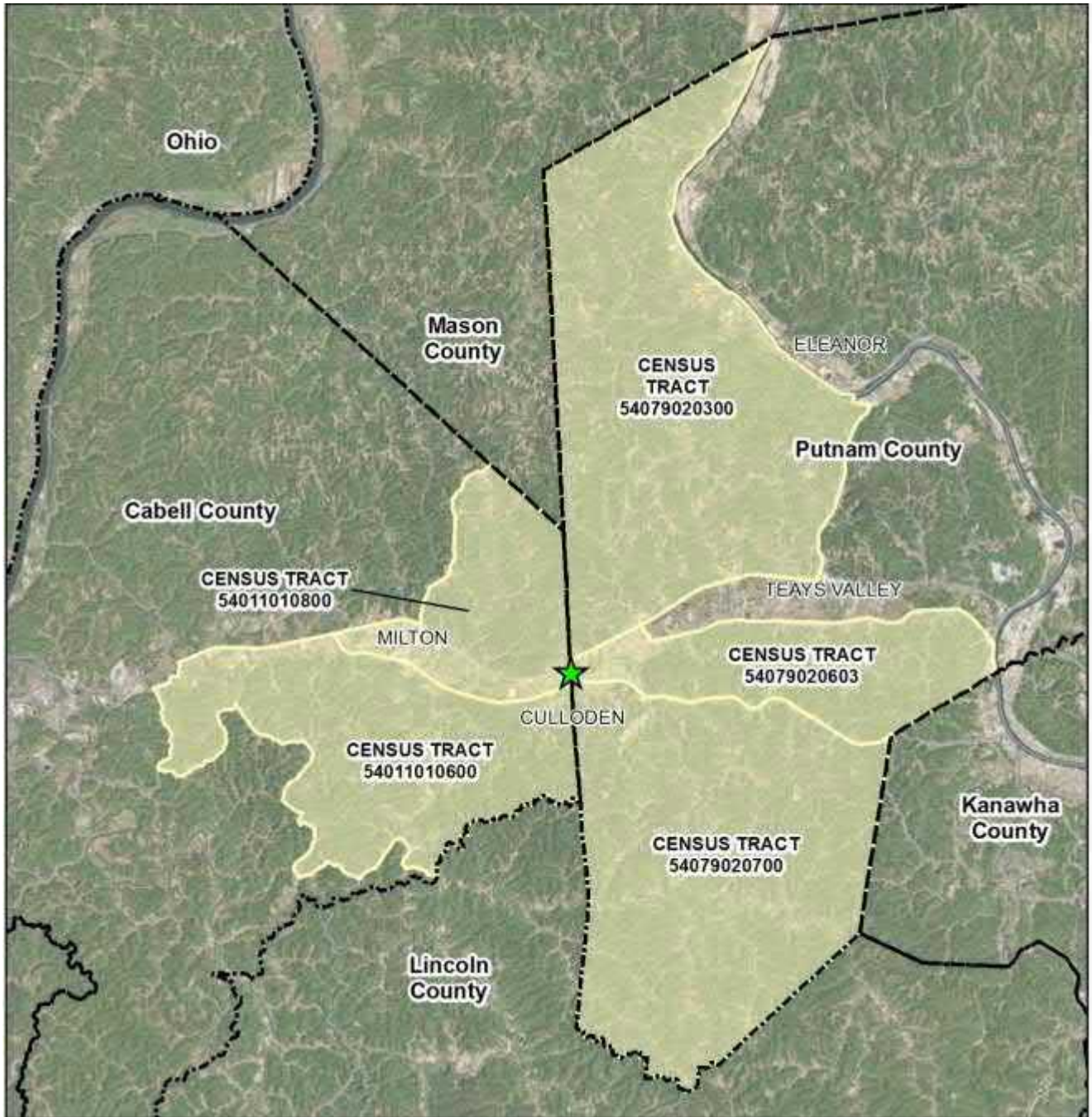


Figure 4. Census Tracts

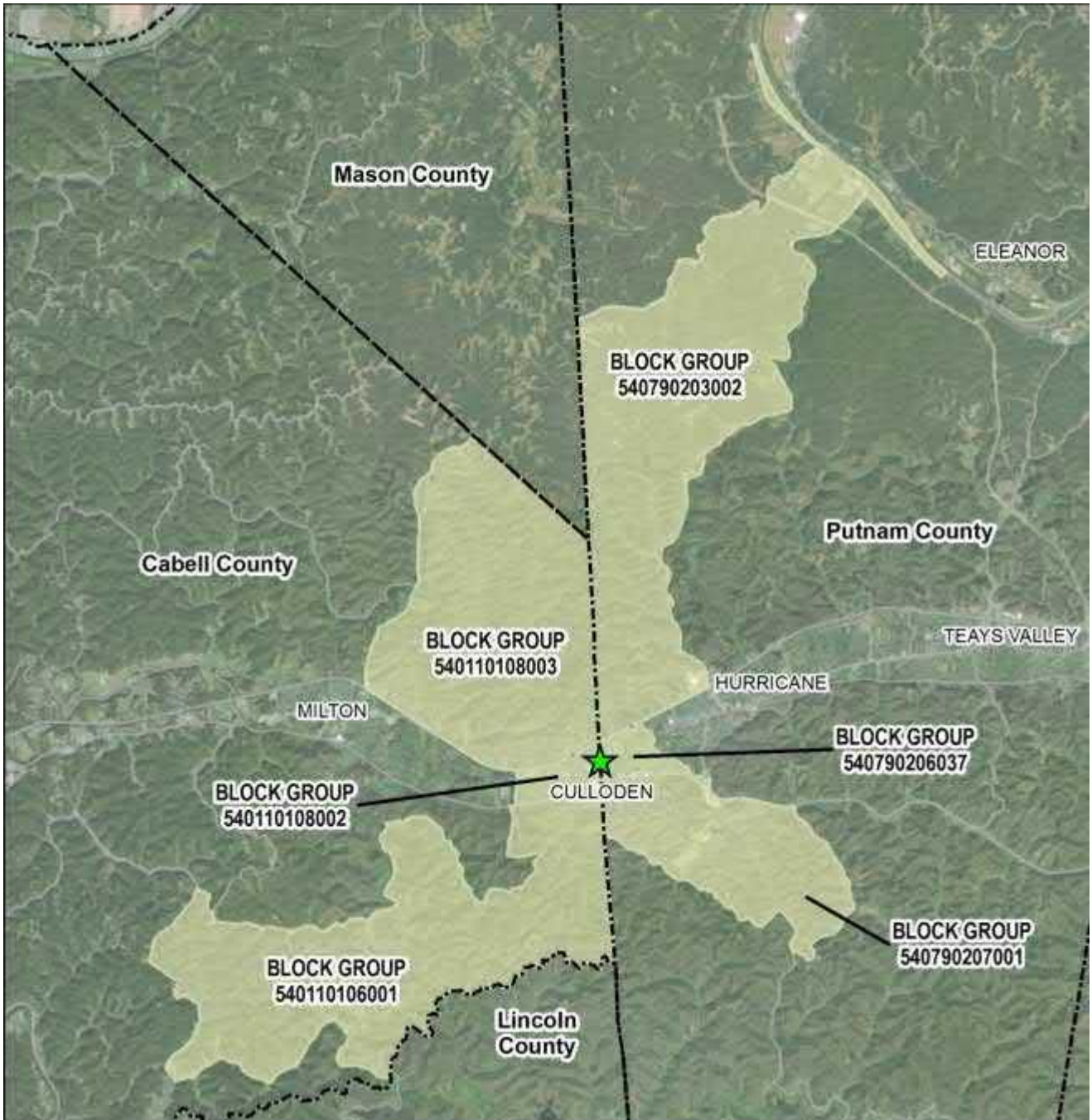


Figure 5. Census Block Groups

Age, educational attainment, occupation, income and home value data were also obtained from the 2016 ACS database. As shown in Table 6, the median age in the block groups is about 41 years old; approximately 40% have high school diplomas and 12% hold bachelor's degree. Predominant occupations are in management, business, science and arts with 39% of people working in this category. Across the block groups, the median income is about \$27,000, the unemployment rate is 4% and the median residence value is \$159,000.

Table 6. Demographics

Category	West Virginia	Cabell County	Putnam County	Census Tract 106	Census Tract 108	Census Tract 203	Census Tract 206.03	Census Tract 207
Age Data (%)								
Under 5	5.5	5.8	5.9	6.1	4.3	7.3	7.1	3.9
Over 64	17.8	17	16.6	18.5	19.1	15	17.3	14.7
Median age	41.9	38.3	41.4	42.6	41.8	40	39.1	43.6
Education Attainment Data (%)								
Less than high school graduate	14.7	13	8	15	9.3	5.5	9	8.5
High school graduate	40.5	31.9	38.3	42.3	37.8	36.2	38.2	47.5
Some college or associate degree	25.3	29	28.7	26.5	31.7	24.8	33	27.2
Bachelor's degree	11.9	14.1	14.7	10.2	13.1	19.5	11	8.1
Graduate or professional degree	7.7	12.1	10.3	6	8.1	14	8.8	8.7
Occupation Data (%)								
Management, business, science and arts	32.3	36.4	38.4	37	41	47	36.2	32.8
Service	19.3	19.5	13.6	22.4	16	6.8	15.9	17.5
Sales and office	23.9	28.2	28	27	24.5	28.2	27.6	26.1
Natural resources, construction, and maintenance	11.6	5.9	9.1	5	4.5	11.6	10.7	6.7
Production, transportation, and material moving	12.9	9.9	11	8.6	13.3	6.4	9.5	16.9
Unemployment rate	7.5	6.6	3.1	5.2	6.5	3.6	2.8	2.1
Median income	\$22,858	\$26,222	\$21,333	\$24,636	\$24,219	\$31,432	\$27,307	\$25,952
Median residence value	\$129,600	\$132,100	\$169,300	\$154,500	\$156,700	\$216,500	\$127,100	\$140,400

Source: USCB 2012-2016 ACS Five-Year Estimates

3.1.2 Economics and Tax Base

The economy of Culloden employs 1,520 people. The largest industries in Culloden are Health Care & Social Assistance (388 people), Retail Trade (282 people), and Educational Services (171 people), and the highest paying industries are Utilities (\$83,878), Wholesale Trade (\$67,150), and Transportation & Warehousing & Utilities (\$62,418).

Median household income in Culloden is \$63,276. Males have an average income that is 1.4 times higher than the average income of females, which is \$39,552. The income inequality in Culloden (measured using the Gini index) is 0.444, which is lower than the national average.

The local labor force within in the six block groups, according to the ACS data, is 3,753 employed persons of working age (persons aged 16 to 64 years old according to the US Department of Labor). The estimated number of persons not in the labor force is 2,774, with an additional 113 unemployed persons of working age (Table 7).

Table 7. Labor Force and Employment

Block Group	Total Block Group Working Age Population	Civilian Employment Totals	Civilian Unemployment Totals	Military Labor Force	Persons Not in Labor Force
540110106001	405	215	0	0	190
540110108002	1,565	1,011	31	0	523
540110108003	400	162	11	0	227
540790203002	1,344	672	28	0	644
540790206037	898	447	0	18	433
540790207001	1,915	1,107	43	8	757
Total	6,527	3,614	113	26	2,774

Source: USCB 2012-2016 ACS Five-Year Estimates

The proposed project could affect long-term planning and expansion opportunities for local businesses. For example, US Foods representatives have noted that the acquisition of the fields adjacent to their current distribution center will prohibit potential future expansion, which may have a negative effect on future employment and tax revenues.

While there may be some disruption to future expansion plans for US Foods, the introduction of the new interchange opens the possibility for future commercial and residential development, and the enhanced mobility of freight and services. US Foods and other freight-related businesses like the Hurricane Equipment Company could see potential benefits from the introduction of the I-64 interchange and associated improvements through enhanced accessibility and expected decreases in traffic congestion.

Enhancements to interstate routes such as the proposed project are typically accompanied by associated increases in local employment and tax revenue. While there are no current plans to introduce any new commercial or residential developments in the study area, new development opportunities would be in accordance with local master plans.

The proposed project is likely to benefit the local economy due to improved accessibility and mobility to and from I-64 and the surrounding areas. The construction phasing for this large-scale roadway project would be expected to introduce a sizable number of construction-related jobs. Local businesses may also realize a temporary benefit from the work force patronizing local establishments.

Some business activities may be disrupted by construction activities, including but not limited to access modifications, changes to parking and internal circulation, temporary traffic diversions, and road closures.

3.1.3 Community Facilities and Services

Community facilities and services within and near the study area include police (Cabell County Sheriff's Office, Milton Police, and Hurricane Police Department), fire and rescue (Culloden Volunteer Fire Department), health care facilities (Cabell Health Care Center and CAMC Teays Valley Hospital, MedExpress Urgent Care), schools (Culloden Elementary School, several private schools, and Hurricane Elementary, Middle, and High Schools), and local churches (First Missionary Baptist Church, Word of Light Community Church, Grace Life Church, One Life Church, and Culloden Christian Community Church).

US Foods owns the Great Teays Soccer Club fields (East and West) located on either side of the US Foods distribution center. These fields are used and maintained by the Great Teays Soccer Club, a local, recreational, non-profit, youth organization based in Scott Depot, WV through agreement and open to the community when available.

Under the No-Build Alternative, no effects to community facilities and services would occur. By providing improved access to I-64, US 60, and local roadways, Alternative 1 and Alternative 2 facilitate improved emergency response times. Both Build Alternatives include acquisition of a portion of the Great Teays Soccer Fields West, likely resulting in the partial or complete loss of this field for use by the Great Teays Soccer Club; Alternative 1 acquires 70,160 square feet of the soccer field and Alternative 2 acquires 42,000 square feet.

3.1.4 Community Cohesion

The new access to I-64, along with enhancements to local roadways improves mobility and associated community cohesion.

Roadway capacity and intersection levels of service are expected to improve, although there may be some temporary disruption to community cohesion during the construction process.

As the planning and design process continues and efforts are made to address, minimize, and mitigate potential effects, the study team will look to:

- Minimize and avoid impacts to residential and commercial properties, both temporary and permanent;
- Work directly with displaced property owners to discuss the property acquisition process, their rights, and opportunities for relocation;
- Improve community cohesion through accessible and safe transportation facility enhancements;
- Follow master planned options to improve employment opportunities and additional tax revenues through new commercial and residential development
- Minimize disruption to local businesses and residents during construction using a transportation management plan and traffic control plans appropriate in accordance with local, state, and federal requirements.

3.1.5 Utilities

The following utility companies provide services within the study area:

- AT&T Transmission (electric)
- LUMOS Networks (fiber optic)
- Mountaineer Gas (gas)
- Culloden PSD (sewer)
- Suddenlink Communications (telephone)
- American Electric Power (electric)
- Union Oil & Gas (oil and gas)
- West Virginia American Water (water)

As the proposed project continues through the project development process and reaches the construction phase, existing utilities will need to be protected and possibly relocated. Both Build Alternatives will likely require utilities in the study area to be relocated and/or new lines to be installed, resulting in temporary disruption to local properties, services, and traffic. New traffic control signals and roadway lighting will be needed to ensure safe and efficient traffic movements at intersections and along roadways. Alternative 1 also includes a proposed crossing of the CSX railroad tracks and may impact undocumented utilities associated with the railroad.

With the introduction of new impervious roadway surface, efforts to address stormwater and roadway runoff will likely be addressed through new inlets, pipes, roadside drainage ditches, and/or outfall structures. Stormwater management ponds or storage facilities may also be required. The details and locations of these design elements will be determined as the planning and design process continues. Temporary and/or perpetual property easements may be required for these facilities.

3.1.6 Transportation

The town of Culloden and adjacent Milton and Hurricane are almost completely dependent upon motor vehicles and trucks for transportation. Huntington and Charleston have train, bus, and transit services but there are no service stops in Culloden. A CSX railroad freight line runs through the study area, crossing under US 60 just southeast of the heart of Culloden. There are several at-grade side-street crossings of the railroad.

There are major trucking operations in the Hurricane, Milton, and Culloden areas. Two large freight truck operations in the study area – US Foods located on Virginia Avenue and Hurricane Equipment Company (a heavy industrial and construction equipment operation) located off of US 60 between Virginia Avenue and Main Street in Culloden. The current routing for these businesses follows a typical pattern of using the major roads to reach the interstate. Both mainly use the Hurricane Interchange at I-64 (Exit 34), which then requires travel west to Culloden on Virginia Avenue, then east on US 60 to WV 34 to reach Hurricane.

Both US Foods and the Hurricane Equipment Company will potentially experience increased connectivity from the proposed project, especially in the area near Benedict Road, due to the project's centralized location to the two businesses and Virginia Avenue.

Potential adverse temporary traffic-related effects during construction will be minimized through the implementation of a Transportation Management Plan. To minimize construction stage impacts on roadways, flaggers will be used where appropriate to ensure safe and proper entry/exit from active construction sites. In the event any temporary road closures were needed,

such closures are typically future during off-peak traffic hours and utilize approved traffic control plans.

The anticipated improvements to roadway capacity and intersection levels of service should reduce traffic congestion and congestion-related accidents for motorists while also enhancing accessibility for the movement of freight and services to and from the Culloden area.

3.1.7 Residential/Business Impacts and Displacements

The proposed project will require permanent or temporary ROW acquisitions/easements from residences and businesses, including displacements. Displacement involves the relocation or demolition of the principal structure on a property and/or acquisition of 50% or more of the property. Agricultural and municipal properties will also be affected by the proposed project. Other impacts from the proposed project include changes, temporary and/or permanent, to existing driveways, sidewalks, frontage, property circulation, and/or parking. Property acquisitions and displacements associated with the Build Alternatives are shown in Table 8.

Alternative 1 affects seven residential properties/dwellings, three of which will be displaced, and requires new temporary easements from two residential properties. Alternative 2 impacts 14 residential properties/dwellings, 11 of which will be displaced. Of the 11 displacements, eight are mobile homes. Alternative 2 also requires new temporary easements from four residential properties.

Alternative 1 affects one business, US Foods, and no businesses will be displaced. Alternative 2 potentially impacts four businesses: US Foods, Adkins Service Center, Whites Trailer Park, and an apartment building on US 60. Of these, Whites Trailer Park will be displaced.

Both Build Alternatives require some ROW acquisition from two agricultural properties. Alternative 2 also requires ROW acquisition from two utility properties owned by Culloden Public Service Distribution.

Table 8. Property Impacts and Displacements

Property Type	Property Displacements		Total ROW to be Acquired (ft ²)		Properties Affected by Temporary Easements		Total ROW for Temporary Easements (ft ²)	
	Alt 1	Alt 2	Alt 1	Alt 2	Alt 1	Alt 2	Alt 1	Alt 2
Residential	3	11	161,300	138,300	2	4	3,000	13,500
Business	0	1	70,300	120,200	0	1	0	9,600
Agricultural/ Municipal	0	0	85,000	97,000*	0	0	0	0

ft² = square feet

* ROW owned by WVDOH is not included in this number.

Some business activities may be disrupted by construction activities, including but not limited to access modifications, changes to parking and internal circulation, and temporary traffic diversions and road closures. Project officials will work with business owners to minimize and mitigate for these disruptions.

WVDOH will contact property owners who may be subject to displacement, a new easement, or ROW acquisition to review and discuss the property acquisition and transfer process. As the project development process continues up to and through construction, efforts will be made to

minimize and avoid property impacts; however, some impacts associated with the proposed project may be inevitable. Property owners will be made aware of their rights as part of this process in accordance with local, state, and federal regulations. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the *Uniform Relocation and Real Property Acquisition Policies Act*, Title VI of the *Civil Rights Act*, and applicable West Virginia laws.

3.2 Environmental Justice

An Environmental Justice (EJ) Analysis was prepared for the project and is summarized below.

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations* dated February 11, 1994, directs federal agencies to define and address any disproportionately high or adverse human health or environmental effects of their actions on minority and low-income populations to the greatest extent practicable. The U.S. Department of Transportation (USDOT) issued Departmental Order 5610.2(a), *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which describes steps to prevent disproportionately high and adverse effects to minority or low-income populations from federal transportation projects. In 2016, USDOT issued an EJ strategy to ensure opportunities for minority and low-income communities to influence the transportation planning and decision-making processes through enhanced engagement and meaningful input. EO 13166, *Improving Access to Services for Persons with Limited English Proficiency (LEP)*, identified language barriers as an EJ-related consideration and directs federal agencies to examine their services, identify where needs exist for persons with LEP, and implement solutions for meaningful access to those populations.

FHWA has adopted the following three guiding principles for the evaluation of environmental justice:

- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;
- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority or low-income populations; and
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority or low-income populations.

This analysis used thresholds for identifying EJ areas based on CEQ's *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ 1997b). The term "non-EJ area" does not imply the absence of minority or low-income persons living in the study area; rather, a non-EJ area is an area where there is no potential for disproportionate impacts on minority or low-income populations. An EJ area includes any census block group in which the minority or low-income population meets either of the following thresholds:

- The minority or low-income population in the census block group exceeds 50 percent; or
- The percentage of a minority or low-income population in the affected area is "meaningfully greater" than the percentage of minority or low-income population in the general population.

This analysis defined "meaningfully greater" as a census block group in which the percentage of minority or low-income residents was at least 10 percentage points or more than the corresponding percentage in the surrounding jurisdictions (Cabell County or Putnam County, as appropriate) within the study area.

For the purposes of this analysis, the study area is defined as the areas spanning the census tracts and block groups within Cabell and Putnam Counties, all within the state of West Virginia. To evaluate the proportionality of impacts and benefits, this analysis identified “EJ areas” and “non-EJ areas” within the study area. As shown in Figure 7, the EJ study area spans a one-half mile radius from the center of the project’s proposed limits of disturbance.

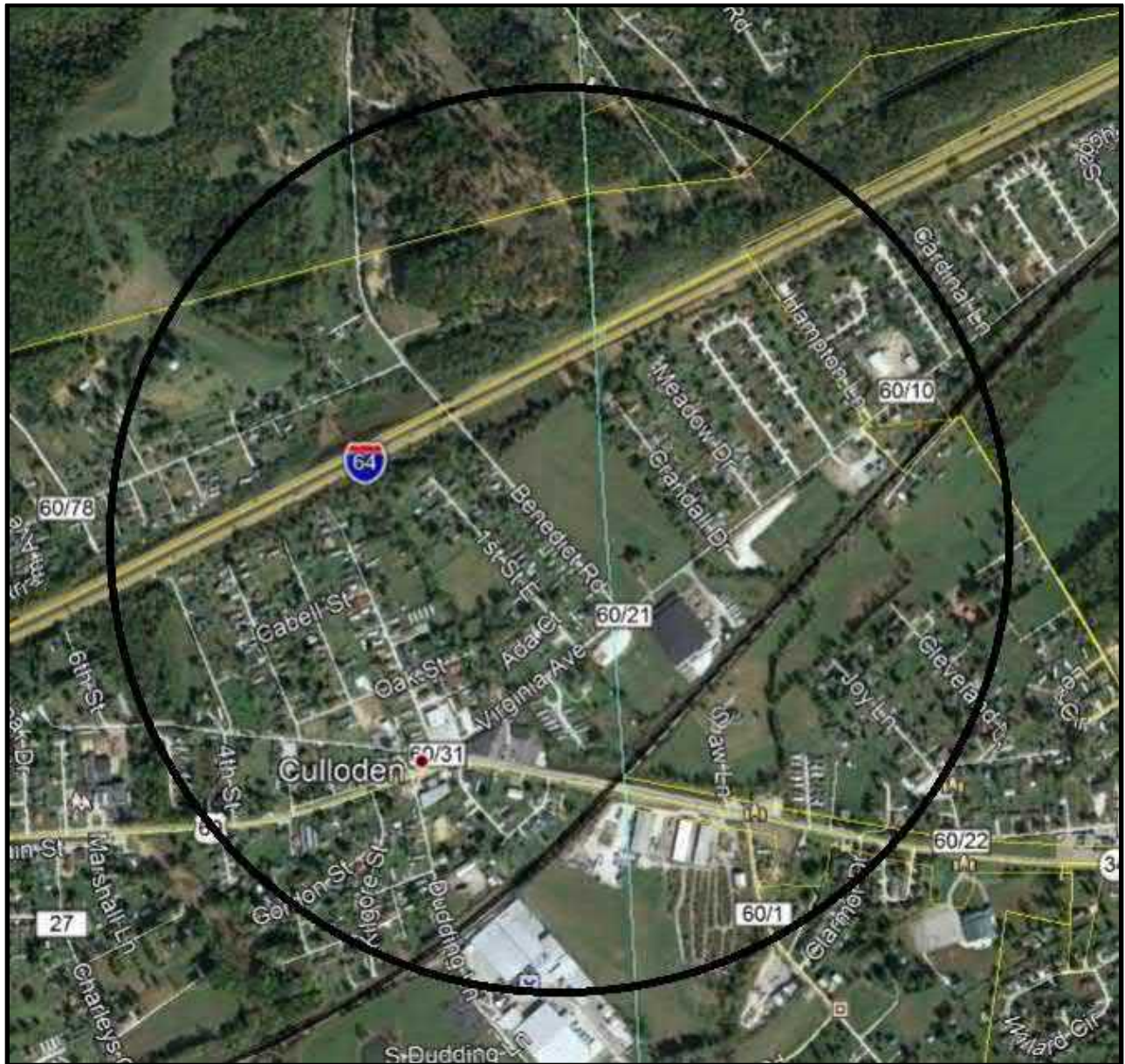


Figure 6. EJ Study Area

In 2010, USCB did not collect income data, so WVDOH used the 2012-2016 ACS Five-Year Estimates (which are based on 2014 census boundaries) to determine the presence of low-income populations, minority populations, and LEP populations. The block group level is the smallest available census data level included in the ACS Five-Year Estimates and is the most current income data level available. A block group is a sub-division of a census tract, and one of the smallest geographic areas for which the USCB tabulates population data. Data reported at the block group level was used to analyze both minority and low-income populations to provide a comparative data set. Census tract data was used to identify potential clusters of LEP households, as LEP data was not available at the block group level. Figure 8 illustrates information contained within the census block groups for the total population and EJ community elements (i.e., LEP, low-income, and minority groups). Figure 9 depicts census block group information for the total population and EJ community elements within the EJ study area.

To analyze EJ potential within the study area the minority and low-income populations within the study area were estimated based on the available block group data. To estimate these populations the analysis assumes that the block group populations are equally distributed across the landscape. In its *Geographic Areas Reference Manual*, USCB notes that the larger census tracts (comprised of aggregated block groups) used to collect the full range of detailed demographic information were first created to be as homogenous as possible (USCB 1994).

To generate the EJ study area population estimate, the fractional geographic area of each of the six block groups located within the EJ study area were calculated as a percentage of the overall block group areas. This percentage of each block group was then multiplied by the block group population figure to apportion the population within each block group. Finally, the six calculated block group population values were summed to obtain the overall population within the EJ study area.

As shown in Table 9, in West Virginia minorities comprised 17.7 percent of the state’s population and 6.1 percent of the state’s population lived below the poverty level. In Cabell County, minorities comprised 9.8 percent of the county’s population and 4.0 percent of the county’s population lived below the poverty level. In Putnam County, minorities comprised 4.5 percent of the county’s population and 2.6 percent of the county’s population lived below the poverty line.

Table 9. Environmental Justice Demographics

Parameter	Cabell County	Putnam County	West Virginia
Total population	96,623	56,743	1,792,808
Total minority population*	9,469	2,553	109,808
Percentage minority population	9.8%	4.5%	6.1%
Persons living below poverty level	3,865	1,475	318,060
Percentage of persons living below poverty level	4.0%	2.6%	17.7%

* Includes Black Not of Hispanic Origin, Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, Other Race, and Two or More Races. Source: USCB 2012-2016 ACS Five-Year Estimates

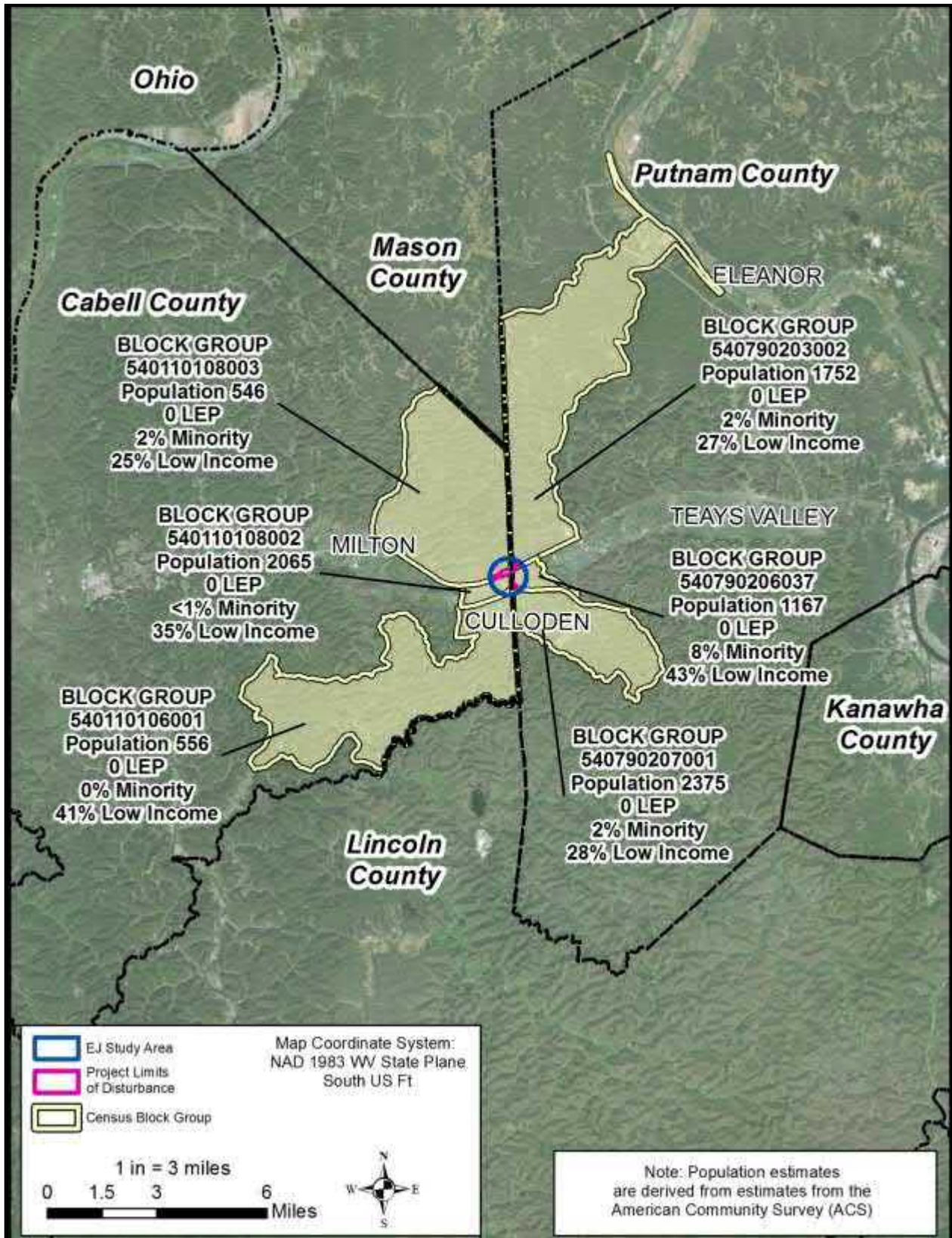


Figure 7. EJ Demographics Block Group Overview

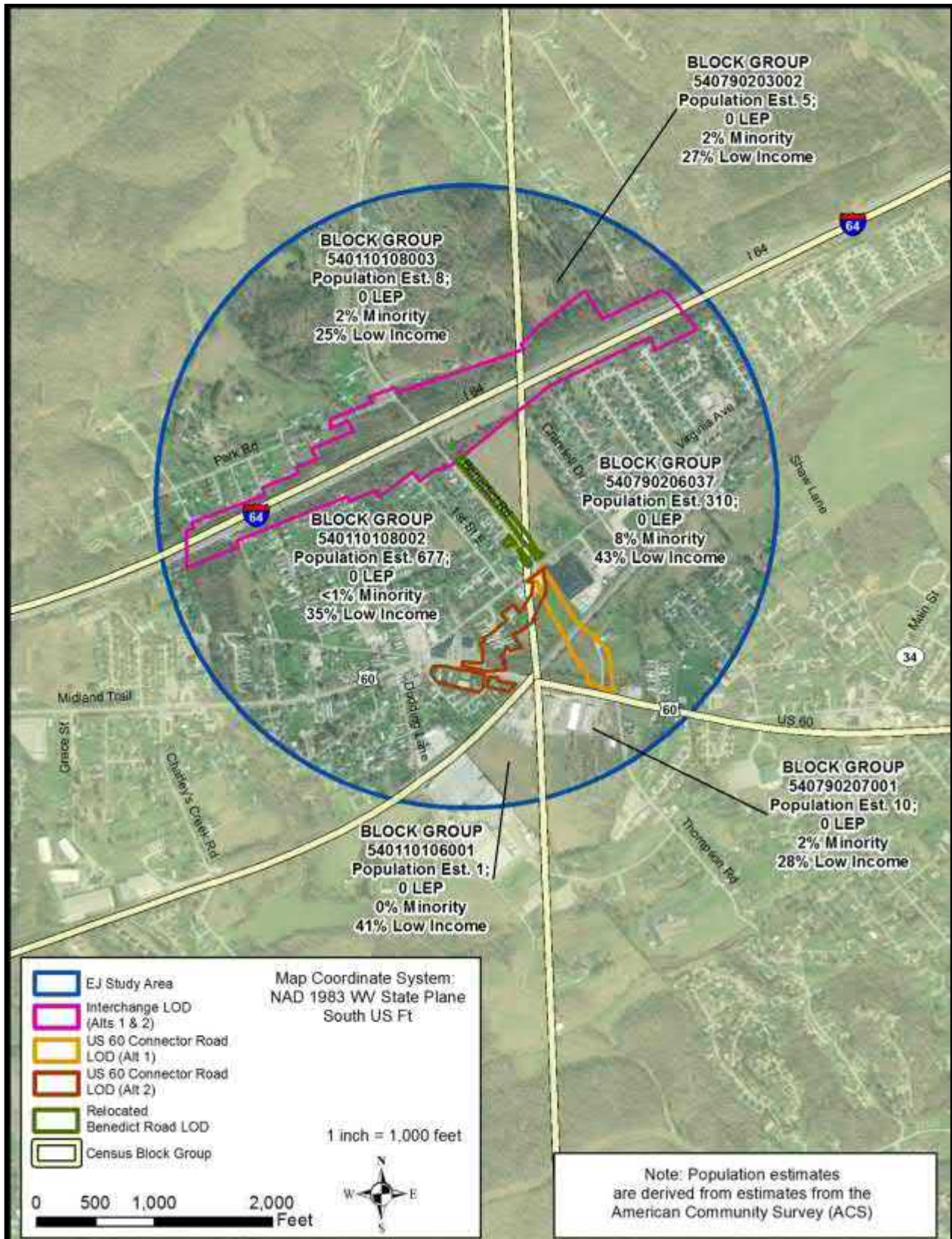


Figure 8. EJ Study Area Demographics Overview

The total population in the block groups contained within the EJ study area is 8,461 persons, with 210 of these persons (2.5 percent of the total) identifying themselves as minorities and 2,894 persons (34.2 percent of the total) below the poverty level. No households located within any of census tracts of interest contain LEP households.

The percentage of minority persons ranged from 0 percent to 8 percent within the study area block groups. The percentage of low-income persons ranged from 25 percent to 43 percent within the study area block groups.

Table 10 presents a summary of population data including the percentages for minority and low-income persons within the study area block groups.

Table 10. EJ Populations within Block Groups

Block Group	Total Population	Total Minority Population*	Percentage Minority Population	Persons Below Poverty Level	Percentage of Persons Below Poverty Level
540110106001	556	0	0%	228	41%
540110108002	2,065	11	0.05%	725	35%
540110108003	546	12	2.2%	138	25%
540790203002	1,752	38	2.2%	636	36%
540790206037	1,167	93	8.0%	498	43%
540790207001	2,375	56	2.4%	669	28%
Block Group Totals	8,461	210	2.5%	2,894	34.2%
Cabell County Totals	3,167	23	0.7%	1,091	34.4%
Putnam County Totals	5,294	187	3.5%	1,803	34.1%

* Includes Black Not of Hispanic Origin, Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, Other Race, and Two or More Races. Source: USCB 2012-2016 ACS Five-Year Estimates

As shown in Table 11, within the EJ study area the percentage of minority persons calculated in the EJ study area (2.9 percent) is higher than the study area block groups of Cabell County (0.7 percent), but lower than the study area block groups of Putnam County (3.5 percent). The block groups in the EJ study area contained a percentage of low-income persons (37.3 percent) which is slightly higher than the study area block groups of Cabell County (34.4 percent) and Putnam County (34.1 percent).

Table 11. Summary of EJ Populations within Block Groups

Parameter	EJ Study Area	Cabell County	Putnam County
Total population	1,011	3,167	5,294
Total minority population*	29	23	187
Percentage minority population	2.9%	0.7%	3.5%
Persons living below poverty level	377	1,091	1,803
Percentage of persons living below poverty level	37.3%	34.4%	34.1%

* Includes Black Not of Hispanic Origin, Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, Other Race, and Two or More Races. Source: USCB 2012-2016 ACS Five-Year Estimates

While the EJ study area has slightly higher percentages of minorities and persons living below the poverty level compared to the study area block groups, they are less than 50 percent of the overall population and are not meaningfully greater (not more than 10 percentage points higher) than the surrounding counties. Therefore, the EJ study area population concentrations for minority or low-income persons are considered non-EJ (see Table 12).

Table 12. Summary of EJ Determination within the EJ Study Area

Jurisdiction	Total Number of Block Groups within EJ Study Area	Minority Only EJ Populations	Low-Income Only EJ Populations	Both Minority & Low-Income EJ Populations
Cabell County	3	0	0	0
Putnam County	3	0	0	0
Total	6	0	0	0

Source: USCB 2012-2016 ACS Five-Year Estimates

Of the 6 block groups in the EJ study area, no block groups contain minority populations of 50 percent or more and no block groups contained low-income populations of 50 percent or more. The analysis also identified no block groups in the EJ study area as minority or low-income areas using the “meaningfully greater” threshold criteria for the presence of a minority population or a low-income population. No census tracts that intersect the EJ study area meet the threshold for LEP households greater than 50 percent or meaningfully greater than the percentage of LEP households in the general population. Therefore, the EJ study area is considered to be a non-EJ area.

Under the No-Build Alternative, the proposed project would not be constructed and there are no impacts on any populations, including EJ populations and LEP households. Based on the traffic analysis completed for this project, traffic congestion on existing I-64 interchange ramps at the Hurricane Creek Road and John Morris Road interchanges and surrounding local roads (US 60, Virginia Avenue, WV 34, etc.) is not reduced and additional access for round-trip daily traffic is not provided.

Both Build Alternatives benefit all populations in the area, including minority and low-income populations by reducing traffic congestion on existing I-64 interchange ramps and surrounding

local roads and providing additional access for round-trip daily traffic and freight truck movements from Hurricane to Huntington. No minority or low-income populations or LEP households have been identified that would be adversely impacted by the proposed project. Therefore, the Build Alternatives do not have a disproportionately high or adverse effect on EJ populations or LEP households.

3.3 Natural Resources

3.3.1 Land Use and Land Cover

Land cover within the study area was calculated using the 2011 Land Use/Land Cover for the state of West Virginia, which describes land cover in the study area as forested, grassland/pastureland/agricultural land, and barren/developed land (WVGISTC 2011). Much of the study area contains manicured lawns, shrubs, and trees within and around residential and commercial/industrial developments. Most of the natural land cover in the study area occurs along both sides of I-64 and includes areas of pioneer vegetation growth along the roadside, upland forested areas, and forested and emergent wetlands. An active hay field is located adjacent to and east of Benedict Road between I-64 and Virginia Avenue.

No impacts to land cover will occur with the No-Build Alternative as no construction occurs. Impacts to land use and land cover from the Build Alternatives are primarily associated with construction of the interchange ramps (Table 13).

Table 13. Land Use and Land Cover Impacts

Land Use/Land Cover Type	No-Build Alternative	Alternative 1	Alternative 2
Forest	0	12.11 acres	12.19 acres
Grasslands/Pastureland/Agricultural Land	0	11.97 acres	10.61 acres
Barren/Developed	0	3.38 acres	3.58 acres

Mitigation for impacts to land cover will include the placement of temporary protective fence around sensitive areas to protect these areas during construction. An approved Erosion and Sedimentation Control Plan will be implemented to minimize impacts to the water quality and habitat of the study area streams. All disturbed areas will be revegetated (utilizing a native seed mixture) and landscaped upon completion of construction.

3.3.2 Rare, Threatened, and Endangered Species

The only species listed as either threatened or endangered in West Virginia are those found on the U.S. Fish and Wildlife Service (USFWS) list of federally threatened and endangered species. In an email communication dated February 6, 2019 (Appendix A), the USFWS West Virginia Field Office identified three federally listed bat species that may occur in proximity to the study area (Table 14). USFWS requested information on the amount of forested areas to be cleared for review and a survey of the existing I-64 bridges over Benedict Road by a qualified bat biologist for any sign of bat use prior to construction.

Table 14. Federally Listed Species

Common Name	Scientific Name	Status*	Potential to Occur
Indiana bat	<i>Myotis sodalis</i>	E	May use forested areas for foraging and roosting between April 1 and November 15. May use the bridges in the study area for roosting habitat.
Northern long-eared bat	<i>Myotis septentrionalis</i>	T	May use forested areas for foraging and roosting between April 1 and November 15. May use the bridges in the study area for roosting habitat.
Gray bat	<i>Myotis grisescens</i>	E	May use the bridges in the study area for roosting habitat.

* E = endangered, T = threatened

Under the No-Build Alternative, no existing bridges are affected, and no forested areas cleared; therefore, the No-Build Alternative has no potential impacts to listed bat species.

Both Build Alternatives would clear forested areas and replace the bridges on I-64 over Benedict Road, potentially impacting habitat for listed bat species. Alternative 1 clears 12.11 acres of forest and Alternative 2 clears 12.19 acres of forest.

On August 19, 2019, a qualified bat biologist conducted a survey of the I-64 bridges over Benedict Road and found no evidence that bats may be using the bridges. The undersides of bridges are concrete with cracks and leaking and the bridges are very low and located over a busy roadway. WVDOH submitted the survey results to USFWS in a letter dated August 20, 2019 along with a USFWS Project Review Form with a determination that the project will have no effect/is not likely to adversely affect Federally-listed species (Appendix A). In a letter dated August 20, 2019, USFWS concurred with WVDOH's determination (Appendix A).

3.3.3 Wetlands and Waters of the U.S.

In April of 2019, a wetlands and Waters of the U.S. (WUS) Delineation Report was prepared for the project in accordance with the Clean Water Act (CWA) and EO 11990, *Protection of Wetlands*, and is summarized below.

The wetland and WUS delineation for the study area was conducted in accordance with the U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0* (USACE 2012), which describe the three-parameter approach to delineating typical wetlands (hydrophytic vegetation, hydric soils, and wetland hydrology) and the approach for delineating atypical wetlands. Each delineated resource was classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (USFWS 1979), commonly referred to as the Cowardin Classification System.

The methodology outlined in *The Highway Methodology Workbook Supplement: Wetland Functions and Values – A Descriptive Approach* (USACE 2015) and completed the Wetland Function-Value Evaluation Form to assess the functions and values associated with delineated wetlands of 1 acre or larger in size within the study area. AECOM used the methodology outlined in the *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish* (EPA 1999) to assess habitat and physiochemical characterization of delineated streams. The methodology outlined in the

Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (USACE 2017) was used to assess the ecological functions of high-gradient headwater streams and low-gradient perennial streams within the study area. For intermittent and perennial streams, Low-Gradient Habitat Assessment Field Data Sheets were completed; for ephemeral streams, High-Gradient Habitat Assessment Field Data Sheets were completed. In West Virginia the pre-2015 Clean Water Rule regulations and guidance are in effect and were applied in accordance with the USACE *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007), which was published in response to the 2006 Supreme Court Decision; *Rapanos v. U.S.* The USACE Guidebook addresses the jurisdictional scope of the Clean Water Act, specifically the term “waters of the U.S.” The guidance provided in the USACE Guidebook was used to determine whether an identified resource would likely be considered jurisdictional by the USACE.

The 17 resources delineated within the study area consist of two palustrine (fresh water) forested wetlands with deciduous vegetation (PFO6), two palustrine emergent wetlands with non-persistent vegetation (PEM2), one palustrine forested/emergent wetland, a perennial stream (Indian Fork), two intermittent streams which are unnamed tributaries to Indian Fork (one riverine, lower perennial, cobble-gravel unconsolidated bottom [R2UB1] and one riverine, intermittent, cobble-gravel streambed [R4SB3]), and nine ephemeral (EPH) streams. The five vegetated wetlands delineated within the study area are described in Table 15 and shown on Figure 10.

Table 15. Summary of Delineated Resources

Delineated Resource ID	Cowardin Classification	Approximate Delineated Size within Study Area
WET1	PEM2	53,946 ft ² (1.24 ac)
WET2	PEM2 / PFO6	Total size: 22,026 ft ² (0.51 ac) PEM portion: 6,857 ft ² (0.16 ac) PFO portion: 15,169 ft ² (0.35 ac)
WET3	PEM2	534 ft ² (0.01 ac)
WET4	PFO6	4,373 ft ² (0.10 ac)
WET5	PFO6	4,617 ft ² (0.11 ac)
WUS1*	R2UB1	2,491 LF
WUS2	R4SB3	377 LF
WUS3	R4SB3	332 LF
EPH1	EPH	158 LF
EPH2	EPH	62 LF
EPH3	EPH	128 LF
EPH4	EPH	103 LF
EPH5	EPH	37 LF
EPH6	EPH	100 LF
EPH7	EPH	200 LF
EPH8	EPH	504 LF
EPH9	EPH	45 LF

ac = acres; ft² = square feet; LF = linear feet

* WUS1 crosses the study area in three separate locations, with stream sections measuring 802 LF, 1,597 LF, and 92 LF, from upstream to downstream reaches

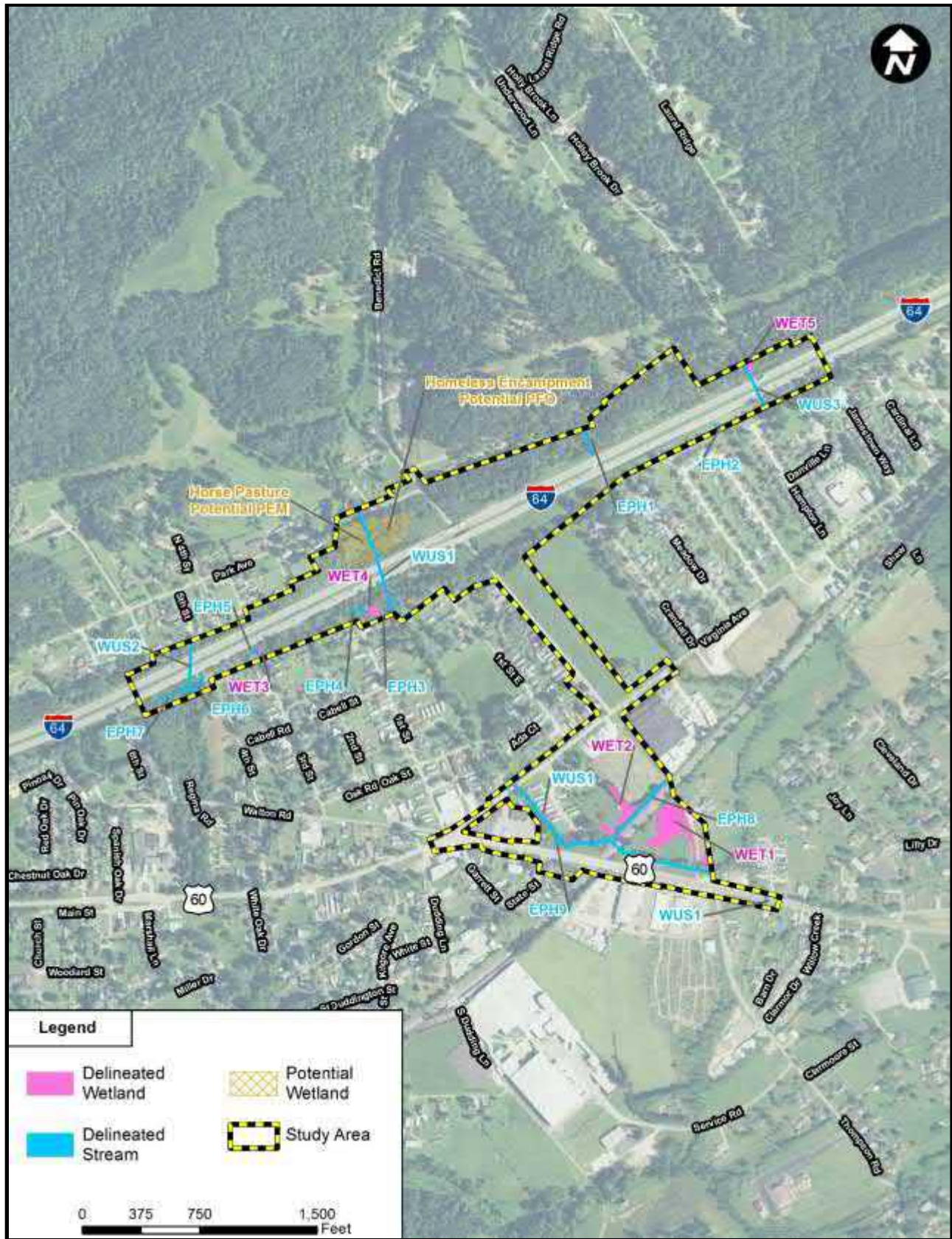


Figure 9. Delineated Resources

Two potential wetland areas were observed in the study area along Indian Fork, between Park Avenue and I-64. One is within an active horse pasture along the right downstream bank of Indian Fork and one is located along the left downstream bank of Indian Fork which contains an occupied apparent homeless encampment. Due to safety concerns associated with the presence of livestock and an occupied apparent homeless encampment, these potential wetland areas were not delineated; soil and LIDAR data were used to map the approximate boundaries.

Because WET 1 is more than 1 acre in size, a function/value assessment was completed, and the wetland was determined to provide flood flow attenuation, sediment/toxicant retention, and nutrient removal functions.

At the time of the field delineation, a sanitary sewer overflow pipe with a failed duckbill valve was observed discharging apparent untreated sewage into Indian Fork (WUS1). The overflow pipe is located near a lift station located between Whites Mobile Home Park and US 60.

Potential impacts to wetlands and WUS were determined based on the wetland delineation conducted; actual impacts will be calculated after the USACE and West Virginia Department of Environmental Protection (WVDEP) have issued a preliminary jurisdictional determination and final design plans have been developed. The No-Build Alternative has no impact to wetlands or WUS because no construction would occur. Impacts to wetlands and WUS from Alternative 1 and Alternative 2 are shown in Table 16.

Table 16. Potential Impacts to Wetlands and WUS

Wetland/WUS Type	Alternative 1		Alternative 2	
	Acres	Linear Feet	Acres	Linear Feet
PFO	0.02	----	0	----
Potential PFO*	0.36	----	0.36	----
PEM	0.87	----	0	----
Potential PEM**	0.17	----	0.17	----
Perennial stream	----	597	----	592
Intermittent stream	----	0	----	0
Ephemeral stream	----	153	----	39

* occupied apparent homeless encampment, impacts are approximate

** horse pasture, impacts are approximate

WVDOH is coordinating with USACE and WVDEP to review the resources identified during the field delineations and evaluate the regulatory status of those resources.

Alternative 1 and Alternative 2 would result in unavoidable impacts to regulated wetlands and streams. These impacts are required to be mitigated in accordance with the 2008 *Rule on Compensatory Mitigation for Losses of Aquatic Resources*. The impacted resources and the proposed compensatory mitigation will be evaluated using the West Virginia Stream and Wetland Valuation Metric. A compensatory mitigation plan will be developed and submitted with

the USACE Clean Water Act Section 404/401 permit application package. Additional avoidance and minimization measures will be identified during final design and development of construction methods.

3.3.4 Streams/Water Quality

The CWA requires National Pollutant Discharge Elimination System (NPDES) permit coverage for most stormwater discharges from construction activities. The U.S. Environmental Protection Agency (EPA) has authorized WVDEP to administer the NPDES program in West Virginia.

Any land-disturbing activity that will disturb an area of one acre or more is required to be covered under an NPDES permit for its stormwater discharge. The *West Virginia Erosion and Sediment Control Best Management Practice Manual* addresses erosion and sediment control for earth disturbing activities associated with construction. The provides standardized and comprehensive erosion and sediment control management practices for implementation on construction projects to reduce the water quality impacts of land-disturbing activities through the design and implementation of effective erosion prevention and sediment control. This manual should be used as guidance for developing sediment control plans for the *West Virginia National Pollution Discharge Elimination System General Water Pollution Control Permit for Stormwater Associated with Construction Activities*.

The study area is located within the Lower Guyandotte watershed (Hydrologic Unit Code 05070102). Streams within the study area consist of the main stem of Indian Fork, a perennial stream generally flowing west to east, and unnamed tributaries to Indian Fork. Indian Fork is a tributary to the Mud River.

The West Virginia Stream Condition Index (WVSCI) is a bioassessment tool used throughout the state to assess the water quality of streams through biological indicators. Specifically, the WVSCI surveys benthic macroinvertebrates and uses a series of metrics to develop a final index score for the sample location. There are six metrics that evaluate the surveyed benthic macroinvertebrates based on their diversity, composition, and pollutant tolerance. The final index score is on a scale of 0 to 100 and is based on a comparison to reference conditions based on the region of the state in which the sample is located. Higher scores are more comparable to reference conditions and are therefore indicative of better water quality. Lower scores are increasingly different from reference conditions and are therefore indicative of poor water quality.

The WVDEP water quality data report for benthic macroinvertebrate surveys for the Lower Guyandotte watershed, Cabell County provides two data points for Indian Fork (WVDEP 2017). The samples were taken on May 15, 1998 and September 27, 2017, and had WVSCI scores of 30.14 and 56.11, respectively. These scores indicate the data points along Indian Fork are increasingly different from reference conditions and are therefore indicative of poor water quality.

Overall stream quality in the study area can be characterized as poor to marginal due to eroded banks and lack of vegetative cover and a predominance of fine sediments and concrete channel substrates. Chemical parameters of the streams were not evaluated but apparent raw sewage was observed discharging into Indian Fork south of Virginia Avenue and numerous unidentified discharge pipes were observed throughout the study area.

The No-Build Alternative has no impacts to streams or water quality. Alternative 1 impacts 750 linear feet of streams and Alternative 2 impacts 631 linear feet of streams. All impacts will be permanent and limited to culverting existing streams under the interchange ramps, modifications

to Benedict Road and the connector road between Virginia Avenue and US 60 where the roadways cross them. An approved Erosion and Sedimentation Control Plan will be implemented with either Build Alternative to minimize impacts to water quality in study area streams.

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 USC 1271 et seq.) to preserve certain rivers with outstanding natural, cultural and recreational values. Under the Wild and Scenic Rivers Act section 5(d)(1) and related guidance, federal agencies must seek to avoid or mitigate actions that would adversely affect Nationwide Rivers Inventory (NRI) river segments. Based on a review of the NRI (NPS 2018), no Wild and Scenic Rivers are located within the study area. Therefore, the No-Build Alternative, Alternative 2, and Alternative 1 will have no impacts to any Wild and Scenic Rivers.

3.3.5 Floodplains

EO 11988 (44 CFR 9), *Floodplain Management*, requires agencies to avoid, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development whenever there is a practicable alternative. The 100-year floodplain is defined as areas where the one-percent annual chance flood can occur.

Based on a review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) the study area is in Zone X (areas of minimal flood hazard) and outside of the mapped FEMA 100-year floodplain (FEMA 2005, FEMA 2012). Therefore, the No-Build Alternative, Alternative 1, and Alternative 2 will have no impacts on regulated floodplains.

3.3.6 Soils and Farmlands

According to the Natural Resources Conservation Service (NRCS) web soil survey, the following soil map units occur within the study area:

- Prime Farmland
 - Lobdell silt loam
- Farmland of Statewide Importance
 - Markland silt loam
 - Monongahela loam
 - Monongahela silt loam
 - Tyler silt loam
 - Vandalia silt loam
- Farmland of Local Importance
 - Udifluvents and Fluvaquents
- Non-Farmland
 - Gilpin-Upshur complex
 - Monongahela-Urban land complex
 - Udorthents
 - Urban land-Monongahela complex

The No-Build Alternative will not impact soils within the study area, because no construction would occur. Alternative 1 and Alternative 2 do not significantly or adversely impact soils within the study area beyond the proposed construction footprint.

The Farmland Protection Policy Act of 1981 (FPPA) requires an analysis of farmlands to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural use. The FPPA defines farmlands by soil types and characteristics, regardless of whether the area is currently being used as cropland.

Non-farmland soils comprise approximately 65 percent of the study area; almost 50 percent are Udorthents, which consist of mixed soil material and rock fragments from areas which have been disturbed by excavation, fills, and grading, and typically occur along highways, railroads, construction sites, and other urban development areas. Udorthents are generally characterized by variable infiltration and runoff rates.

The study area contains prime farmlands and farmlands of statewide and local importance; however, the only areas in active agricultural use are the horse pasture on the north side of I-64 and west of Benedict Road and a hayfield located on the east side of Benedict Road between I-64 and Virginia Avenue.

The No-Build Alternative does not impact farmland soils as no construction would occur. Impacts to farmland soils from the Build Alternatives are shown in Table 17.

Table 17. Farmland Impacts

Farmland Soil Type	Alternative 1	Alternative 2
Prime farmland	3.1 acres	4.5 acres
Farmland of statewide importance	1.2 acres	2.1 acres
Farmland of local importance	9.1 acres	0 acres

For federal projects with the potential to convert important farmland to non-farm use, NRCS uses a Land Evaluation and Site Assessment system to establish a farmland conversion impact rating score. This score is used as an indicator to consider alternative sites if the potential adverse impacts on the farmland exceed the recommended allowable level. The assessment is completed on a Farmland Conversion Impact Rating Form AD-1006, which assesses non-soil related criteria such as compatibility with existing agricultural use and the potential for impact on the local agricultural economy if the land is converted to non-farm use. Sites that receive a score less than 160 points receive the minimal level of consideration for protection under the Act. Using Form AD-1006, WVDOH calculated a total site assessment point value of 26 for each Build Alternative and submitted the form to NRCS on June 19, 2019. In a response dated June 25, 2019 NRCS determined that the project does not convert prime or other important farmland and therefore is not subject to the FPPA (Appendix A).

3.3.7 Geology

The study area is in the Appalachian Plateau Physiographic province. There are no known areas of karst topography or fault lines within or adjacent to the study area.

The No-Build Alternative would have no impacts on geology. The Build Alternatives would not impact the geology of the study area beyond the immediate construction area.

3.3.8 Groundwater

The Safe Drinking Water Act of 1974 requires protection of drinking water systems that are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health. Sole source aquifer designations are one tool to protect drinking water supplies in areas where alternatives to the groundwater resource are few, cost-prohibitive, or nonexistent. The designation protects an area's ground water resource by requiring EPA review of any proposed projects within the designated area that are receiving federal financial assistance. All proposed projects receiving federal funds are subject to review to ensure they do not endanger the water source.

There are no sole source aquifers in West Virginia (EPA no date). The study area is in the Appalachian Plateau Physiographic province, where groundwater is characterized by short flow paths (typically extending no more than tens of miles), and is controlled by "regional dip of bedrock, local topography, and distal hydrologic boundaries coincident with large river valleys." (USGS 2014).

The study area is situated above an alluvial aquifer associated with the Kanawha and Ohio Rivers (USGS 2012). Altered soil types dominate the areas along I-64, with a depth to water table of more than 80 inches. The remainder of the study area contains moderately well-drained soils, with the depth to water table ranging from 16 to 36 inches.

The No-Build Alternative has no impact on groundwater as no construction would occur. The Build Alternatives are not anticipated to impact groundwater in the study area. Best management practices regarding potential stormwater runoff and erosion would be employed during construction activities to minimize any potential temporary impacts.

3.4 Air Quality

The Clean Air Act (CAA), last amended in 1990, requires EPA to set National Ambient Air Quality Standards (NAAQS; 40 CFR 50) for pollutants considered harmful to public health and the environment. The CAA identifies two types of NAAQS. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

EPA has set NAAQS for six principal pollutants, called "criteria" air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM_{2.5} and PM₁₀), and sulfur dioxide (SO₂). Geographic regions are classified into one of three air quality categories. Areas that meet the established numerical standards for these pollutants are considered in "attainment" of the NAAQS. Areas where concentrations of criteria pollutants exceed the levels set by the federal standards are "nonattainment" areas. Areas that have previously exceeded the criteria pollutant levels but have since attained the standard are "maintenance" areas.

Cabell and Putnam Counties are designated as maintenance areas for O₃ and PM_{2.5} and are in attainment for all other criteria pollutants (EPA 2019). As part of a 2015 traffic study of the proposed project, an air quality analysis was performed and estimated a reduction in fuel consumption and an improvement in air quality after the construction of the new interchange.

The No-Build Alternative will have no construction-related impacts; however, future fuel consumption and vehicle emissions are anticipated to increase due to existing traffic and congestion on I-64 between Hurricane and Milton, which will likely worsen over time without the proposed project.

During construction, the Build Alternatives will cause a short-term increase in dust and emissions from heavy construction equipment. Dust and exhaust particulate emissions from heavy equipment operations will temporarily degrade air quality in the immediate construction zone.

Heavy construction equipment may be used to clear and grub, excavate, grade, and pave for construction of new roadways. Contractors would be responsible for maintaining, repairing, and adjusting all construction equipment to minimize pollutant emissions. Equipment emissions may be reduced by using newer, lower-emitting equipment, retrofitting older equipment engines, and controlling activity.

3.5 Noise

A Noise Analysis was prepared for the project (Appendix C) and is summarized below.

3.5.1 Traffic Noise

The study area is generally a rural/suburban residential area with dominant noise and sound sources being traffic on I-64 and local roadways, a freight rail line, and sounds typical of a suburban area such as singing birds and barking dogs.

The FHWA noise policy (FHWA 2010) provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. WVDOH has published a noise policy which provides guidelines in the analysis of highway traffic noise and the evaluation of noise mitigation measures (WVDOH 2011).

Traffic noise impacts occur when the design year condition noise levels approach or exceed the FHWA noise abatement criteria (NAC) or design year condition noise levels create a substantial noise increase over existing noise levels. Table 18 summarizes the FHWA NAC corresponding to various defined land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual land use in a given area. In identifying noise impacts, primary consideration is given to exterior areas of frequent human use. In situations where there are no exterior activities, or where the exterior activities are far from the roadway or physically shielded in a manner that prevents an impact on exterior activities for non-residential properties, the interior criterion (Activity Category D) may be used as the basis for determining a noise impact. The study area for noise analysis is typically defined as being within 500 feet of the roadway improvement since impacts rarely occur beyond that distance.

A common noise environment (CNE) is generally defined as a geographical area covering multiple properties with similar land uses and noise environments that might benefit from a single noise abatement measure, such as a noise wall. Because the proposed project results in a traffic noise impact, noise barrier walls, at a minimum, must be considered. If noise barriers are determined to be reasonable and feasible, approval by a simple majority (greater than 50 percent) of all responding benefitted owners and residents is needed to implement noise abatement.

In addition to noise barriers, or if noise barriers are not feasible, other abatement elements may also be considered, if appropriate and applicable, including the following:

- Traffic management measures;
- Alteration of horizontal and vertical alignments;
- Acquisition of property to serve as a buffer to preempt development that would be adversely impacted by traffic noise; and
- Noise insulation (institutional buildings only).

Future build peak-hour noise levels were predicted using the FHWA Traffic Noise Model (TNM) Version 2.5 for the No-Build Alternative, Alternative 1, and Alternative 2. All existing (where applicable) and proposed project roadways were included in the TNM model.

Table 18. FHWA Noise Abatement Criteria

Activity Category	Activity Criteria ^{1,2}		Evaluation Location	Activity Description
	L _{eq} (h)	L ₁₀ (h)		
A	57	60	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ³	67	70	Exterior	Residential.
C ³	67	70	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	55	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E ³	72	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--	--	Undeveloped lands that are not permitted.

¹ Either L_{eq}(h) or L₁₀(h) (but not both) may be used on a project.

² The L_{eq}(h) and L₁₀(h) Activity Criteria values are for impact determination only and are not design standards for noise.

³ Includes undeveloped lands permitted for this activity.

Source: FHWA 2010

An “approach or exceed” noise impact occurs when the predicted future noise level at an identified noise receptor location approaches or exceeds the FHWA NAC within 1 A-weighted decibel (dBA). A “substantial increase” noise impact occurs when the predicted future noise level at an identified noise receptor location exceeds the existing condition noise level by 15 dBA or more.

Based on the traffic data in the Noise Analysis report (Appendix C) and the TNM file output summary table (Appendix D of the Noise Analysis report), the No-Build Alternative and both Build Alternatives would experience increased traffic noise levels because the noise study area contains nine CNEs with receptors having predicted future noise levels approaching or exceeding the NAC. These CNEs were evaluated for noise abatement.

A feasible noise abatement measure is a mitigation measure that is acoustically feasible and meets engineering requirements for constructability. A noise abatement measure is considered acoustically feasible when it can provide a minimum of a 5 dBA reduction at any impacted receptors. A reasonable noise abatement measure is an abatement measure that has been determined to be cost effective (no greater than \$30,000 per benefitted receptor) and approved by more than 50% of property owners and residents. The barrier cost must include the cost of construction (material and labor at a rate of \$25 per square foot), the cost of additional right-of-way, the cost of relocating utilities, and any other costs associated with the barrier. Also, at least 10% of all benefitted receptors must receive at least a 7 dBA noise reduction from each barrier. In addition to the required reasonableness criteria above, WVDOH has optional criteria that can be evaluated, including a minimum 5 dBA increase of noise levels over existing levels and a minimum 3 dBA increase of noise levels over future no-build conditions. If both of these optional reasonableness criteria are not satisfied for a noise barrier evaluation, the abatement measure will not be considered reasonable by WVDOH guidelines.

As described in Section 6.3 of the Noise Analysis report, initially, noise abatement was checked for feasibility (at least a 5 dBA reduction at impacted receptors and access/safety/engineering restrictions). If abatement was determined to be feasible, the abatement was analyzed for cost effectiveness and other reasonableness factors. For all impacted receptors meeting feasibility requirements, preliminary barrier designs were evaluated using TNM. If the barrier was found to be both reasonable and feasible, it would be recommended for inclusion in the project pending a polling of viewpoints from benefitted receptors. The Noise Analysis report shows the results of abatement evaluations for each impacted CNE (Tables 6 through 14) and analyzed barriers (Figures 11 through 13). None of the analyzed noise barriers meet all of the WVDOH feasible and reasonableness criteria requirements. Therefore, no barriers are recommended for the project under either Build Alternative.

3.5.2 Construction Noise

FHWA and WVDOH do not identify specific construction noise impact criteria. Also, the detailed information required to predict actual construction noise levels (construction schedules, phasing, equipment lists, laydown areas, etc.) has not yet been determined for the project. However, areas adjacent to the highway ROW and other construction areas (such as staging and laydown areas) will temporarily be exposed to high levels of noise during peak construction periods. Standard construction noise specifications and best practices that help minimize the effects of construction noise include:

- Provide advance public notice of construction activities that may generate particularly high noise levels.
- Ensure noise created by truck movement does not exceed 88 dBA at 50 feet.

- Use portable noise meters for noise level spot checks on specific operations.
- Do not perform construction operations within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 9:00 PM and 6:00 AM on other days.
- Use sound-control devices and muffled exhaust on all equipment.
- Do not perform pile driving or blasting operations within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 9:00 PM and 6:00 AM on other days.
- Mitigate the noise from rock crushing or screening operations performed within 3,000 feet of any occupied dwelling by strategic placement of material stockpiles between the operation and the affected dwelling or by other means.

3.6 Hazardous Waste

In March of 2019, a Limited Phase I Environmental Site Assessment (ESA) was performed in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Standard Practice Designation E1527-13 for ESAs. The results of this ESA are summarized below.

The study area (subject property) consists of portions of 24 parcels of land located along I-64, Benedict Road, Virginia Avenue, US 60, and State Street in Cabell and Putnam Counties, West Virginia. The subject property was divided into three sections (Figure 11). Section A contains one parcel, consisting of I-64 and wooded land; Section B contains one parcel, consisting of Benedict Road and agricultural land; and Section C contains 22 parcels, 10 of which are improved with residential and commercial structures.

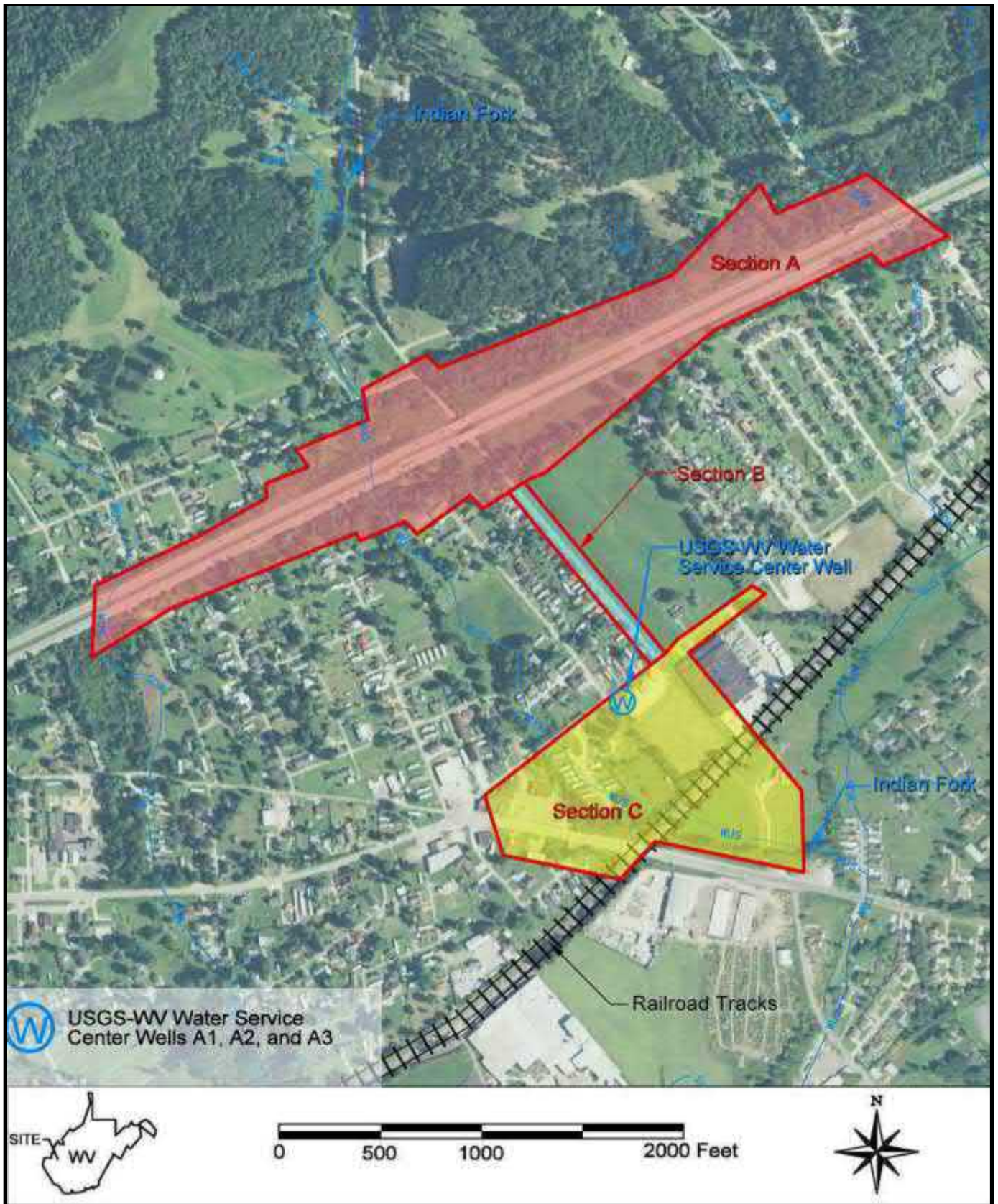


Figure 10. Study Area for Limited Phase I ESA

No access to the buildings located on the subject property was provided; therefore, an inspection of building interiors and contents could not be conducted. Per the ASTM standard, this is considered a significant data gap; however, WVDOH has determined this data gap is not significant for the portions of the subject property that may be within the footprint of the proposed project.

No visual evidence of monitoring wells, dry wells, clarifiers, or leach fields was identified within the study area; however, because of limited physical access to some of the properties, the area could not be fully assessed. One U.S. Geological Survey-West Virginia (USGS-WV) Water Service Center well cluster was observed between Virginia Avenue and US 60 (Section C). No active gasoline service stations or dry cleaners were observed within or in the immediate vicinity (approximately 500 feet) of the study area. One sensitive receptor (Indian Fork stream) was identified; no additional sensitive receptors (i.e., day care centers, schools, hospitals, water bodies) are located within or adjacent to the subject property.

A recognized environmental condition (REC) is defined by the ASTM standard as “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.”

A Historic REC (HREC) is a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

Business Environmental Risks (BERs) are risks which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice.

Under the No-Build Alternative, no impacts to any potentially contaminated sites would occur. Table 19 shows all RECs, HRECs, and BERs identified within the study area, and the potential for the Build Alternatives to impact hazardous waste sites that have or potentially have identified environmental conditions.

Because the Build Alternatives could impact properties that have or potentially have identified environmental conditions, a Hazardous Materials Contingency Plan (HMCP) should be developed to include standard construction measures required by federal, state, and local policies for hazardous materials, removal of onsite debris, and confirmation of presence of pipelines on-site. At a minimum, this plan includes the following:

- If contaminated soils or other hazardous materials are encountered during any soil moving operation during construction (e.g., trenching, excavation, grading), construction shall be halted and the HMCP implemented.
- Instruct workers on recognition and reporting of materials that may be hazardous.
- Minimize delays by continuing performance of the work in areas not affected by hazardous materials operations.
- Identify and contact subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, laws and regulations.

- Forward to engineer, copies of reports, permits, receipts, and other documentation related to remedial work.
- Notify such agencies as are required to be notified by laws and regulations within the time stipulated by such laws and regulations.
- File requests for adjustments to contract time and contract price due to the finding of hazardous materials in the work site in accordance with conditions of contract.

Table 19. Hazardous Waste Impacts

Finding	Current/Former Property Use	Description	Impacted by Alternative 1	Impacted by Alternative 2
Recognized Environmental Condition (RECs)	Adkins Automotive Service Center (southwest corner of Section C)	Operation as an automotive service center on-site including hydraulic lifts and the use/storage of hazardous materials and petroleum products as well as the generation of hazardous wastes.	No	Yes
	Railroad tracks (eastern portion of Section C)	Potential for contamination associated with railroad tracks from possible treated railroad ties, coal ash/cinder containing lead and arsenic, herbicides, and/or spills or releases of chemicals from engines or freight	Yes	Yes
Historical RECs (HRECs)	Former gasoline station (western portion of Section C)	Historical use as a former gasoline station and storage of petroleum products in former underground storage tanks (USTs).	No	Yes
Business Environmental Risks (BERs)	Various (Section C)	Subject buildings were originally constructed between 1902 and 1987, indicating the likelihood for asbestos containing materials and lead containing materials.	No	Yes
	Adkins Automotive Service Center (southwest corner of Section C)	Potential BERs due to the use of hydraulic lifts.	No	Yes
	Former gasoline station (Western portion of Section C)	Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO) concentrations were reported in soil samples collected during the removal of USTs from the former gasoline station property. This finding constitutes a Vapor Encroachment Condition.	No	Yes
Significant Data Gaps	Various (Section C)	No access buildings located on the subject property therefore an	No	Yes

Finding	Current/Former Property Use	Description	Impacted by Alternative 1	Impacted by Alternative 2
		inspection of building interiors and contents could not be performed. WVDOH has determined this data gap is not significant for the portions of the subject property that may be within the footprint of the project.		
Additional Recommendations	North and south of I-64 (Section A) and East of Benedict Road (Section B)	The concern with these properties relates to establishing background due to long-term historical and ongoing uses; these sites warrant further discussion and or potential assessment.	Yes	Yes
	Speedway #9221, Hurricane Equipment Company, and Venus Blake (southeast of Section C)	The concern with these properties relates to establishing background due to long-term historical and ongoing uses; these sites warrant further discussion and or potential assessment.	Yes	Yes

3.7 Cultural Resources

The National Historic Preservation Act of 1966 (NHPA) requires federal agencies to consider the effect an undertaking may have on historic properties. Section 106 of the NHPA (36 CFR 800), describes the procedures for identifying and evaluating historic properties; assessing the effects of federal actions on historic properties; and consulting to avoid, reduce, or minimize adverse effects. Section 106 gives the Advisory Council on Historic Preservation, interested parties, and the public the opportunity to comment before a final decision is made. Section 106 defines the Area of Potential Effect (APE) as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

On December 17, 2018, WVDOH initiated consultation with the West Virginia State Historic Preservation Office (WV SHPO) Division of Culture and History. Letters were also sent to the Cultural Preservation Officer for the Delaware Nation, the Tribal Archaeologist of the Seneca Nation of Indians, and the Tribal Historic Preservation Officers for the Delaware Nation, Seneca-Cayuga Tribe of Oklahoma, Eastern Shawnee Tribe of Oklahoma, the United Keetoowah Band of Cherokee Indians in Oklahoma, and the Delaware Tribe of Indians (Appendix A).

3.7.1 Architectural Resources

In March of 2019 an Architectural Survey was conducted for the project and is summarized below.

The APE for architectural resources extends along both sides of I-64 and includes private property adjacent to the proposed interchange, both sides of Benedict Road, sections of the

north and south sides of Virginia Avenue between Crandall Drive and 1st Street, and sections of the north and south sides of US 60 between 1st Street and Thompson Road (Figure 12).

Architectural resources surveyed met the WV SHPO age criteria of 45 years or older (construction date of 1974 and earlier at the time of the survey). Using information obtained from background research and during the survey, WV SHPO Historic Property Inventory (HPI) Forms were prepared for all properties surveyed within the APE.

The 31 resources surveyed were determined not eligible for listing in the National Register of Historic Places (NRHP). One previously surveyed resource, a residence located on the east side of 3rd Street, immediately south of I-64 (CB-1764-0007), was determined to have been destroyed since the previous survey. The resource was demolished between 2015, when it was still visible on aerial mapping, and the present survey (March 2019), when the approximate area it previously occupied appeared to be newly planted with grass.

In a letter dated March 18, 2019, the Delaware Nation Cultural Preservation Department stated that the project does not endanger cultural, or religious sites of interest to the Delaware Nation. In a letter dated May 21, 2019 the WV SHPO concurred that no architectural resources eligible for listing in the NRHP will be affected by the proposed project and stated no further consultation is needed for the project. The WV SHPO requested that a copy of the Architectural Survey be sent to the United Keetoowah Band of Cherokee Indians in Oklahoma's Office of Historic Preservation. WVDOH submitted a letter dated May 28, 2019 to the United Keetoowah Band of Cherokee Indians in Oklahoma transmitting the Archaeological Survey Report and the Architectural Survey Report. All correspondence is included in Appendix A.

The No-Build Alternative, Alternative 1, and Alternative 2 will have no impact to architectural resources.

3.7.2 Archaeological Resources

In March of 2019, an Archaeological Survey was conducted for the project and is summarized below.

The APE for archaeological resources extends across approximately 31 acres and encompasses the footprint of the proposed diamond interchange, Benedict Road modifications, and two Build Alternatives for the new connector road between Virginia Avenue and US 60 (Figure 13).

Background research included an on-line site file search at the WV SHPO on April 1, 2019 to identify any previously recorded cultural resources within the APE and collected available and pertinent data on the history and prehistory of the area in which the APE is located. Research also included the West Virginia Archives, the David Rumsey Map Collection, the Library of Congress Digital Maps Archive, and the NRCS Web Soil Survey. Field investigations consisted of shovel test pit (STP) excavations and surface inspection. Work was conducted in accordance with Section 106 of the NHPA, *Protection of Historic Properties* (36 CFR 800). The archaeological survey conformed to the WV SHPO *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (WV SHPO 2018).

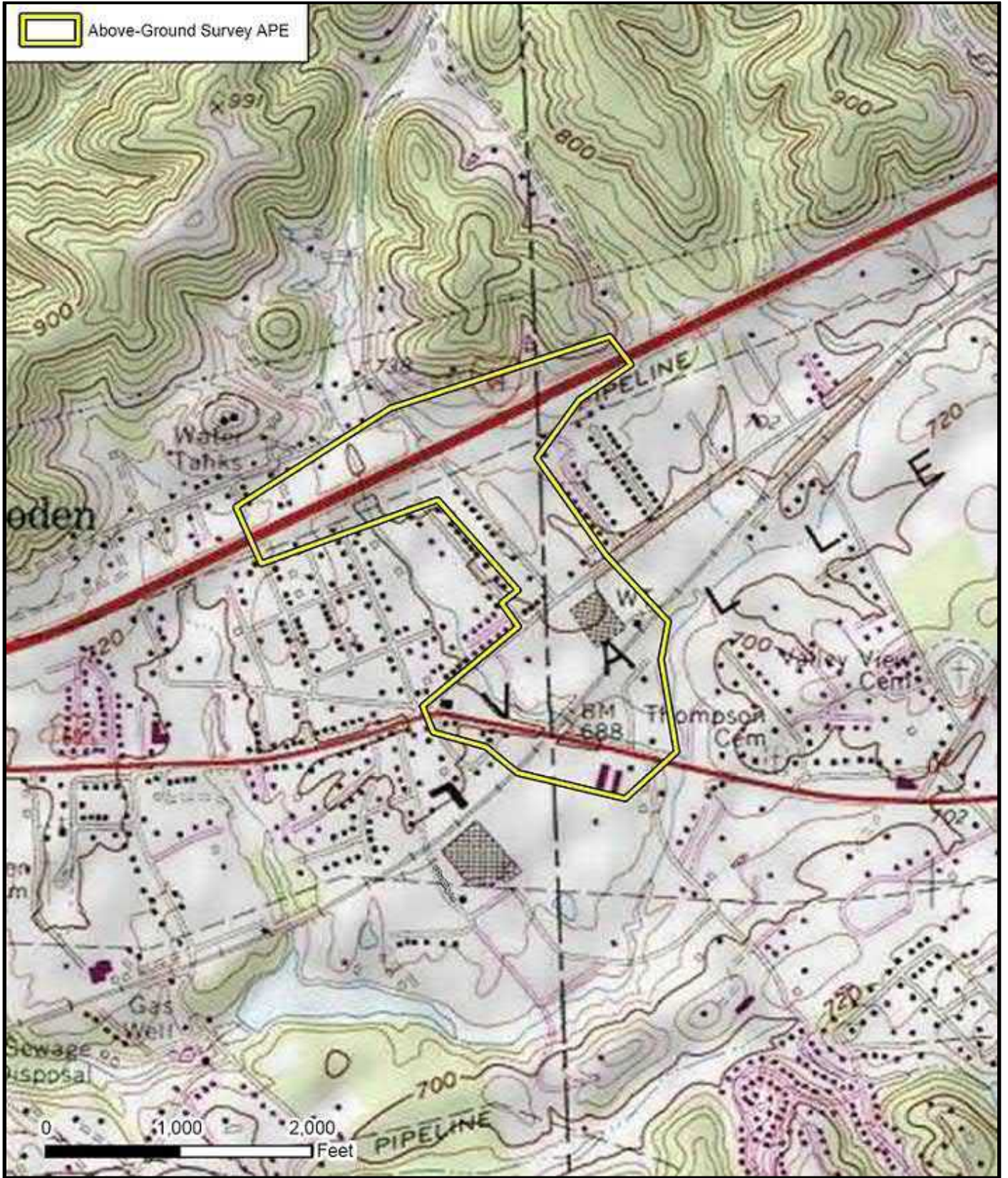


Figure 11. APE for Architectural Resources

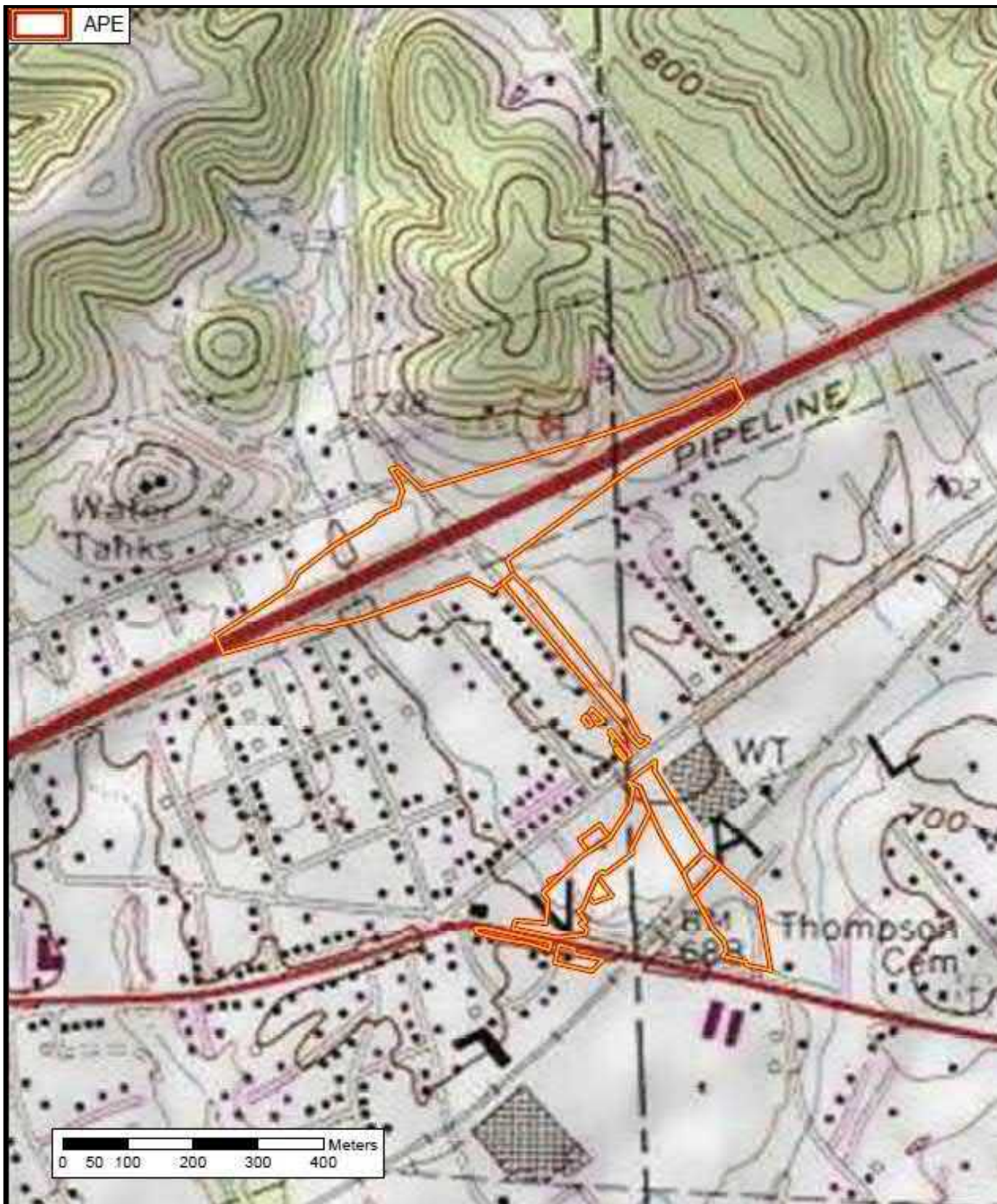


Figure 12. APE for Archaeological Resources

In total, 286 STPs were excavated. The boundaries of a previously identified prehistoric lithic scatter (Site 46CB193) were redefined during this survey. A newly identified historic site (Site 46CB252) was also recorded. This site represents a mid- to late-twentieth century refuse discard commingled with the remnants of the mid-twentieth century residential occupation of this location. Site 46CB252 is a mid- to late-twentieth century domestic occupation and domestic discard area located to the west of Benedict Road 50 meters south of the proposed diamond interchange. The road and buildings were demolished and cleared, likely prior to the construction of I-64 in the 1960s.

Site 46CB193 is a very low-density lithic scatter and lacks stratigraphic integrity. The limited artifact assemblage has been recovered entirely from plowed soil contexts, and the ephemeral nature of similar scatters previously recorded throughout the eastern United States suggests there is little likelihood for intact cultural features to exist beneath the plow zone. Furthermore, the site lacks any diagnostic artifacts to place its occupation within a historic chronological or cultural context.

Site 46CB252 possesses little archaeological or historic research potential. The mid-to-late twentieth century rural/suburban occupation of Culloden, which the site represents, is well documented in the above-ground record and is better represented by other extant historic resources that are not affected by this project. Site 46CB193 and Site 46CB252 are recommended not eligible for listing in the NRHP.

In a letter dated May 30, 2019, the WV SHPO concurred that no archaeological sites within the APE are eligible for listing in the NRHP and stated no further consultation is needed for the project. In a letter dated March 18, 2019, the Delaware Nation Cultural Preservation Department stated that the project does not endanger cultural, or religious sites of interest to the Delaware Nation. In a letter dated January 25, 2019, the United Keetoowah Band of Cherokee Indians in Oklahoma's Office of Historic Preservation provided guidelines for archaeological testing and reporting. The archaeological survey completed as part of this project meets or exceeds the standards as described in the document received. All responses received to date are included in Appendix A.

The No-Build Alternative, Alternative 1, and Alternative 2 will have no impact to archaeological resources.

3.8 Section 4(f) and 6(f) Resources

Under Section 4(f) of the USDOT Act of 1966 the Secretary of Transportation may not approve the use of land from any publicly owned park, recreation area, or wildlife and waterfowl refuge, or any historic site unless a determination is made that there is no feasible and prudent alternative to the use of land from the property and the action includes all possible planning to minimize harm to the property resulting from such use.

No publicly owned parks, recreation areas, or wildlife and waterfowl refuges are located within the study area. The Great Teays Soccer Club uses playing fields located adjacent to the US Foods building on Virginia Avenue. Because the fields are privately owned (by US Foods), they are not considered Section 4(f) resources. No historic properties or archaeological resources are located within the study area. Therefore, no impacts to Section 4(f) or 6(f) resources would occur under the No-Build Alternative, Alternative 1, or Alternative 2.

The Land and Water Conservation Fund Act (LWCFA), commonly referred to as Section 6(f), requires that the conversion of lands or facilities acquired with LWCFA funds be coordinated with the Department of the Interior. There are no Section 6(f) resources located within the study area.

The No-Build Alternative, Alternative 1 and Alternative 2 will not impact any Section 4(f) or 6(f) resources.

3.9 Temporary Construction Impacts

Both Build Alternatives will have short-term and localized impacts to and benefits on the study area during the construction period. Short-term impacts associated with construction include inconvenient traffic conditions; disruptions to residents and the traveling public; increases in soil erosion, noise levels, and particulate air pollution; and health and safety-related construction issues. Short-term benefits consist of increased construction employment.

The following measures will be used to minimize temporary construction impacts:

- Construction operations will be scheduled to minimize traffic delays. Access to residences and businesses will be maintained during construction although temporary disruptions may occur.
- Coordination with all major utility companies prior to and during construction will be initiated to locate and minimize disturbance to utility services.
- Traffic control signage and devices will be in accordance with the Manual of Uniform Traffic Control Devices (FHWA 2009). Flag persons and warning devices, such as signs, barricades, channelizing devices, reflection markers, and hazard warning lights, will be provided as necessary for maintenance of traffic and public safety.
- Design phase partnering will be conducted during final design and construction to coordinate project activities and schedules with emergency service providers, local schools, the U.S. Postal Service, and local/state highway maintenance offices.
- Every effort will be taken to minimize the noise levels, including the mandatory use of construction equipment with operable mufflers.
- The increase in air pollution particulates will be minimized by the performance of the work in compliance with WVDOH specifications, manuals, and guidelines, and the requirements of the Clean Air Act.
- An approved Erosion and Sedimentation Control Plan will minimize erosion potential. Appropriate erosion and sedimentation control measures will be and may include, but not be limited to:
 - Divert stormwater originating off-site away from the construction area;
 - Conduct channel construction during low-flow months;
 - Use proper materials for temporary stream crossings and causeways;
 - Use temporary and permanent seeding and mulching;
 - Construct temporary sedimentation ponds; and,
 - Use silt barrier fence and/or hay bales.
 - Limit the length of time and amount of unprotected soil that can be exposed. Rock construction entrances will also be located at all site entrances that exit onto paved roads.

Construction will be performed to comply with all applicable federal, state, and local laws regarding safety, health, and sanitation. All contractors are required to adhere to Occupational

Safety and Health Administration guidelines to protect the lives and health of employees, the safety of the public, and the integrity of adjacent properties.

3.10 Energy

Energy expenditures are required during the construction of any highway or infrastructure project. Energy is also used by vehicular traffic using the highway, varying based on roadway profile, the alignment, grade, traffic density, and other factors.

The No-Build Alternative may increase future fuel consumption due to increased traffic delays in the study area; energy use will be slightly higher than current levels. Under either Build Alternative, energy use will temporarily increase due to the use of fossil fuels to power construction equipment. This short-term increase is offset by the improved movement of traffic after the project is constructed. It is anticipated that the Build Alternatives will have a positive future impact by decreasing the amount of energy used since traffic congestion and travel times would be reduced.

3.11 Indirect and Cumulative Effects

An Indirect and Cumulative Effects Analysis was prepared for the project and is summarized below.

CEQ guidelines for carrying out NEPA requirements broadly define indirect (or secondary)¹ effects as those that are caused by an action and are later in time or further removed in distance but are still foreseeable (CEQ 1978). Indirect effects can be associated with development that may result from the construction of a facility, such as a transportation improvement project, but differ from effects directly associated with the construction and operation of the facility itself. Indirect social, economic, and environmental impacts must be analyzed in both the present and future context.

Cumulative effects, on the other hand, result from the incremental consequences of an action when added to other past, present, and reasonably foreseeable future actions (CEQ 1997a), regardless of what agency, person, or organization undertakes such actions. When considered in concert with other foreseeable developments and projects, they can result in a combined effect greater than considering separate elements independently.

3.11.1 Indirect Effects

Generally, indirect effects are stimulated by an initial action and comprise a wide variety of secondary effects, such as changes in land use, development patterns, economic activity, utility service capacity, and population density. Although indirect effects may result in increased development pressure on open space and other natural resources, the rural/suburban character of the study area limits indirect impacts primarily to areas with some existing infrastructure.

Factors that typically induce secondary development are new access to potential development areas, increased roadway capacity, existing development plans, suitable terrain, and economic

¹ CEQ regulations and related CEQ guidance do not use or define the term "secondary impact." The term is used in FHWA's *Secondary and Cumulative Impact Assessment in the Highway Project Development Process* (FHWA 1992) but is defined with the CEQ definition of indirect impact (40 CFR 1508.8). FHWA used the terms secondary and indirect impacts interchangeably.

incentives. The potential for secondary development to occur in a specific area is determined in great part by individual municipal planning objectives.

This qualitative analysis of potential indirect effects is based on a review of local and regional planning documents and study area field views. Also, in preparing the 2015 Culloden Interchange Study, WVDOH worked with Cabell and Putnam County planning departments and found that most of the study area is not being considered for any comprehensive future land use revisions or zoning regulations.

A Metropolitan Planning Organization (MPO) is an agency created by federal law to provide local input for urban transportation planning. Two MPOs cover the study area: the KYOVA Interstate Planning Commission, which includes Cabell County, and the Regional Intergovernmental Council (RIC) Region III, which includes Putnam County.

Two factors were considered in the identification of potential indirect effects. First, known development trends and redevelopment efforts in the study area were examined. Second, it was assumed that areas that have been developing or are subject to redevelopment are more likely to experience indirect effects because of the improved access provided by the proposed project.

The study area is generally a rural/suburban residential area with intermittent retail, commercial, and light industrial properties intermixed. The current availability of land and public infrastructure in Cabell County indicates that secondary development is most likely to occur near the interchange of I-64 and Benedict Road. While no significant land use changes are anticipated within the study area, the increased traffic moving between Hurricane and Huntingdon currently has a negative impact on the transportation systems and adjacent land uses in Culloden. Putnam County is the fastest growing county in the region and the most affluent. Located between Charleston and Huntington, the County is connected by interstate highway to both cities and contains a relatively large amount of flat developable land (RIC 2014).

The proposed project is consistent with local master planning efforts and recommendations and has been designed to meet the transportation needs of through travelers and residents of Culloden and the surrounding area. Given the area's dependency on motor vehicles and freight truck movement, and the anticipated increase in congestion stemming from existing capacity constraints and future no-build forecast travel demands, the proposed improvements to roadway infrastructure access and capacity are needed to maintain relatively acceptable traffic operations within the study area. While the project will improve traffic operations in the study area, it is not anticipated to induce development much beyond background growth already occurring in the study area.

Economic pressures on the local community, coupled with national trends, are likely to induce some additional development in the region. By providing safer and more efficient highway access, both Build Alternatives have the potential to induce secondary development, but growth in the study area is constrained by the limited availability of land and infrastructure. Development is expected to continue in areas where it is currently occurring and remain lower in other areas. Therefore, population densities and economic activity are expected to remain relatively constant compared to present conditions and the likelihood of indirect effects will remain minimal. Overall, secondary development would be an economic benefit to Culloden. Avoidance and minimization of the adverse indirect effects related to this secondary development will be accomplished through comprehensive planning. Although strict land use controls are in place in the study area, future developmental controls could include access management, transfer of development rights, growth management regulations, resource management, resource preservation, conservation easements, and the provision of incentives for infill development.

3.11.2 Cumulative Effects

Taken individually, an action may have little effect on the environment. When viewed as a sequence of events, however, different actions may cause effects to accumulate over time, thereby intensifying the overall impacts. Cumulative effects can be difficult to understand because they are not clear cut. They can accrue from similar impacts, from multiple actions, or be the product of unrelated impacts from a variety of actions. In addition, some actions may offset the effects of other actions, lessening the overall impact. Cumulative effects can also arise from actions which may only be connected by their common impacts on similar resources, ecosystems, or human communities.

Cumulative effects analysis is defined temporally and geographically, and these definitions differ based on the specifics of each project. For the proposed project, the timeframe aligns with the 20-year horizon design year. Given the role that I-64 plays in regional mobility, and thus the economic development and prosperity of the Cabell and Putnam Counties and the region, the geographic scope of the cumulative analysis considers regional plans for development and focuses on the I-64 corridor from Huntington to Charleston. This qualitative analysis of potential cumulative effects is based on a review of comprehensive plans and related programming documents, study area field views, and a review of information available for reasonably foreseeable future actions.

3.11.2.1 Cumulative Projects Considered

Regional development and growth are affected by availability of suitable land, public water and sewer service, and transportation. Cabell County is currently preparing a comprehensive plan and growth management strategies or land use controls are expected to be addressed within that plan. Putnam County's community plan (Putnam County 2014) lays out future goals, including integration with regional planning initiatives.

The identification and analysis of projects that may contribute to cumulative effects present many challenges. Proponents of future actions may be reluctant to reveal information for several reasons. Plans may be uncertain and project sponsors, both private and public, may not see a benefit in disclosing them. Furthermore, project sponsors may not completely understand the importance of their plans on other projects or understand the potential impact inherent in those plans on others. Detailed design and operational information are generally not available for proposed projects. At the preliminary stage of project development, locations may not be set. Project size and magnitude may not have been determined. Usage estimates or projections may not be sufficiently rigorous. Many factors also affect the timing, location, and design of future actions. If programming and funding requirements have not been finalized, future actions may be delayed, downsized, or modified significantly over time. If definitions of future actions are too liberal, future impacts may be predicted as being too high. If definitions are too conservative, future impacts may be underestimated.

The following past projects within Cabell and Putnam counties were identified as potentially contributing to cumulative effects when considered with the Culloden Interchange Project (KYOVA 2017b, WVDOT 2016)

- Huntington interchange bridge replacement to six lanes on I-64 over WV 10
- Milton interchange bridge replacement on I-64 over CR 13
- Jones Branch Road/Mason Road (CR 15) widening to 4-lane divided roadway with intersection upgrades for left turning traffic

- I-64 signing renovation from Kentucky state line to the 29th street exit

The following planned projects within Cabell and Putnam counties were identified as potentially contributing to cumulative effects when considered with the Culloden Interchange Project.

- US Foods, a large local employer and food distribution provider is located on Virginia Avenue in Hurricane, about 1.5 miles northeast of Culloden. US Foods plans to expand into rail transportation and potentially expand its current facilities.
- Six existing business and industrial parks within Putnam County have plans for expansion.
- Residential development throughout Cabell County but specifically along I-64.
- Commercial development around other I-64 interchanges and in downtown Culloden.
- I-64 is proposed to be widened from four to six lanes from Barboursville to Nitro.
- WV 10 is a major regional access route proposed to be widened to a 4-lane divided roadway with wide shoulders between Melissa Road in Barboursville to Salt Rock.

3.11.2.2 Cumulative Effects Analysis

The Culloden Interchange Project will improve local transportation and provide better access to a desirable area of Cabell and Putnam counties. This, in turn, could stimulate growth and result in future effects. The proposed interchange location is within existing WVDOH ROW, but the project will require ROW acquisition from up to 16 properties (depending on the final design of the selected alternative) for the modifications to Benedict Road, construction of the connector road between Virginia Avenue and US 60, and conversion of residential, commercial, and undeveloped lands in these areas to a transportation use. New property access to US 60, Benedict Road, and other local roads is not being proposed at this time, thus limiting potential cumulative effects related to land use changes and/or new development. As with any project that involves change, the Culloden Interchange Project will have the potential to contribute to positive and negative environmental effects within the study area.

While no significant community or commercial development projects are anticipated or currently planned, new infrastructure like the proposed interchange could lead to secondary and cumulative effects to most resources related to potential future development.

Development can strain existing water and waste water systems or may spur demand for upgrades to such infrastructure, which in turn could result in potential negative impacts to environmental resources. Likewise, new development and associated in-fill of infrastructure can affect wetlands and terrestrial habitats by infringing on natural ecosystems. Properly designed development can offset negative impacts, however, and assist in preserving valued elements of the landscape.

Development could also increase traffic and subsequently cause air quality effects or require future transportation improvements. These potential effects could be mitigated by the regulatory requirements and the design of future developments. Positive effects to recreation and socioeconomic resources would be expected, primarily through improved facilities or better access.

Because many actions associated with community development are performed by the private sector, the potential for negative effects on cultural resources exists as federal protections for cultural resources do not apply to private development unless a federal permit is also required.

Most actions likely to occur, however, will have some public sector involvement and consideration of cultural resources will be an integral part of those projects.

Increased safety, efficiency, and congestion management are the principal reasons for surface transportation projects. Short-term local income and revenues would increase due to future transportation projects, including bridge renovations, highway rehabilitations and upgrades, and new roadways. Significant changes to population, property values, local taxes, and existing land use patterns could occur, however, if roadway locations are changed or shifted.

Effects to water quality, wetlands, terrestrial habitat, and protected species could occur if undeveloped land is converted to transportation use. However, these effects could be offset in various ways, including avoidance, minimization, and mitigation.

Effects to air quality, recreation resources, and socioeconomics would be expected to be generally positive. Although the effects of transportation projects on cultural resources are mixed, these projects are tied to federal funding or permitting and, therefore, are subject to Section 106 and Section 4(f) compliance. These regulatory processes ensure that potential impacts to cultural resources are considered during project development.

Long-term positive effects would be associated with improved environmental conditions supported by the regulatory environment. These regulations are especially important where there are numerous development opportunities and the potential for threats to the natural environment occur. All three levels of government (federal, state, and local) have created laws or programs to address negative effects on the environment.

In summary, past and present projects have had a cumulative effect on the study area; however, with plans in place and the implementation of new development controls, future cumulative effects are expected to benefit the community.

The Culloden Interchange Project is expected to contribute to incremental cumulative effects when considered in combination with effects of past, present, and future actions. The project is anticipated to have an overall positive effect on the regional economy by improving mobility and is consistent with local and regional long-range transportation plans. Therefore, cumulative effects are not anticipated to be significant.

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APPENDIX A
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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

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Mail Code: 3EA30
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Dear Ms. Okhorn:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

Please be advised the West Virginia Division of Highways has initiated NEPA studies for the above referenced project. As we begin this process, we request your early input as to any concerns your agency may have regarding this project.

This project includes the study to replace the bridges carrying eastbound and westbound I-64 over County Route 60/21 (Benedict Road), adding a diamond interchange at the location of these bridges (mile post 32), upgrades to Route 60/21 to a three-lane connector road from the new diamond interchange to Virginia Avenue and alternatives from Virginia Avenue to US Route 60. Please refer to the attached location maps.

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Mr. R. J. Scites, PE
Director, Engineering Division
WV Division of Highways
1334 Smith Street
Charleston, WV 25301

Should you require additional information, please contact Traci Cummings of our Environmental Section at (304) 558-9678 or Traci.L.Cummings@wv.gov.

Very truly yours,

A handwritten signature in blue ink that reads "Ben L. Hark".

Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Michael E. Hatten
Chief Regulatory Division
U.S. Army Corps of Engineers
Huntington District
CELRH-RD
502 Eighth Street
Huntington, WV 25701-2070

Dear Mr. Hatten:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Ben L. Hark
Environmental Section Head
Engineering Division

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Attachments
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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Lisa Humphreys
Project Technician Coordinator
U.S. Army Corps of Engineers
Huntington District
CELRH-EC-CE
502 8th Street
Huntington, WV 25701-2070

Dear Ms. Humphreys:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



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Division of Highways

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Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

John Schmidt
Supervisor
U.S. Fish and Wildlife Service
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241

Dear Mr. Schmidt:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Charleston, WV 25301

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Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



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Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Norm Bailey
Resource Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
1550 Earl Core Road, Suite 200
Morgantown, WV 26505

Dear Mr. Bailey:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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WV Division of Highways
1334 Smith Street
Charleston, WV 25301

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Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



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Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Ron Wigal
Environmental Specialist
Natural Resources Conservation Service
U.S. Department of Agriculture
1550 Earl Core Road, Suite 200
Morgantown, WV 26505

Dear Mr. Wigal:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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WV Division of Highways
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Charleston, WV 25301

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Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
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Division of Highways

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Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Mary Ann Tierney
Regional Administrator
Federal Emergency Management Agency
Region III
615 Chestnut Street
Philadelphia, PA 19106

Dear Ms. Tierney:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Charleston, WV 25301

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Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



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Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Tribal Historic Preservation Officer
The Delaware Nation
P.O. Box 825
Anadarko, OK 73005-0825

To Whom It May Concern:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Tribal Historic Preservation Officer
Seneca-Cayuga Tribe of Oklahoma
P.O. Box 45322
Grove, OK 74345

To Whom It May Concern:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Tribal Archaeologist
Seneca Nation of Indians
90 Ohi:yo' Way
Salamanca, NY 14779

To Whom It May Concern:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Ben L. Hark

Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Tribal Historic Preservation Officer
Eastern Shawnee Tribe of Oklahoma
12705 East 705 Road
Wyandotte, OK 74370

To Whom It May Concern:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Environmental Section Head
Engineering Division

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Secretary of Transportation
Commissioner of Highways

December 17, 2018

Cultural Preservation Officer
Delaware Nation
P.O. Box 825
Anadarko, OK 73005-0825

To Whom It May Concern:

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Federal Project NHPP-2317(001)D
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Cabell County

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Engineering Division

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee
Indians in Oklahoma
P.O. Box 1245
Tahlequah, OK 74465

To Whom It May Concern:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
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Cabell County

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Environmental Section Head
Engineering Division

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Delaware Tribe of Indians
THPO Midwestern Office
1929 East 6th Street
Duluth, MN 55812

To Whom It May Concern:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
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Cabell County

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Charleston, WV 25301

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Ben L. Hark

Ben L. Hark
Environmental Section Head
Engineering Division

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Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

William C. Wentworth
Remedial Project Manager
U.S. Environmental Protection Agency
Region 3 Mail Code: 3LC20
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Wentworth:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Charleston, WV 25301

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Very truly yours,

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Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



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Division of Highways

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Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Charlie Armstead
West Virginia Department of Environmental Protection
Division of Land Restoration
Office of Environmental Remediation
601 57th St, Room 1072
Charleston, WV 25304-2345

Dear Mr. Armstead:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Ben L. Hark
Environmental Section Head
Engineering Division

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Danny Bennett
Natural Resources Program Manager
West Virginia Division of Natural Resources
P.O. Box 67
Elkins, WV 26241

Dear Mr. Bennett:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Mr. R. J. Scites, PE
Director, Engineering Division
WV Division of Highways
1334 Smith Street
Charleston, WV 25301

Should you require additional information, please contact Traci Cummings of our Environmental Section at (304) 558-9678 or Traci.L.Cummings@wv.gov.

Very truly yours,

A handwritten signature in blue ink that reads "Ben L. Hark".

Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Attachments
bcc: DDE(TC)



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Susan Pierce
Deputy State Historic Preservation Officer
Division of Culture and History
1900 Kanawha Blvd East
Charleston, WV 25305

Dear Ms. Pierce:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Travis Knighton
D-1 District Engineer
WV Division of Highways
1340 Smith Street
Charleston WV 25301

Dear Mr. Knighton:

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Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Engineering Division

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Scott Eplin
D-2 District Engineer
WV Division of Highways
P. O. Box 880
801 Madison Avenue
Huntington, WV 25712

Dear Mr. Eplin:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Environmental Section Head
Engineering Division

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Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Stephen S. McDaniel, Director
West Virginia Division of Natural Resources
324 Fourth Avenue
South Charleston, WV 25303

Dear Director McDaniel:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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WV Division of Highways
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Charleston, WV 25301

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Environmental Section Head
Engineering Division

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Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

William F. Durham, Director
Office of Air Quality
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304-2345

Dear Mr. Durham:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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WV Division of Highways
1334 Smith Street
Charleston, WV 25301

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Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Austin Caperton, Cabinet Secretary
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Dear Secretary Caperton:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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WV Division of Highways
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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Scott G. Mandirola, Director
Division of Water and Waste Management
Permitting and Engineering Branch
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304-2345

Dear Mr. Mandirola:

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Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Senator Robert Plymale
206 Cliffview Drive
Huntington, WV 25704

Dear Senator Plymale:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
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Cabell County

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Senator Michael A. Woelfel
801 8th Street
Huntington, WV 25701

Dear Senator Woelfel:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Delegate Daniel Linville
P.O. Box 475
Milton, WV 25541

Dear Delegate Linville:

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Federal Project NHPP-2317(001)D
Culloden Interchange
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Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Delegate Sean Hornbuckle
P.O. Box 591
Huntington, WV 25710

Dear Delegate Hornbuckle:

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Federal Project NHPP-2317(001)D
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Cabell County

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Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation
Commissioner of Highways

December 17, 2018

Delegate John Mandt, Jr.
2445 5th Avenue
Huntington, WV 25703

Dear Delegate Mandt:

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange
Cabell County

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Charleston, WV 25301

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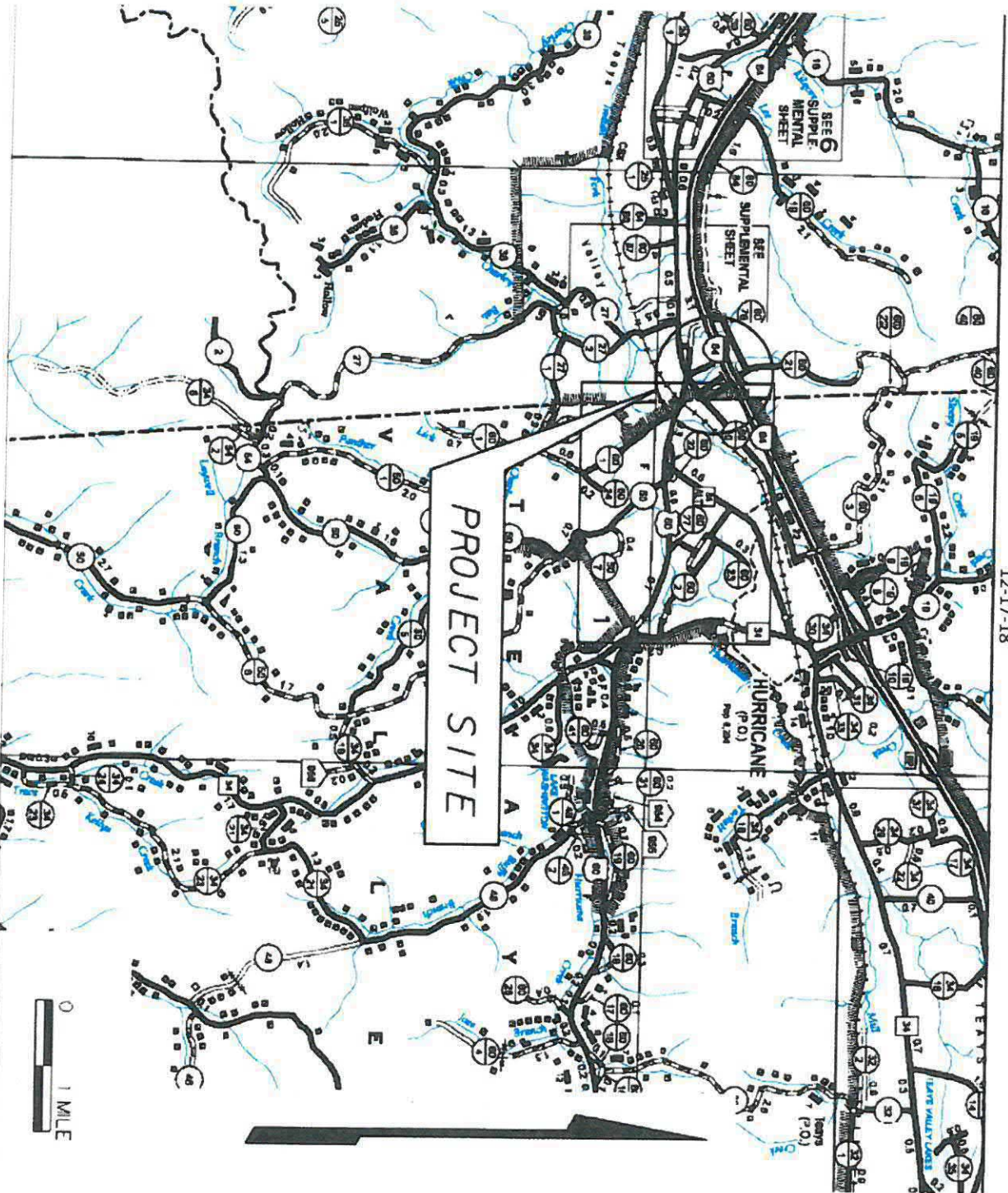
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Environmental Section Head
Engineering Division

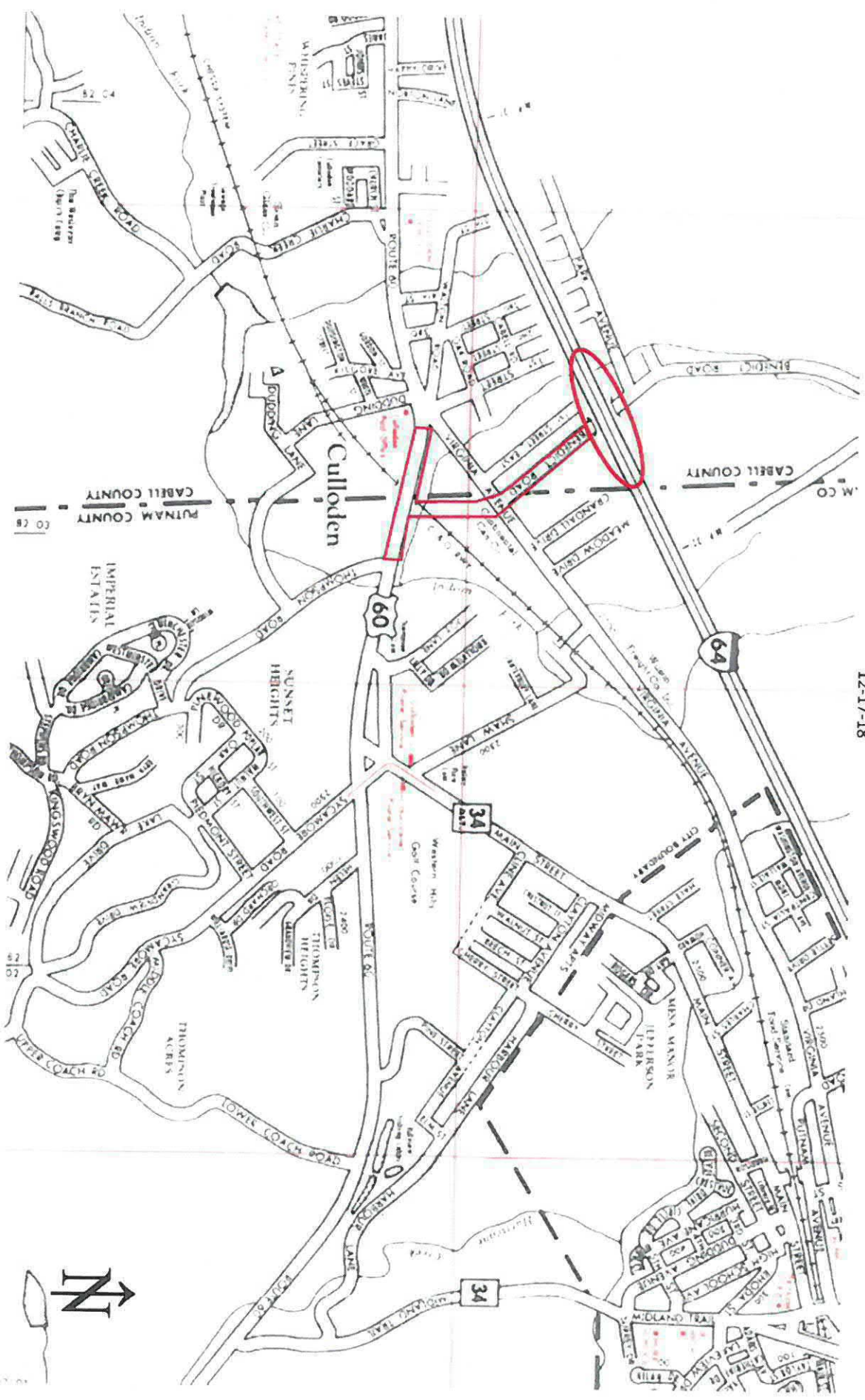
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Culloden Interchange
State Project: U306-64-31.65 00
Federal Project: NHPP-2317 (001) D
Cabell County

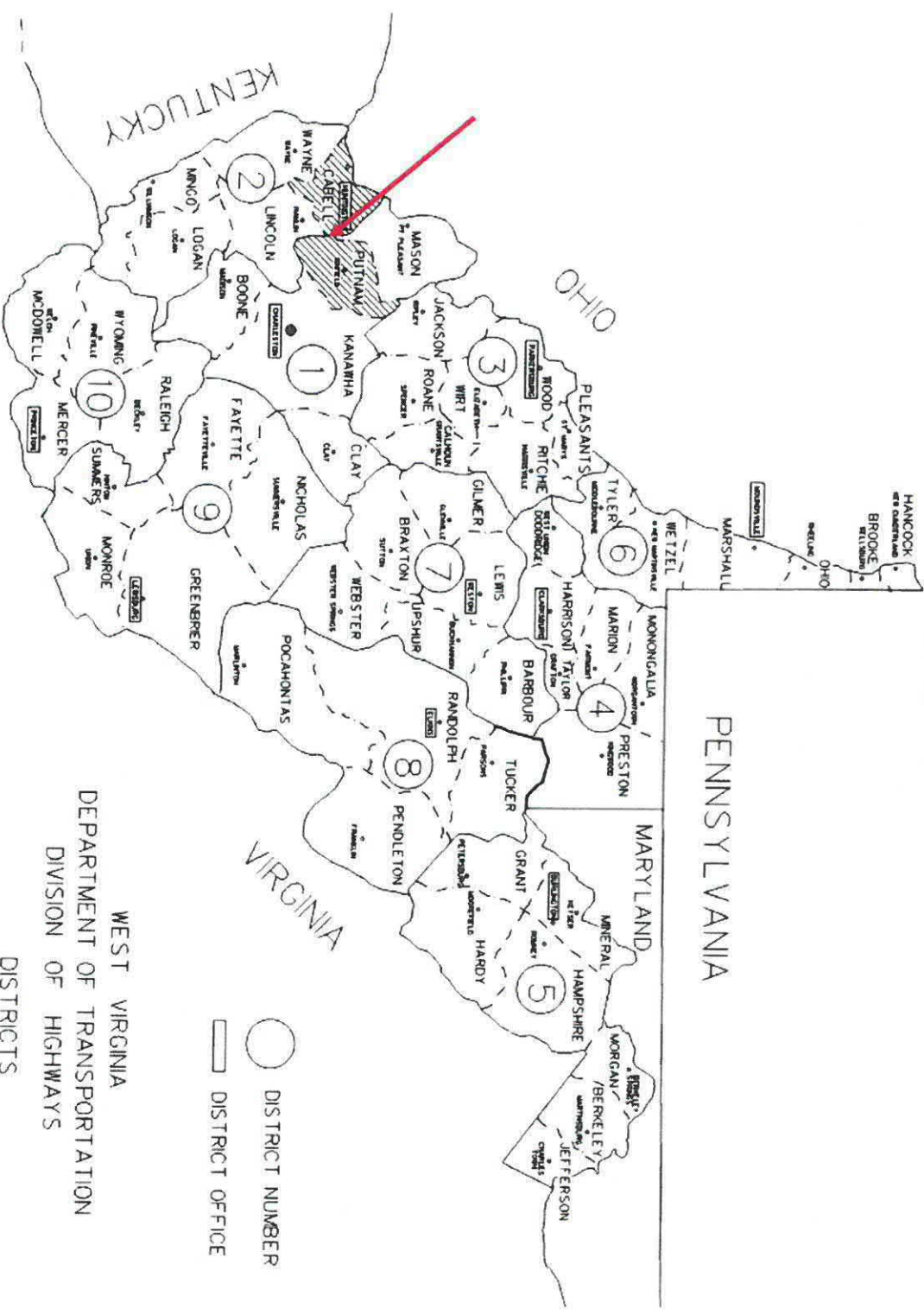
12-17-18



Culloden Interchange
State Project: U306-64-31.65 00
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Culloden Interchange
 State Project: U306-64-31.65 00
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 Cabell County
 12-17-18



WEST VIRGINIA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 DISTRICTS
 AND
 DISTRICT HEADQUARTERS

NEPA Scoping Distribution List
Culloden Interchange
12-17-2018

FEDERAL AGENCIES

Barbara Okhorn
U.S. Environmental Protection Agency
Region 3-Environmental Services Division
Office of Environmental Programs
Mail Code: 3EA30
1650 Arch Street
Philadelphia, PA 19103-2029

Michael E. Hatten
Chief Regulatory Division
U.S. Army Corps of Engineers
Huntington District
CELRH-RD
502 Eighth Street
Huntington, WV 25701-2070

Lisa Humphreys
Project Technician Coordinator
U.S. Army Corps of Engineers
Huntington District
CELRH-EC-CE
502 8th Street
Huntington, WV 25701-2070

John Schmidt
Supervisor
U.S. Fish and Wildlife Service
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241

Norm Bailey
Resource Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
1550 Earl Core Road, Suite 200
Morgantown, WV 26505

Ron Wigal
Environmental Specialist
Natural Resources Conservation Service
U.S. Department of Agriculture
1550 Earl Core Road, Suite 200
Morgantown, WV 26505

Mary Ann Tierney
Regional Administrator
Federal Emergency Management Agency
Region III
615 Chestnut Street
Philadelphia, PA 19106

TRIBAL CONSULTATION

Tribal Historic Preservation Officer
The Delaware Nation
P.O. Box 825
Anadarko, OK 73005-0825

Tribal Historic Preservation Officer
Seneca-Cayuga Tribe of Oklahoma
P.O. Box 45322
Grove, OK 74345

Tribal Archaeologist (email)
Seneca Nation of Indians
90 Ohi:yo' Way
Salamanca, NY 14779

Tribal Historic Preservation Officer
Eastern Shawnee Tribe of Oklahoma
12705 East 705 Road
Wyandotte, OK 74370

Cultural Preservation Officer
Delaware Nation
P.O. Box 825
Anadarko, OK 73005-0825

Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee
Indians in Oklahoma
P.O. Box 1245
Tahlequah, OK 74465

Delaware Tribe of Indians
THPO Midwestern Office
1929 East 6th Street
Duluth, MN 55812

William C. Wentworth
Remedial Project Manager
U.S. Environmental Protection Agency
Region 3 Mail Code: 3LC20
1650 Arch Street
Philadelphia, PA 19103-2029

**NEPA Scoping Distribution List
Culloden Interchange
12-17-2018**

WEST VIRGINIA AGENCIES

**Charlie Armstead
West Virginia Department of Environmental
Protection
Division of Land Restoration
Office of Environmental Remediation
601 57th St, Room 1072
Charleston, WV 25304-2345**

**Danny Bennett
Natural Resources Program Manager
West Virginia Division of Natural Resources
P.O. Box 67
Elkins, WV 26241**

**Susan Pierce
Deputy State Historic Preservation Officer
Division of Culture and History
1900 Kanawha Blvd East
Charleston, WV 25305**

**Travis Knighton
D-1 District Engineer
WV Division of Highways
1340 Smith Street
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West Virginia Division of Natural Resources
324 Fourth Avenue
South Charleston, WV 25303**

**William F. Durham
Director, Office of Air Quality
West Virginia Department of Environmental
Protection
601 57th Street, SE
Charleston, WV 25304-2345**

**Austin Caperton, Cabinet Secretary
West Virginia Department of Environmental
Protection
601 57th Street, SE
Charleston, WV 25304**

**Scott G. Mandirola
Director, Division of Water and Waste Management
Permitting and Engineering Branch
West Virginia Department of Environmental
Protection
601 57th Street, SE
Charleston, WV 25304-2345**

SENATORS & DELEGATES

**NEPA Scoping Distribution List
Culloden Interchange
12-17-2018**

Senator and Delegates

**Senator Robert Plymale
206 Cliffview Drive
Huntington, WV 25704**

**Senator Michael A. Woelfel
801 8th Street
Huntington, WV 25701**

**Delegate Daniel Linville
P.O. Box 475
Milton, WV 25541**

**Delegate Sean Hornbuckle
P.O. Box 591
Huntington, WV 25710**

**Delegate John Mandt Jr.
2445 5th Avenue
Huntington, WV 25703**



**United Keetoowah Band
Of Cherokee Indians in Oklahoma
Office of Historic Preservation**

P.O. Box 746 • Tahlequah, OK 74465
18263 W Keetoowah Circle • Tahlequah, OK 74464
Phone: (918) 871-2800 • Fax: (918) 414-4000



www.ukb-nsn.gov

January 25, 2019

RE: State Project U306-64-31.65 00; Federal Project NHPP-2317(001)D; Culloden Interchange

To Whom It May Concern:

Thank you for consulting with the United Keetoowah Band of Cherokee Indians in Oklahoma (UKB). This letter serves as notification of receipt of your correspondence of December 17, 2018. In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), and implementing regulation, 36 CFR 800, "Protection of Historic Properties" the UKB is responding to your request for consultation on the project in Cabell County, West Virginia.

In order to meet the federal Section 106 requirements and thoroughly review a project within 30 days, our office must receive the following:

- Name of Project with brief description of ground disturbing work
- Geographic Coordinates
- County
- State
- Listing of any Historic Properties within a half mile of the project
- Any supporting shapefiles of the project APE
- Cultural Survey Report
- Principal Investigator Name

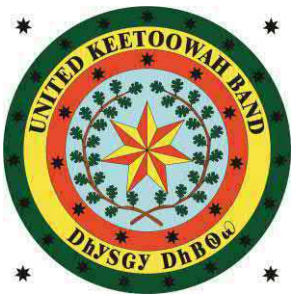
At the end of this letter, I have added our Section 106 Consultation Procedures and Cultural Resource Survey Report Standards for your convenience.

Please note that these comments are based on information available to us at the time of the project review. We reserve the right to revise our comments as information becomes available.

If you have any questions or concerns, please contact me by phone or by email,

Thank You,

Charlotte Wolfe
Section 106 Compliance Officer
United Keetoowah Band of Cherokee
18263 W. Keetoowah Circle
Tahlequah, OK 74464
918-871-2752
cwolve@ukb-nsn.gov



United Keetoowah Band Of Cherokee Indians in Oklahoma Office of Historic Preservation

P.O. Box 746 • Tahlequah, OK 74465
18263 W Keetoowah Circle • Tahlequah, OK 74464
Phone: (918) 871-2800 • Fax: (918) 414-4000
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Section 106 Consultation Procedures

The United Keetoowah Band of Cherokee Indians in Oklahoma Historic Preservation Office has developed the following consultation procedures for all Section 106 projects identified as federal undertakings.

Please submit:

1. A 1-page cover letter with the following information:
 - a. Project Number (include on all correspondence)
 - b. Project Name, City, County, and State
 - c. Project Type
 - i. Explanation of ground disturbance
 - d. Geographic Coordinates in WGS84 Latitude and Longitude
 - e. Contact information including individual's name, address, phone, fax, and email
 - f. Principal Investigator for survey report including address, phone, fax, and email
2. Professional cultural/archaeological survey report including curriculum vitae for all archaeologists who conduct the field surveys and produce the cultural survey reports.
3. Aerial and/or color USGS topographic maps locating project area within a) state, b) county, and c) local area
4. Aerial, color USGS topographic, planimetric maps specifically locating
 - a. 0.5 or 1.0 mile APE study area
 - b. Location of archaeological and historic sites in the APE and in close proximity to the APE
5. Project site plan maps depicting labeled shovel test locations. Do not submit hand drawn or hand annotated maps. **The minimum shovel test density is one every 30 m for negatives. Positive shovel test densities should be every 15m until two negatives are excavated in order to delineate site boundaries. The minimum width for a shovel test is 30 cm. Shovel test minimum depth is to 30 cm below surface, sterile soil, or the water table. If terminated before sterile soil is reached, please provide an explanation either in the text or in the shovel test table. Excavated shovel tests must be screened using 0.25 inch mesh screen, dug in stratigraphic or 10 cm levels, and measurements must be recorded in centimeters.**
6. Table listing shovel test locations, width (cm), depth (cm), soils, and results.
7. Date-stamped site photographs in color of
 - a. Field site
 - b. All shovel test units with a scale and geographic coordinates



**United Keetoowah Band
Of Cherokee Indians in Oklahoma
Office of Historic Preservation**

P.O. Box 746 • Tahlequah, OK 74465
18263 W Keetoowah Circle • Tahlequah, OK 74464
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Cultural Resource Survey Report Standards

Below are the requirements for a cultural resource survey report that will enable the United Keetoowah Band of Cherokee Indians in Oklahoma, Office of Historic Preservation to efficiently and effectively assess the proposed project. Please include in all reports:

1. Abstract
 - a. Brief summary of the project, survey results, and recommendations
2. Introduction
 - a. Introduce project and project design
3. Environmental Setting
 - a. Specific location, legal description, composition of project site
 - b. General location, geomorphology, landform, soils, vegetation, hydrology
4. Cultural History
 - a. Brief overview of cultural occupation represented in locale
5. File Search and Previous Research
 - a. Results of file search in state database for previously recorded archaeological sites and review of previous archaeological investigations
 - b. The file search should be for both below ground archaeological sites and above ground historic sites as some states have two repositories for this information (i.e. Tennessee)
6. Field Methods and Analytical Techniques
 - a. How field survey and analysis were conducted
7. Results of Archaeological Field Investigations
 - a. Review of finding and identification of National Register of Historic Places
8. Recommendations
 - a. Summarization of archaeological sites identified, NRHP determinations, and project recommendations
9. References Cited

From: Stout, Elizabeth <elizabeth_stout@fws.gov>
Sent: Wednesday, February 6, 2019 11:28 AM
To: Cummings, Traci L <Traci.L.Cummings@wv.gov>
Subject: Culloden Interchange

This email is in response to your December 17, 2018, correspondence requesting information on federally listed species that may occur in proximity of the Culloden Interchange project in Cabell County.

The Indiana bat and northern long-eared bat (NLEB) may use the project area for foraging and roosting between April 1 and November 15. Any forest acreage to be cleared for the project should be reported to USFWS for review prior to construction.

Additionally, federally listed Indiana, NLEB, and gray bats may use the bridges for roosting habitat. A qualified bat biologist should survey the bridges for any sign of bat use prior to construction and provide this information to the USFWS for concurrence.

Once the above information has been provided, the USFWS will be able to provide concurrence on this project.

Thank you,

--

Liz Stout

Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
West Virginia Field Office

90 Vance Drive

Elkins, WV 26241
(304) 636 6586 x15

<http://www.fws.gov/westvirginiafieldoffice/index.html>

From: Okorn, Barbara <Okorn.Barbara@epa.gov>
Sent: Wednesday, February 13, 2019 1:32 PM
To: Cummings, Traci L <Traci.L.Cummings@wv.gov>; Workman, Jason (FHWA) <Jason.Workman@dot.gov>
Subject: Culloden Interchange, Cabell County Scoping

Ms. Cummings,

EPA has reviewed your December 17, 2018 letter regarding the proposed Culloden Interchange in Cabell County, WV. The proposed project will evaluate replacing the bridges carrying I-64 over County Route 60/21, adding a diamond interchange at the location of these bridges, and upgrades to 60/21 to a three-lane connector road. We understand that the study is being done in compliance with the National Environmental Policy Act (NEPA) and CEQ regulations implementing NEPA. Please find below recommendations for the scope of analysis for the proposed study.

- The NEPA document should include a clear and robust justification of the underlying purpose and need for the proposed action. The purpose and need statement is important because it helps explain why the proposed action is being undertaken and what objectives the project intends to achieve. The purpose of the proposed action is typically the specific objective of the activity. The need should explain the underlying problem for why the project is necessary. The alternatives are developed in response to the purpose and need.
- Alternatives analysis should include the suite of other activities or solutions that were considered and the rationale for not carrying these alternatives forward for detailed study.
- The document should describe potential impacts to the natural and human environment. Existing resources should be identified and EPA encourages that adverse impacts to natural resources, especially wetlands and other aquatic resources, be avoided and minimized.
- A robust narrative describing aquatic resources and functions should be included. We suggest at a minimum, a narrative should be provided that includes: a discussion of hydrology, including sources and direction of flow; the vegetative communities in the impact area, including size of trees (dbh), percent canopy cover, understory and other components such as woody debris and snags, and presence of invasive species; soil type(s); and an assessment of expected functions based on the HGM type, ecological community, and surrounding land-use. Photos should be included. It is recommended that stream and waterbody buffers be preserved or enhanced. We would be pleased to coordinate with WVDOH and the U.S. Army Corps of Engineers on this work. Some information on resources may be gained from public websites including:
 - EnviroMapper¹: <https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system>
 - Envirofacts²: <https://www3.epa.gov/enviro/>
 - NEPAassist³: <https://www.epa.gov/nepa/nepassist>
 - 303(d) Listed Impaired Waters: <https://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters>

- Stormwater ponds, best management practices (BMPs) and construction staging areas should not be located in wetlands and streams. Stormwater management alternatives that address the existing and new construction should be considered and are encouraged. Additional information may be found at: the International Stormwater BMP Database: <http://www.bmpdatabase.org>.
- EPA suggests coordinating with other appropriate federal, state and local resource agencies on possible impacts to wetlands, streams, historic resources and/or rare, threatened and endangered species.
- An evaluation of air quality and community impacts, including noise, light and possible traffic impacts, should be included in the document. General conformity status should be included in the document. Executive Order 13405 Protection of Children's Health EO should be considered.
- The NEPA document should include an analysis of any hazardous sites or materials, and the status of any ongoing or past remediation efforts in the project area. This includes any groundwater contamination.
- We recommend the document include consideration of extreme weather events in particular in association with resiliency design.
- The document should address potential indirect and cumulative effects in the project areas; analysis may aid in the identification of resources that are likely to be adversely affected by multiple projects, and sensitive resources that could require additional avoidance or mitigation measures. It is suggested that a secondary and cumulative effects analysis begin with defining the geographic and temporal limits of the study; this is generally broader than the study area of the project. The cumulative impact analysis should evaluate impacts to environmental resources that have the potential to be impacted by the project (i.e. wetlands, surface water, etc).

Thank you for coordinating with EPA on this project. We look forward to working with you as more information becomes available. Please let me know if you have any questions on the recommended topics above.

1 The Watershed Assessment, Tracking & Environmental Results System (WATERS) unites water quality information previously available only from several independent and unconnected databases

2 Includes enforcement and compliance information

3 NEPAassist is a tool that facilitates the environmental review process and project planning in relation to environmental considerations. The web-based application draws environmental data dynamically from EPA Geographic Information System databases and web services and provides immediate screening of environmental assessment indicators for a user-defined area of interest. These features contribute to a streamlined review process that potentially raises important environmental issues at the earlier stages of project development.

Barbara Okorn
 Office of Environmental Programs
 US EPA, Region III
 1650 Arch Street (3EA30)
 Philadelphia, PA 19103
 215-814-3330



The Delaware Nation

Cultural Resources /106 Department

31064 State Highway 281

Anadarko, OK 73005

Phone (405)247-2448 Fax (405) 247-8905

18 March 2019

To Whom It May Concern:

The Delaware Nation Cultural Preservation Department received correspondence regarding the following referenced project(s).

Project: State project U306-64-31.6500, Federal Project NHPP-2317 (001) D, Culloden Interchange, Cabell County, West Virginia.

Our office is committed to protecting tribal heritage, culture and religion with particular concern for archaeological sites potentially containing burials and associated funerary objects.

The Lenape people occupied the area indicated in your letter during prior to European contact until their eventual removal to our present locations. According to our files, the location of the proposed project does not endanger cultural, or religious sites of interest to the Delaware Nation. **Please continue with the project as planned** keeping in mind during construction should an archaeological site or artifacts inadvertently be uncovered, all construction and ground disturbing activities should immediately be halted until the appropriate state agencies, as well as this office, are notified (within 24 hours), and a proper archaeological assessment can be made.

Please note the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Band of Mohican Indians are the only Federally Recognized Delaware/Lenape entities in the United States and consultation must be made only with designated staff of these three tribes. We appreciate your cooperation in contacting the Delaware Nation Cultural Preservation Office to conduct proper Section 106 consultation. Should you have any questions, feel free to contact our offices at 405/247-2448.

Nekole Alligood

NAGPRA Projects Officer

The Delaware Nation

31064 State Highway 281

Anadarko, OK 73005

Ph. 405-247-2448

nalligood@delawarenation.com



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation

Jimmy Wriston, P. E.
Deputy Secretary/
Acting Commissioner

May 15, 2019

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia State Historic Preservation Office
WV Division of Culture and History
1900 Kanawha Boulevard East
Charleston WV 25305-0300

State Project U306-64-31.65 00
Federal Project NHPP-2317(001)D
Culloden Interchange Project
GO BOND PROJECT
Cabell and Putnam Counties

Dear Ms. Pierce:

Attached for your review and concurrence is the History Architectural Survey Report for Culloden Interchange Project.

Should you have any questions, please contact Sondra Mullins of our Environmental Section at 304-558-9487.

Very truly yours,

A handwritten signature in blue ink that reads "Ben L. Hark".

Ben L. Hark
Environmental Section Head
Engineering Division

H:s
Enclosure

CC: DDE(SM)



May 21, 2019

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300

Randall Reid-Smith, Commissioner

Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562

EEO/AA Employer

Mr. Ben L. Hark
Environmental Section Head
Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25305

Re: Culloden Interchange (GO BOND)
State Project U306-64-31.65 00; Federal Project NHPP-2317(001)D
FR#: 19-1019-Multi

Dear Mr. Hark:

We have reviewed the report titled *Final Architectural Survey Culloden Interchange Project Cabell and Putnam Counties, West Virginia* that was prepared for the above-referenced project. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR § 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the West Virginia Division of Highways (WVDOH) is planning to replace the bridges carrying eastbound and westbound I-64 over County Route 60/21 (Benedict Road) in Cabell County, WV, adding a diamond interchange at the location of these bridges (milepost 32), upgrades to Route 60/21 to a three-lane connector road from the new diamond interchange to Virginia Avenue, and alternatives from Virginia Avenue to US Route 60.

Architectural Resources:

Thank you for the submission and Historic Property Inventory forms. We have reviewed the submitted documentation, and the majority of the documented resources, 28, are simple domestic dwellings, while the remaining resources include a grocery store, service station, and an industrial plant. Based on the included documentation, we concur that the 31 built resources over 45 years of age located within the Area of Potential Effects (APE) for the proposed project lack the integrity and significance to be individually eligible for or contribute to any potential historic districts eligible for the National Register of Historic Places. Therefore, we concur that no architectural properties eligible for or included in the National Register will be affected by the proposed project. No further consultation is necessary regarding architectural resources; however, we ask that you contact our office if your project should change.

Consulting Parties/Public Comments

We note that the WVDOH sent early scoping letters about the proposed project to the Delaware Nation, Seneca Nation of Indians, Seneca-Cayuga Tribe of Oklahoma, Eastern Shawnee Tribe of Oklahoma, and

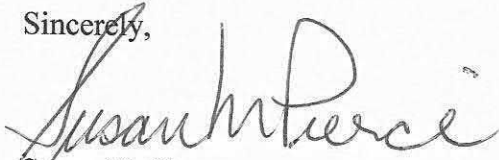
May 21, 2019
Mr. Hark
FR# 19-1019-Multi
Page 2

the United Keetoowah Band of Cherokee Indians in Oklahoma on December 17, 2018. At the time of submittal, two responses had been received. The Delaware Nation Cultural Preservation Department expressed that the proposed project would not endanger cultural, or religious sites of interest to the Delaware Nation. The United Keetoowah Band of Cherokee Indians in Oklahoma provided their guidelines for archaeological project reviews, and it is our understanding that this architectural survey will be provided to them.

On January 17, 2019, WVDOH held a public meeting to provide information regarding this proposed project. WVDOH accepted written comments regarding this project through February 19, 2019, but no comments regarding cultural resources were received. We understand that any further correspondence or comments regarding cultural resources will be sent to our office.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the review process, please contact Benjamin M. Riggle, Structural Historian, or at (304) 558-0240.*

Sincerely,



Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/BMR



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation

Jimmy Wriston, P. E.
Deputy Secretary/
Acting Commissioner

May 28, 2019

Ms. Susan Pierce, Deputy State
Historic Preservation Office
Department of Arts, Culture and History
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305-0430

Dear Ms. Pierce:

Archaeological Survey
Culloden Interchange Project
State Project # U306-64-31.65 00
Federal Project # NHPP-2317(001)D
Cabell And Putnam Counties, West Virginia

Please find attached for your review one hard copy of The Archaeological Survey Report for the Proposed Culloden Interchange Project in Cabell and Putnam Counties, West Virginia. Also attached is one disk containing GIS files for the project, one digital copy of the report and two hard copies of Archaeological Site Forms for 46CB193 and 46CB252.

As a result of the investigation one previously recorded archaeological site (46CB193) was revisited and one previously unrecorded archaeological site (46CB252) was discovered. Neither archaeological site is considered to be eligible for nomination to the National Register of Historic Places and no further work is recommended.

We ask for your concurrence with these findings.

Should you require additional information, please contact Rodney DeMott of our Environmental Section at (304) 558-9668.

Yours very truly,

A handwritten signature in blue ink that reads "Ben L. Hark".

Ben L. Hark
Section Head
Environmental Section
Engineering Division

H:k

Attachments

Bcc: DDE(RCD)



The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300

Randall Reid-Smith, Commissioner

Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562

EEO/AA Employer

May 30, 2019

Mr. Ben L. Hark
Environmental Section Head
Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25305

Re: Culloden Interchange (GO BOND)
State Project U306-64-31.65 00; Federal Project NHPP-2317(001)D
FR#: 19-1019-Multi-1

Dear Mr. Hark:

We have reviewed the archaeological survey report that was prepared for the above-referenced project. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR § 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the West Virginia Division of Highways (WVDOH) is proposing to construct a new interchange on I-64 near Culloden in Cabell and Putnam Counties, replace the bridges carrying eastbound and westbound I-64 over County Route 60/21 (Benedict Road) in Cabell County, WV, add a diamond interchange at the location of these bridges (milepost 32), and modify the Route 60/21 corridor by constructing a three-lane road from the new diamond interchange to County Route 60/10 (Virginia Avenue) in Cabell County. Existing Benedict Road will be converted to a frontage road. The proposed project will also include a new connector road from Benedict Road/Virginia Avenue to US 60. The direct area of potential effect (APE) encompasses the footprint of the bridge replacement and diamond interchange, Benedict Road modifications, and tow proposed alternative for the new connector road. The APE totals 31 acres.

Archaeological Resources:

Archaeological survey of the APE included surface inspection and shovel probe excavation. In total, 286 shovel test pits were excavated. Portions of the APE exhibited steep terrain, wetlands, or are located within existing roadbeds. Survey of the APE resulted in the discovery of one new archaeological site, 46CB252, and in the reidentification of previously documented site 46CB193. In addition, previously documented site 46PU268 is located within the proposed APE; however, the current survey determined that this site's location has been filled and graded to turn it into an athletic field. Prior disturbance to other areas of the APE was also confirmed.

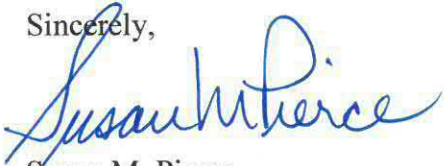
Site 46CB252 is described as mid- to late-twentieth century refuse intermixed with the remains of the mid-twentieth century residential occupation of the location. Two loci were identified within the site boundaries, both of which contain modern debris such as soft drink and alcohol bottles and cans

May 30, 2019
Mr. Hark
FR# 19-1019-Multi-1
Page 2

interspersed with fragments of a terra cotta plant pot, concrete, milk glass, and machined colorless and amber bottle glass, safety glass. The artifact scatter roughly corresponds with an east-west road that once connected Benedict Road and 1st Street but disappeared by the time I-64 was under construction. Site 46CB193 was initially recorded in 2001 as a prehistoric lithic scatter of unknown age. The current survey recovered seven lithic flakes and one small bipolar core. All the artifacts were recovered from plowzone contexts. Due to the limited nature of the artifacts and the lack of stratigraphic integrity, we concur that sites 46CB252 and 46CB193 are not eligible for listing in the National Register of Historic Places. In our opinion, no further consultation is necessary for the proposed project as currently designed.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the review process, please contact Lora A. Lamarre-DeMott, Senior Archaeologist, at (304) 558-0240.*

Sincerely,



Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LLD

June 19, 2019

U.S. Department of Agriculture
Natural Resources Conservation Service
West Virginia State Office
1550 Earl L. Core Road, Suite 200
Morgantown, WV 26505
Attn: Jason Beard, State Soil Scientist

**Re: Form AD-1006 for Culloden Interchange Project
Cabell and Putnam Counties, WV**

Dear Mr. Beard,

The West Virginia Department of Transportation, Division of Highways (WVDOH), in cooperation with the Federal Highway Administration, West Virginia Division (FHWA), proposes to construct an interchange, modify Benedict Road, and construct a connector road between Virginia Avenue and US 60 in Culloden in Cabell and Putnam Counties, West Virginia, to address increased traffic and congestion on I-64 between Hurricane and Milton. The interchange will also provide an additional outlet for round-trip daily traffic moving between the communities of Hurricane and Huntington.

On behalf of the Federal Highway Administration, please find enclosed a completed Form AD-1006 for the Culloden Interchange Project referenced above.

Please return the form to:

Mr. Jason Workman
Director, Program Development
Federal Highway Administration
West Virginia Division
154 Court Street
Charleston, WV 25301304-347-5271

If you have any questions or need more information, please contact Mr. Workman at Jason.Workman@dot.gov or 304-347-5271.

Yours sincerely,



Angela M. Chaisson
Senior NEPA Specialist
AECOM

enclosure: Form AD-1006 for Culloden Interchange Project

cc: Traci L. Cummings, Natural Resources Unit Leader, WVDOH, Environmental Section

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request			
Name of Project		Federal Agency Involved			
Proposed Land Use		County and State			
PART II (To be completed by NRCS)		Date Request Received By NRCS		Person Completing Form:	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>		YES <input type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount of Farmland As Defined in FPPA Acres: %		
Name of Land Evaluation System Used	Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS		
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site					
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide Important or Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)					
PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)			
2. Perimeter In Non-urban Use		(10)			
3. Percent Of Site Being Farmed		(20)			
4. Protection Provided By State and Local Government		(20)			
5. Distance From Urban Built-up Area		(15)			
6. Distance To Urban Support Services		(15)			
7. Size Of Present Farm Unit Compared To Average		(10)			
8. Creation Of Non-farmable Farmland		(10)			
9. Availability Of Farm Support Services		(5)			
10. On-Farm Investments		(20)			
11. Effects Of Conversion On Farm Support Services		(10)			
12. Compatibility With Existing Agricultural Use		(10)			
TOTAL SITE ASSESSMENT POINTS		160			
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100			
Total Site Assessment (From Part VI above or local site assessment)		160			
TOTAL POINTS (Total of above 2 lines)		260			
Site Selected:		Date Of Selection		Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>	
Reason For Selection:					
Name of Federal agency representative completing this form:					Date:

(See Instructions on reverse side)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

- Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, <http://fppa.nrcs.usda.gov/lesa/>.
- Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s) of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)
- Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.
- Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.
- Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.
- Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.
- Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.
2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.

Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.



United States Department of Agriculture
Natural Resources Conservation Service
1550 Earl Core Road, Suite 200
Morgantown, WV 26505
(304) 284-7540 (Phone)
(855) 857-6448 (Fax)

June 25, 2019

Mrs. Angela Chaisson
AECOM
4 North Park Dr, Suite 300
Hunt Valley, MD 21030

RE: Culloden Interchange, Cabell Co., WV

Mrs. Chaisson,


This is to acknowledge receipt of your request for evaluation of important farmland related to the above referenced project in Cabell County, WV. This important farmland information was requested in order for you to assess the environmental impacts of the proposed project in accordance with the National Environmental Policy Act.

The Farmland Protection Policy Act (FPPA – Public Law 97-98, 7 U.S.C. 4201) established the farmland conversion rating system to evaluate the impacts Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are implemented or assisted by a federal agency. Assistance from a federal agency includes loans, financial, and technical assistance.

Based on a review of the submitted documents, aerial photography, and the soil survey mapping it is determined that this project **does not** convert prime or other important farmland, and therefore is not subject to Farmland Protection Policy Act.

If you have any questions regarding this determination, please contact me at 304-284-7597.

JARED BEARD

 Digitally signed by JARED BEARD
Date: 2019.06.25 13:02:07 -04'00'

JARED BEARD
State Soil Scientist

Attachment: NRCS-AD-1006

Cc: Corine Powell, District Conservationist, NRCS, Huntington, WV
Aron Sattler, Resource Soil Scientist, NRCS, Beckley, WV

Helping People Help the Land

An Equal Opportunity Provider and Employer



FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 6/19/19				
Name of Project Culloden Interchange		Federal Agency Involved FHWA				
Proposed Land Use transportation		County and State Cabell and Putnam Counties, WV				
PART II (To be completed by NRCS)		Date Request Received By NRCS 6/24/2019		Person Completing Form: Jared Beard		
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>		YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	Acres Irrigated	Average Farm Size	
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount of Farmland As Defined in FPPA Acres: %				
Name of Land Evaluation System Used	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS 6/25/2019				
PART III (To be completed by Federal Agency)		Alternative Site Rating				
		Site A	Site B	Site C	Site D	
A. Total Acres To Be Converted Directly		13.4	6.6			
B. Total Acres To Be Converted Indirectly		0	0			
C. Total Acres In Site		59.3	60.8			
PART IV (To be completed by NRCS) Land Evaluation Information						
A. Total Acres Prime And Unique Farmland						
B. Total Acres Statewide Important or Local Important Farmland						
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted						
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value						
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)						
PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>		Maximum Points	Site A	Site B	Site C	Site D
1. Area In Non-urban Use		(15)	10	10		
2. Perimeter In Non-urban Use		(10)	5	5		
3. Percent Of Site Being Farmed		(20)	1	1		
4. Protection Provided By State and Local Government		(20)	0	0		
5. Distance From Urban Built-up Area		(15)	0	0		
6. Distance To Urban Support Services		(15)	0	0		
7. Size Of Present Farm Unit Compared To Average		(10)	0	0		
8. Creation Of Non-farmable Farmland		(10)	0	0		
9. Availability Of Farm Support Services		(5)	5	5		
10. On-Farm Investments		(20)	0	0		
11. Effects Of Conversion On Farm Support Services		(10)	0	0		
12. Compatibility With Existing Agricultural Use		(10)	5	5		
TOTAL SITE ASSESSMENT POINTS		160	26	26	0	0
PART VII (To be completed by Federal Agency)						
Relative Value Of Farmland (From Part V)		100	0	0	0	0
Total Site Assessment (From Part VI above or local site assessment)		160	26	26	0	0
TOTAL POINTS (Total of above 2 lines)		260	26	26	0	0
Site Selected: Site A		Date Of Selection 6/19/19		Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
Reason For Selection: Site A best meets the need for the project reduce existing and forecasted traffic congestion and delays associated with the Hurricane Creek Road/I-64 interchange and provide additional access for round-trip daily traffic and freight truck movements from the Hurricane area to Huntington.						
Name of Federal agency representative completing this form: Jason Workman, FHWA					Date: 6/19/19	

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

- Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, <http://fppa.nrcs.usda.gov/lesa/>.
- Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s) of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)
- Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.
- Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.
- Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.
- Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.
- Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

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1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.
2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

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Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation

Jimmy Wriston, P. E.
Deputy Secretary/
Acting Commissioner

August 20, 2019

Ms. Liz Stout
U.S. Fish and Wildlife Service
West Virginia Field Office
90 Vance Drive
Elkins, West Virginia 26241

Dear Mrs. Stout:

State Project U306-64-31.65 00
Federal Project N/A
Culloden Interchange
Cabell County

We are submitting this project to the Service for individual project review because it is not covered under our current MOU. This is due to the fact that it is being cleared using an Environmental Assessment.

This project includes the replacement of the bridges carrying eastbound and westbound I-64 over County Route 60/21 (Benedict Road), adding a diamond interchange at the location of these bridges (mile post 32), upgrade to Route 60/21 to a three-lane connector road from the new diamond interchange to Virginia Avenue and alternatives from Virginia Avenue to US Route 60. The project location is shown on the USGS HURRICANE quadrangle map (38.425451, -82.054866).

The project has been run through our GIS layers and no zones were hit. The project will have under 17 acres of forested tree removal and a bat habitat form has been completed by federally permitted bat biologist Sydney Burke and is attached. No suitable habitat for bats was found on the Eastbound or Westbound bridges.

Your comments on possible effects to federally-listed threatened and endangered species are requested so that they may be included in our environmental studies. In order for us to clear the NEPA/Section 404 Permit requirements for this project, a response (either email or the hard copy) from your agency is critical to our project record. Should you require additional information, please contact Traci Cummings, of our Environmental Section at (304) 558-9678.

Very truly yours,

A handwritten signature in blue ink that reads "Ben L. Hark".

Ben L. Hark
Environmental Section Head
Engineering Division

BH:b
Attachments
Bcc: DDE (TC)

US Fish and Wildlife Service Project Review Form

State Project U306-64-31.65 00

Federal Project N/A

Culloden Interchange

Cabell County

List species for requested clearance: All Species

DATE 8-20-2019

The subject project will have no effect / not likely to adversely affect Federally-listed species; therefore, no Biological Assessment or further Section 7 consultation pursuant to the Endangered Species Act (87 STAT 884, as amended; 16 U.S.C. et seq.) is required with the US Fish and Wildlife Service. Should project plans change or amendments be proposed that we have not considered in your proposed action, or if additional information on listed and proposed species becomes available, or if new species become listed or critical habitat is designated, this determination may be reconsidered.

Reviewer's signature

Date

Field Supervisor

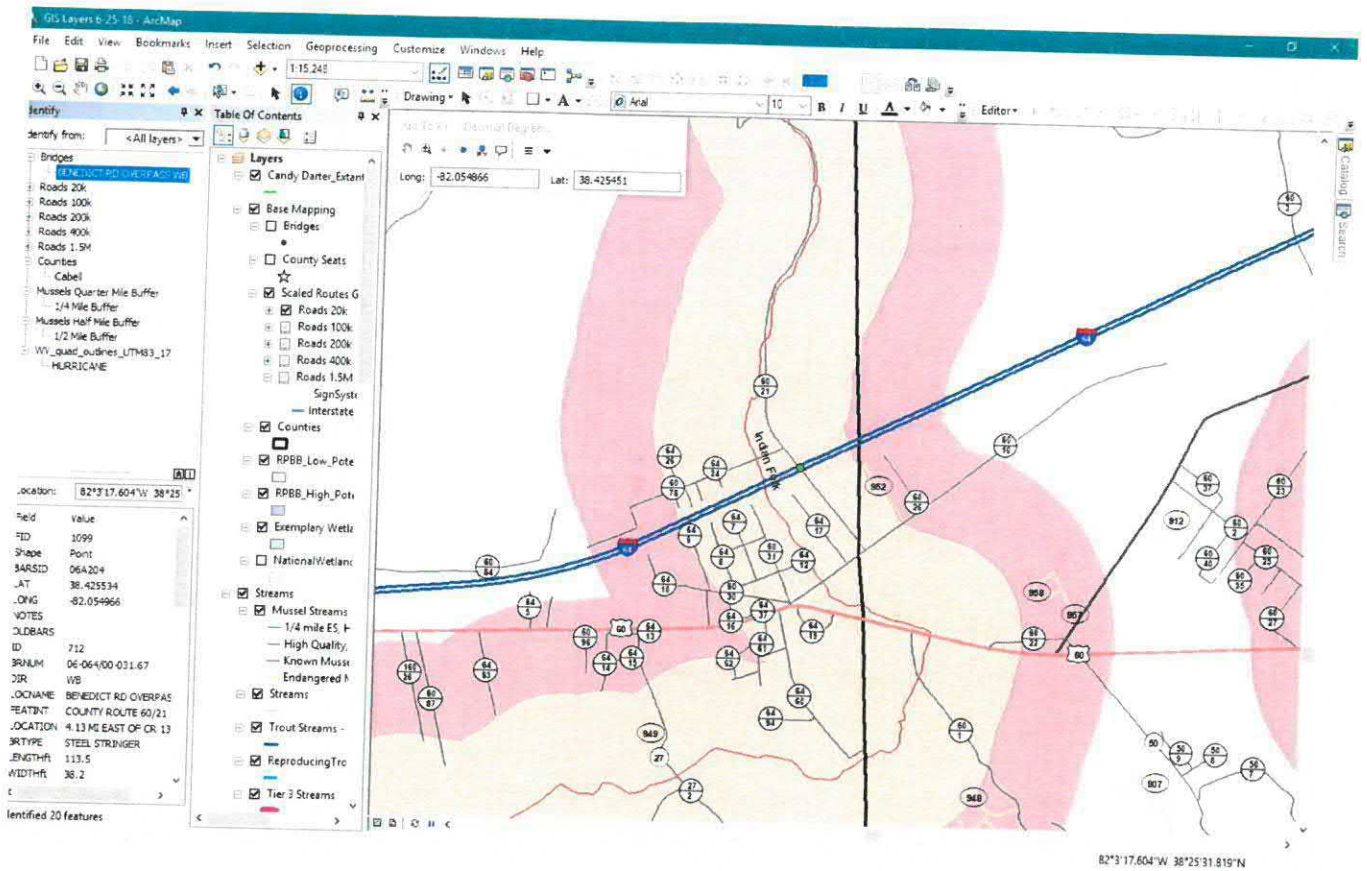
Date

DOH Project Manager: Traci Cummings

Phone: (304) 558-9678

Please return this form to the following address:

**West Virginia Division of Highways
Engineering Division, Environmental Section
1334 Smith Street
Charleston, WV 25301**



8-20-19 TC
 Culloden Interchange Project
 Cabell County
 38.425451, -82.05466

No RTE species. State Listed Mussel Stream will not be affected.

Appendix N

Bat Bridge Assessment Form

DOT Project Name: Culloden Interchange Bridges

State Project Number: U306-64-31.65

Federal Project Number: NHPP-2317(001)D

BARS Number: EB - 06A159, WB - 06A204

County: Cabell

Coordinates: EB (38.425383, -82.054794), WB (38.425534, -82.054966)

Bat Indicators

Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure, and further investigation is necessary.

INDICATOR	YES	NO	NOTES
Visual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	underside of bridges are concrete with cracks and leaking
Droppings	<input type="checkbox"/>	<input checked="" type="checkbox"/>	water, also very low over a busy roadway -
Staining	<input type="checkbox"/>	<input checked="" type="checkbox"/>	no suitable bat habitat

Habitat Features Impacted by Project

(for projects within Gray bat zone only)

Check all that apply. Presence of one or more features being impacted by the project indicates that further investigation is necessary.

INDICATOR	YES	NO	NOTES
Rock Outcrops	<input type="checkbox"/>	<input type="checkbox"/>	n/a
Rock Shelters	<input type="checkbox"/>	<input type="checkbox"/>	

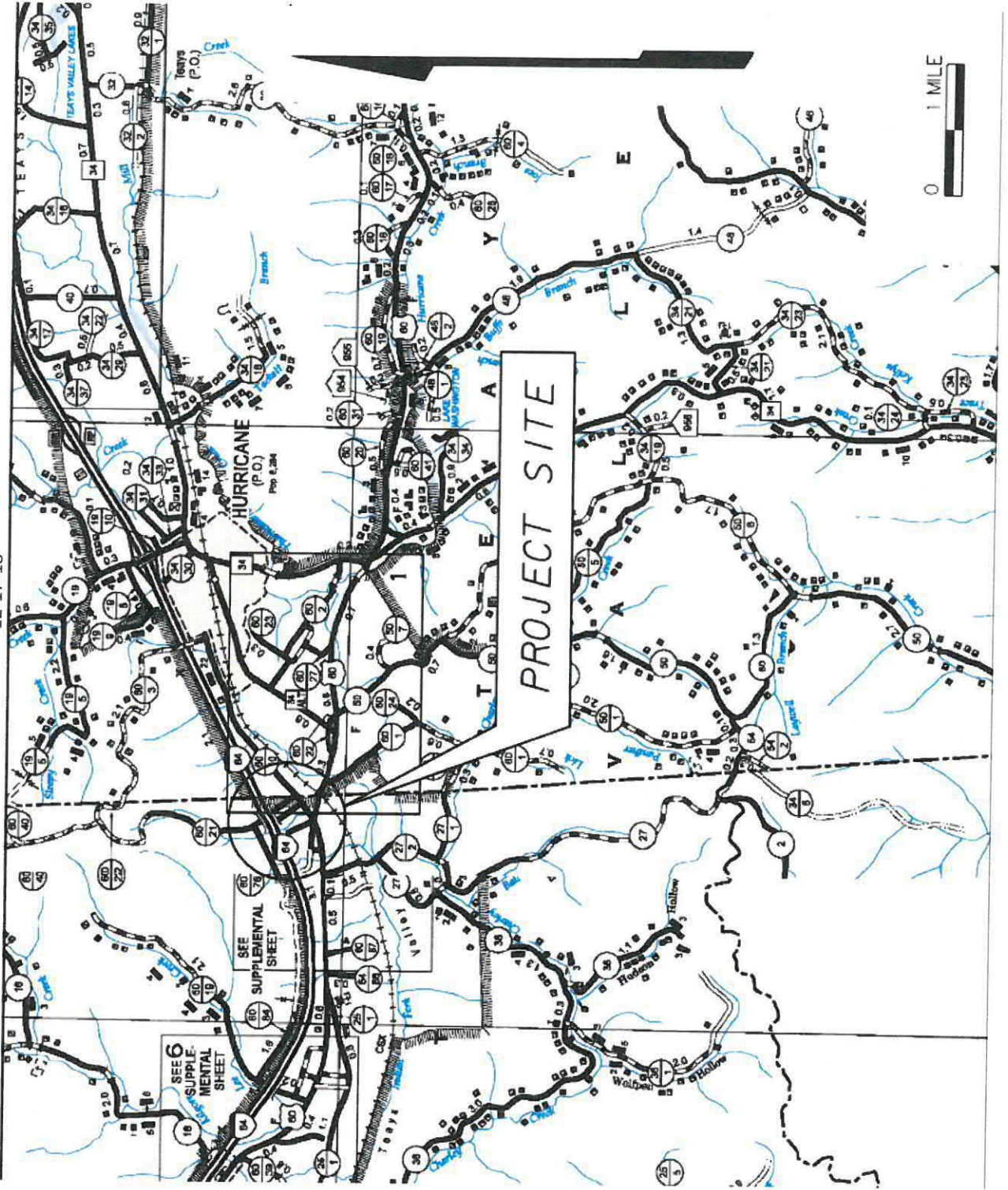
Form completed by USFWS certified biologist

Sydney Burke - WVDOH

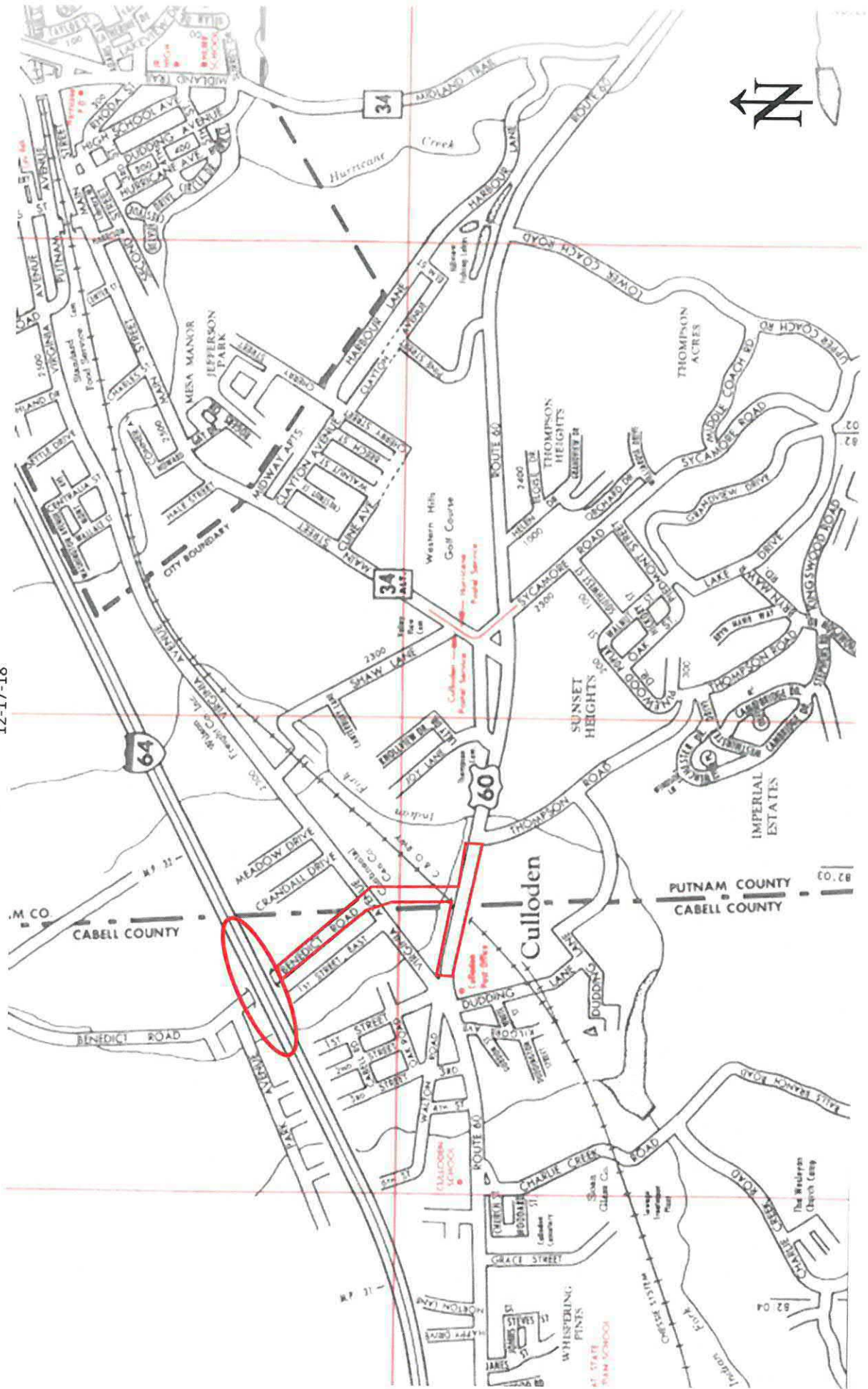
Date: 8/19/2019

7/6/2017

Culloden Interchange
State Project: U306-64-31.65 00
Federal Project: NHPP-2317 (001) D
Cabell County
12-17-18



Culloden Interchange
State Project: U306-64-31.65 00
Federal Project: NHPP-2317 (001) D
Cabell County
12-17-18





United States Department of the Interior



FISH AND WILDLIFE SERVICE

West Virginia Field Office
90 Vance Drive
Elkins, West Virginia 26241

Contact Name: Traci Cummings

Email Address or Fax Number: traci.l.cummings@wv.gov

FWS File # 2019-I-1049 **All future correspondence should clearly reference this FWS File #.**

Project: Culloden Interchange, Cabell County

Date of Letter Request: August 20, 2019

This is in response to your letter requesting threatened and endangered species information in regard to the proposed project listed above. These comments are provided pursuant to the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U. S. C. 1531 *et seq.*).

Two federally listed species could occur in the project area: the endangered Indiana bat (*Myotis sodalis*) and the threatened northern long-eared bat (*Myotis septentrionalis*) (NLEB).

The Indiana bat and NLEB may use the project area for foraging and roosting between April 1 and November 15. Indiana bat summer foraging habitats are generally defined as riparian, bottomland, upland forest, and old fields or pastures with scattered trees. Roosting/maternity habitat consists primarily of live or dead hardwood tree species which have exfoliating bark that provides space for bats to roost between the bark and the bole of the tree. Tree cavities, crevices, splits, or hollow portions of tree boles and limbs also provide roost sites. In West Virginia, the U.S. Fish and Wildlife Service (Service) considers all forested habitat containing trees greater than or equal to 5 inches in diameter at breast height to be potentially suitable as summer roosting and foraging habitat for the Indiana bat.

Indiana bats feed on emerged aquatic and terrestrial flying insects. Moths, caddisflies, flies, mosquitoes, and midges are major prey items. Aquatic insects that have concentrated emergences or that form large mating aggregations above or near water appear to be preferred prey items. As a result, streams, wetlands, and associated riparian forests are often preferred foraging habitats for pregnant and lactating Indiana bats. Indiana bats also forage within the canopy of upland forests, over clearings with early successional vegetation (e.g., old fields), along the borders of croplands, along wooded fencerows, and over farm ponds in pastures. Increased erosion and sedimentation of streams reduces diversity and biomass of benthic invertebrates, i.e. insects. Some projects propose impacts to aquatic features such as streams or wetlands, which could result in a decrease in insects available to both bat species for foraging.

Similar to the Indiana bat, NLEB foraging habitat includes forested hillsides and ridges, and small ponds or streams. NLEB are typically associated with large tracts of mature, upland forests with more canopy cover than is preferred by Indiana bats. NLEB seem to be flexible in selecting roosts. They choose roost trees based on suitability to retain bark or provide cavities or crevices, and this species is known to use a wider variety of roost types than the Indiana bat. Males and non-reproductive females may also roost in cooler places like caves and mines. Although rare, this bat has also been found roosting in structures like barns and sheds.

Indiana bats and NLEB use caves or mine portals for winter hibernation between November 15 and March 31. These species also use the hibernacula and the areas around them for fall-swarming and spring-staging activity (August 15 to November 14 and April 1 to May 14, respectively). Some males have been known to stay close to the hibernacula during the summer and may use the hibernacula as summer roosts. There may be other landscape features being used as hibernacula by NLEB during the winter that have yet to be documented.

The Service has reviewed the number of acres of potentially suitable foraging and roosting habitat on the West Virginia landscape available to each Indiana bat, versus the total acreage of forest. On that basis, we have determined that small projects, more than 10 miles from a known priority 1 or 2 Indiana bat hibernaculum, more than 5 miles from a known priority 3 or 4 Indiana bat hibernaculum, or more than 2.5 miles from any known maternity roost, or more than 5 miles from summer detection sites where no roosts were identified, that affect less than 17 acres of forested habitat, and will not affect any potential hibernacula, will have a very small chance of resulting in direct or indirect effects to the Indiana bat, and therefore these effects are considered discountable. **Please note that the Service may review and update this assessment at any time as new information becomes available.**

The Service has determined that this project is not likely to adversely affect the Indiana bat because your project: 1) will affect less than 17 acres of potential Indiana bat foraging or roosting habitat; 2) is not within any of the Indiana bat hibernacula or summer use buffers described above; 3) will not affect any potential caves or mines that could be used as hibernacula for this species; and 4) effects to aquatic features used for foraging habitat will be insignificant.

The NLEB may occur within the range of the proposed project, and may be affected by the proposed construction and operation of this project. Any take of NLEB occurring in conjunction with these activities that complies with the conservation measures (as outlined in the 4(d) rule), as necessary, is exempted from section 9 prohibitions by the 4(d) rule and does not require site specific incidental take authorization. Note that the 4(d) rule does not exempt take that may occur as a result of adverse effects to hibernacula and that no conservation measures are required as part of the 4(d) rule unless the proposed project: 1) involves tree removal within 0.25 miles of known NLEB hibernacula; or 2) cuts or destroys known, occupied maternity roost trees or any other trees within a 150-foot radius around known, occupied maternity tree during the pup season (June 1 to July 31). This proposed project is not located within any of these radii around known hibernacula or roost trees and will not affect any known NLEB hibernacula, therefore any take of NLEB associated with this project is exempted under the 4(d) rule and no conservation measures are required.

Should project plans change or amendments be proposed that we have not considered in your proposed action, or if additional information on listed and proposed species becomes available, or if new species become listed or critical habitat is designated, this assessment may be reconsidered.

If you have any questions regarding these comments, please contact the biologist listed below at (304) 636-6586 or at the letterhead address.

Liz Stout Date: August 20, 2019
Biologist

Barbara Douglas for Date: 8/21/2019
Field Supervisor

APPENDIX B

Meeting Sign-In Sheets, Public Comments, and WVD0H Responses

**WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

**INFORMATIONAL WORKSHOP PUBLIC MEETING
ATTENDANCE SHEET**

PROJECT: Culloden Interchange Project
U306-64-31.65 00
NHPP-2317(001)D
Cabell County

DATE: Thursday, January 17, 2019

LOCATION: Culloden Elementary School
2100 US Route 60
Culloden, WV

PLEASE PRINT

<u>NAME</u>	<u>ORGANIZATION/ADDRESS/EMAIL</u>
1. <u>Howard & Dottie Hendo</u>	<u>127 East First St</u>
2. <u>Cathy Bays</u>	<u>131 East 1st Street</u>
3. <u>R MARTIN</u>	<u>136 MEADOW DR</u>
4. <u>William Richards</u>	<u>118 Hampton Lane Hurricane, WV</u>
5. <u>Sollic Marcum</u>	<u>2446 Benedict Rd</u>
6. <u>Kim marcum</u>	<u>2446 Benedict Rd Culloden</u>
7. <u>Stacie Lssa</u>	<u>2112 BROOKE St Culloden WV ^{WV} 25510</u>
8. <u>Ronald Gengas</u>	<u>27 East Oaks Barboursville 25504</u>
9. <u>Linda Swan</u>	<u>1986 U.S. Hwy. 60 - Culloden, WV 25510</u>
10. <u>John P. Gray</u>	<u>JJ P Gray 47 @ Suddenlink.net ²⁵⁵¹⁰</u>
11. <u>Dave Shely</u>	<u>2250 6th St Culloden WV</u>
12. <u>Gene Thomason</u>	<u>Mollie Circle + US RT 60</u>
13. <u>Connie Baldwin</u>	<u>2442 1/2 Benedict Rd Culloden</u>
14. <u>William Hatcher</u>	<u>2188 WALTON Rd Culloden</u>

NAMEORGANIZATION/ADDRESS/EMAIL

15. Janice J Hains 129 East Street Culloden, W. Va.
25510
16. James Browning
17. DAVID B MARTIN 1001 John ST Culloden WV
25510
18. Greg and Denise Dent 40 Western Dr. Hurricane, WV
25526
19. Charles Smith 2520 Benedict RD Culloden
W.VA
25510
20. Patricia E M 115 Crandall Dr Culloden
25510
21. Bob + Pam Gibson 136 East 1st St. Culloden, WV 2550
22. Rodney Shirkey 2252 Rear 6th St Culloden
23. Angela Johnston / Grant Thaxton 139 East 1st Culloden WV 25510
24. Kera Taylor 2416 Benedict Rd, Culloden 25510
25. Sidney Baldwin 2442 1/2 & 2440 Benedict Rd
26. James C Burdette 96 Meadow Dr Culloden 25510
27. Karen Cremeaux 1847 James River Trpk. - Culloden
28. Kelly Vance 6 Beth St, Culloden, WV
29. James Vance " "
30. Nancy Setliff 1011 Putnam Ave Culloden WV
31. Eddie Ellison 901 Meadow Dr. Culloden
32. Chris Rule 1101 KANAWHA TR Culloden
33. Cherry Rose 2279 Park Av Culloden, WV
34. Arthur & Hazel Castro 137 MEADOW DR CULLODEN
35. Rodney McBeth PO Box 123 Culloden
36. James E. Woodard Rt 1 Box 189 Milton, WV 25541
37. Marie Collins 151 Meadow Way, Culloden 25510
38. Mitch Collins 151 Meadow Way, Culloden 25510

NAME

ORGANIZATION/ADDRESS/EMAIL

- 39. Do I McCallister
- 40. Karen Davis
- 41. Myra L. Simmons
- 42. Betty D. White
- 43. JAN L. Shiekey
- 44. Valerie Alcott
- 45. TOM RULE
- 46. Kim Ray
- 47. Mary M. McCallister P.O. Box 123 Culloden Jct
- 48. William McCallister
- 49. Jamie Woodyard 1300 James River Tpke Milton NJ 25541
- 50. Anthony J. DeMare 6 Cloverleaf Dr Culloden 25510
- 51. JOHN WILSON, JR.
- 52. Fred Sowards Benedict Rd.
- 53. David Weddell Fernwood Dr
- 54. Doug Sowards Va Ave
- 55. Munk and Benedict rd
- 56. Stacy Sowards
- 57. Bryan Moody
- 58. Carolyn Duty Crandall Dr
- 59. James Duty Crandall Dr
- 60. DONE RAN DRYAN C TRIDD ENG. COM TRIDD ENGINEERING
- 61. Jerry Losh

<u>NAME</u>	<u>ORGANIZATION/ADDRESS/EMAIL</u>
62. <u>Samie Hartzel</u>	<u>samie.hartzel@ho-tavaic.com</u>
63. <u>Ron Hunt</u>	
64. <u>Steve Gaydosz</u>	<u>SGaydos291@yahoo.com</u>
65. <u>Jeff Smith</u>	<u>JR SMITH 667@Gmail.com</u>
66. <u>Sherry Dawson</u>	<u>fedsewd@hotmail.com</u>
67. <u>Yvonne Hays</u>	<u>2231 State St, Culloden WV</u>
68. <u>Frank Daal</u>	<u>2215 Oak St, Culloden, WV 25510</u>
69. <u>Danny Neal</u>	<u>Milton wva</u>
70. <u>Danny Neal</u>	<u>Milton WV.</u>
71. <u>Robin Woodyard</u>	<u>Culloden, WV. Robinwoodyard@icloud.com</u>
72. <u>Eric Burgess</u>	<u>mrkucell@live.com</u>
73. <u>Billy Black</u>	<u>2266 First Street Culloden 25510</u>
74. <u>Rod Michallisi</u>	<u>503 Laurel Ridgerd, Culloden, 25510</u>
75. <u>Virginia Stevens</u>	<u>2436 Benedict Rd. Culloden, 25510</u>
76. <u>Cary W. Scott</u>	<u>O.R. Colan Assoc., LLC</u>
77. <u>Rick Walker</u>	<u>rick.walker@usfoods.com</u>
78. <u>Henry Perkins</u>	<u>SONNE RD</u>
79. <u>LARRY PONDER</u>	<u>BANKS BRANCH</u>
80. <u>Amanda Stillwell</u>	<u>atmud2@gmail.com</u>
81. <u>Jeff Smith</u>	<u>smithja2@suddenlink.net</u>
82. <u>Jody Sigman</u>	<u>KYOVAIPC ^{J.Sigman} kyovaiipc.org</u>
83. <u>Tony Hodge</u>	<u>TonyMHodge@gmail.com</u>
84. <u>Teresa Ball</u>	
85. <u>Don Allen</u>	<u>Hummer Breeze</u>

NAMEORGANIZATION/ADDRESS/EMAIL

86. Norman Proudfoot 125 Meadow Dr. Calloden
87. Sandy Smeele PO Box 466 Calloden
88. Matthew Kitchens 2369 Balk Branch RD Calloden
89. Josh + Kelly Cassau 4 Pondview Dr. Calloden, WV
90. John Hope 1 Cloverleaf Est. Calloden, WV
91. Blake Stevens ABC's Properties LLC
135 Corporate Centre Dr. Suite 550, Scott Depot
92. Connie Burgess 9 Hillview Circle Milton, WV
93. Jason Morris 2436 Benedict Rd
jason.morris1715007@gmail
94. Amy McAllister 4 cottage Dr. Calloden WV 25510
95. Cynthia Woodward
96. Clarence Woodward 2253 Sixth St. Calloden
97. Todd Kimbler US Foods
98. Tony Stillwell 72 Spicewood Lane Calloden, WV
99. Clytia Bledsoe 2009 Grace St., Calloden WV
100. Stephanie Smith 48 Spicewood Ln. Calloden, WV
101. Arminta Wallace 101 East First St., Calloden WV
- 841 Sunset Vw.
Lilton, WV
25541
102. Denise Fries rental 114 Hampton Lane, Hurricane, WV
103. SUSAN FABRY 16 SUTHERLAND RD, HERRIN, WV
- (+6)
104. DAVID FABRY " " "
105. Karen Tabor 3501 Benedict Rd Calloden
106. Tim Fouth FOODAIR
107. Phil Lucas
108. Kim A Cooper CCBOE

NAMEORGANIZATION or ADDRESS

109. Greg Carroll 3501 Benedict Rd, Culloden
110. Mark Adkins PO Box 44
111. Kimberly Murphy 310 Davis Road Culloden, WV 25510
112. Beth W. Wilson PO Box 325 Milton WV 25540
113. Heather Scarborough 2100 US Route 60 Culloden, WV 25510
114. LeAnn Fizer 2426 Benedict Road
115. Jennifer Belcher Bizzack Construction
116. PHIL WHITEHEAD 2414 BENEDECT RD
117. Lynn Whitehead 2414 Benedict Rd.
118. Barb Hatfield 1024 Park Ave
119. AUSTIN CHILDERS 2253 Cherley Creek Road
120. MR & MRS Bob Ferguson 250 Benedict Rd Culloden
121. Eric Pardue Rt. 1 Box 117 Milton
122. Beth Chapman Rt 1 Box 399 Milton
123. Dwight Edwards 2156 Midland Trail Culloden WV
124. Londa Lott Park Ave
125. Louena Richards 2216 Oak St, Culloden WV 25500
126. Gary D. Young 4966 Rockstep Rd, Winfield, WV 25213
127. EMKella 1001 St Ives Hurricane
128. Mike & Vicki Jarvis 1007 Holley Brook Culloden
129. Honne M^cCallister
130. David Thoms
131. Lee Cummings 3000 Benedict Road Culloden, WV
132. Lynn Roberts EAST 1st St Culloden WV

NAME

ORGANIZATION or ADDRESS

- 133. Dianna Navon 1918 Martin Lane
- 134. CHARLES HARDW 1918 MARTIN LANE
- 135. Dana Juley 524 Diamond Drive Hurk.
- 136. Virginia Stevens 2436 Benedict Rd. Culloden
- 137. Randy Tidd 163 Winchester Dr. Culloden
- 138. Ally Wilkins 13 NEWS
- 139. Edna Bird 3965 Turkey Creek Rd. Hurricane
- 140. Laura Cummings 3000 Benedict Rd Culloden
- 141. Christa Wade 117 EAST First Street Culloden WV 25510
- 142. Adam & Laura Cleverger 2 Ada Court Culloden
- 143. Marie Peloris 313 Kingswood on Culloden
- 144. Charles Straley 7243 Secord St, Culloden
- 145. David Meadows 349 LAMAR RIVER RD. Culloden
- 146. Marcella Lincoln }
147. Sheena Lincoln } 8845 Huxley Culloden
148. David Lincoln }
- 149. Jeya Smoals }
150. Matthew White } Dudding Lane
Great Leays Soccer Club
- 151. Annabell Rose
- 152. Dempsey Sovine
- Mr. and Mrs. 153. Daniel Casdorff dcasdorff@aol.com
- 154. Roy Sumner ~~PO Box~~ PO Box 791 Culloden WV 25510
- 155. John Van Nostrand 2111 Brooke St. Culloden WV 25510
- 156. Luce Cole 736 Emerald Drive Hurricane WV 25526

NAME

ORGANIZATION or ADDRESS

- 157. WILLIAM D BARTLEY 168 W 1 DECATURVILLE WV RR CAMDEN WV
- 158. WARREN PARKNS 32 CRAWFORD DRIVE CULLODEN, WV
- 159. ANTHONY COLE 736 EMERALD DR. HURRICANE WV
- 160. Lara Bacchus 1843 Park Ave Culloden
- 161. Scott Smith 3499 Benedict Rd Culloden, WV
- 162. Mary Woodall 1755 Central Dr Culloden WV
- 163. Roy Shunda Maloney 2260 Park Ave Culloden WV^{9a}
- 164. _____
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- 167. _____
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- 179. _____
- 180. _____

DATE: 1-17-19

Mr. RJ Scites, P.E.
Director, Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25301

DATE: Thursday, January 17, 2019
LOCATION: Culloden Elementary School
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING
PROJECT: Culloden Interchange Project
U306-64-31.65 00
NHPP-2317(001)D
Cabell County

COMMENTS DUE BY Tuesday, February 19, 2019

Please consider the following comments:

I think the ~~interchange~~ interchange is a good idea.
But they need to buy the houses on
East 1st street. This will drop our property value
and will be too noisy to live here.
Please don't build it. or please buy our
property.

(Please print the following information)

NAME: Cathy Bays
ADDRESS: 131 East 1st street
ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting? Media & I was sent a paper in the mail

Project Information and Comment Sheets

Can be found online at our WVDOH Website at <http://go.wv.gov/dotcomment>.
Under Engineering Projects, Open, and then click Culloden Interchange

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COMMENTS DUE BY Tuesday, February 19, 2019

Please consider the following comments:

We live on the last house before the interstate bridge on Benedict Rd. My concern is bringing heavy equipment where my children play and if they're going to use the property for an excess way without being payed or reprimanded for it.
Sollie Marcum

(Please print the following information)

NAME:

ADDRESS:

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

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Please consider the following comments:

Either buy our property on East 1st Street or do not build. Our property value will go down and we will get the noise. We will need a visual barrier or noise wall. So please don't build on top of our property.

(Please print the following information)

NAME: Pam Gibson

ADDRESS: 136 EAST 1ST ST CULLODEN, WV 25510

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

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Cabell County

COMMENTS DUE BY Tuesday, February 19, 2019

Please consider the following comments:

Please buy my house or don't Build
it will be to noise and I and My Husband
Have ~~been~~ ^{Heart} problem.

(Please print the following information)

NAME: Janice L Gains

ADDRESS: 129 E 1st Street Culloden W.Va: 25510

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting? paper in mailbox.

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Please consider the following comments:

I Don't want to live on top of this it will decrease my property value and I will never be able to sell my home. I want bought out or don't build. I live on top of benedict & the interstate. To much traffic, & mess to live on top of.

(Please print the following information)

NAME: Angela Johnston

ADDRESS: 139 East 1st St. Culloden, WV 25510

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

Called Right of way, & letter

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Cabell County

COMMENTS DUE BY Tuesday, February 19, 2019

Please consider the following comments:

my concern is the already Drainage problem of water that exist on Benedict when the water gets up due to alot of Rain. With my house. Being the 1st one closest to the interstate. BRIDGE I WORRY will there be a worse drainage problem after the project of the on & off Ramps?

(Please print the following information)

Kim m. Marcam.

NAME:

ADDRESS:

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

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Under Engineering Projects, Open, and then click Culloden Interchange

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Please consider the following comments:

my vote would be connected #1. There is less congestion in the area ^{minus} Super Market - Family Dollar - Service Station - U.S. Food trucks - etc. Plus population is a lot less in this area I know property was purchased for their project years ago, but there is property East on Rt 100 at the concrete firm which is pretty much not occupied.

(Please print the following information)
NAME: Betty D. White
ADDRESS: 2251 4th St.
ORGANIZATION (IF ANY): Culloden, W.V. 25510

How did you hear about the Informational Workshop Public Meeting? from an individual I just by chance happen to call a few days ago. I never saw it on any public comm. Project Information and Comment Sheets

DATE: Jan 17, 2019

Mr. RJ Scites, P.E.
Director, Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, West Virginia 25301

DATE: Thursday, January 17, 2019
LOCATION: Culloden Elementary School
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING
PROJECT: Culloden Interchange Project
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NHPP-2317(001)D
Cabell County

COMMENTS DUE BY Tuesday, February 19, 2019

Please consider the following comments:

Go Alternate 1 - green one

(Please print the following information)

NAME: Myra L. Simmons

ADDRESS: 2451 Rt 60

ORGANIZATION (IF ANY): landowner

How did you hear about the Informational Workshop Public Meeting?

through the internet

Project Information and Comment Sheets

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Under Engineering Projects, Open, and then click Culloden Interchange

DATE:

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West Virginia Division of Highways
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COMMENTS DUE BY Tuesday, February 19, 2019

Please consider the following comments:

WVDOH potential Property Line would be literally upon our House front porch and looking up approx 30° Elevation and potential in and out access, Traffic and weather wise and personal Safety and Environmental Hazards.

Our Front yard and view would be gone. No longer have any Personal Privacy and not to say we would lose

(Please print the following information)

NAME: *David Leichneger*
88 US Hwy 60
ADDRESS: *Culloden, WV 25510*
ORGANIZATION (IF ANY): *None*

a ~~5~~ significant loss house and Property value and a Private Driveway

**Note: Shaw Lane Road is Not a Thru Road.*

How did you hear about the Informational Workshop Public Meeting?

State Officials stopped us

Project Information and Comment Sheets

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Under Engineering Projects, Open, and then click Culloden Interchange

DATE: 1-17-19.

Mr. RJ Scites, P.E.
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1334 Smith Street
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COMMENTS DUE BY Tuesday, February 19, 2019

Please consider the following comments:

You need to address the drainage concern because water does back up in the field and also my yard due to the culvert pipe and small creek my house has never flooded and is this new interchange going to have a negative impact on this. I feel the drain can't handle no more water without flooding my home

(Please print the following information)

NAME: Daniel Casdorff

ADDRESS: 23 Crandall Dr. Culloden WV. 25510.

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

Please feel free to contact me with any questions
304-542-3100

Project Information and Comment Sheets

CULLODEN INTERCHANGE
PUBLIC COMMENT SUMMARY

FirstName	LastName	Email	MailingAddress	City	State	ZipCode	Comments	Organization	WVDOH Response
Dana	Jett	jett4him@yahoo.com	4004 Ridgeview Ln	Hurricane	WV	25526	I applaud your efforts. Greatly needed! Thanks		Thank you for your comment and support for the project.
Sheena	Lincolnogger				WV		How about going with alt. 2. I don't really feel like moving from my home of 36 years. You'd be putting us in a bad position of leaving my home that my grandpa built. Trailer park has junkies that would welcome a big payday.		Thank you for your comment. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative.
Anonymous	Anonymous				WV		Why did you wait almost 60 yrs to do this project?! Had you did it back then, there wouldn't have been a lot of families and houses to destroy. Now you're disrupting everyone and everything. And why does there need to be an exit anyways? Milton and Hurricane it's are too close to have one put in between! Ease congestion in either town, please! Scott depot has an exit to supposedly help with Teays valley traffic and that seriously didn't work. This is bs and definitely not needed. We have enough crackheads without them getting easier access.		Thank you for your comment. The project is needed to reduce existing and forecasted traffic congestion and delays associated with the Hurricane Creek Road/I-64 interchange and provide additional access for round-trip daily traffic and freight truck movements from the Hurricane area to Huntington. Overall existing traffic levels of service are good; however, the forecast future travel demand shows that several intersections and movements are anticipated to reach unacceptable levels of service and delay by 2040. This anticipated degradation in traffic operations supports the need for this new proposed interchange.
Travis	Hanshaw	Travishanshaw00@gmail.com	125 East 1st street	Culloden	WV	25510	This isnt a comment but a question. Is this going to effect me and if so how am i suppost to move my mobile home? I am a single father that is only receiving 730.00 a month from disability. I am struggling just to pay my bills now.		Thank you for your question. WVDOH understands your concerns and as the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Anonymous	anonymous				WV		why would you take out soccer fields that are desperately needed and took forever to get down here? I guess part of the road to prosperity is take away healthy activities for kids so they can be lazy and entitled to work on their rears as a state worker. we need more soccer fields or outdoor recreational areas then interchanges. stop ruining the beauty of wv with these stupid "projects".		Thank you for your comment. WVDOH understands your concerns Both Build Alternatives include acquisition of a portion of the Great Teays Soccer Fields West, likely resulting in the partial or complete loss of this field for use by the Great Teays Soccer Club; Alternative 1 acquires 70,160 square feet of the soccer field and Alternative 2 (the Preferred Alternative) acquires 42,000 square feet. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Joni	Blankenship		2516 Charleys Creek Road	Culloden	WV	25510-9014	Will there be a stop light or a turning lane put in at Culloden Elementary because of the Culloden Interchange? It is really bad already getting in to the school to drop the children in the morning and to pick them up in the evening. Getting in and out of Charleys Creek also. The safety of our children with this new traffic pattern is going to be a big concern. Thank you.		Thank you for your comment. The Culloden Elementary School and Charleys Creek Road are outside the study area for this project.
Pamela	Gibson	pamgibson0717@gmail.com	136 East 1st Street	Culloden	WV	25510	Very much concerned about the traffic noise this is going to cause for the people on East 1st Street. We are already subject to noise from the interstate. My neighbors and Myself are concerned about this causing our property value to decrease. I am not in favor of the interstate ramps being in my back door.		Thank you for your comment. WVDOH understands your concerns. WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments.
Kera and Michael	Taylor	kerachick@yahoo.com	2416 Benedict Rd	Culloden	WV	25510	From the maps and conversations at the meeting on Thursday , January 17th, it looks like My house is one that will be displaced by this project. Is there a projected time that this project will start and we will have to be out of our home? Or a projected time when our home will be appraised and we will be able to start to look for a place to live? I saw a Date of April 2020 on the handouts we got at the meeting but wasn't sure if that was a start date or if we would be contacted before then with more information.		Thank you for your comment. WVDOH understands your concerns and as the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws. The public will be informed as soon as the project schedule has been finalized.
Angela	Johnston	Angela_johnston@yahoo.com	139 East First St	Culloden	WV	25510	Please buy me out or don't build. This will decrease my property value. The traffic and construction will be a mess. The noise is going to be worse than it is now. This is going to allow high traffic around my home and neighbor hood. This will allow for more criminal activity and easier access.		Thank you for your comment. Your property will not be impacted by this project. Your street is a dead end street not connected to the project. Traffic is not projected to increase on First Street as a result of this project. WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments. The following measures will be used to minimize temporary construction impacts: <ul style="list-style-type: none"> Construction operations will be scheduled to minimize traffic delays and access to residences and businesses will be maintained during construction although temporary disruptions may occur. Traffic control signage and devices will be used. Flag persons and warning devices, such as signs, barricades, channelizing devices, reflection markers, and hazard warning lights, will be provided as necessary for maintenance of traffic and public safety. Every effort will be taken to minimize the noise levels, including the mandatory use of construction equipment with operable mufflers. Work will be conducted in compliance with WVDOH specifications, manuals, and guidelines, and the requirements of the Clean Air Act to minimize the increase in air pollution particulates. The public will be informed as soon as the project schedule has been finalized.
Sidney & Connie	Baldwin	troublegirl@suddenlink.net	2442 1/2 Benedict Rd	culloden	WV	25510	was going over your maps and things on the interchange.we are the 2nd and 3rd house from the bridge here .and our concern here is the back house is a personal care home lic through the state and we take care of disabled vets... the dust and the noise factor in this project .. yes we under stand that it is needed but we have to look out for them because they are our no 1 plus with the adding of the lanes and the ramp where we are located.. it seems its going to put a lot of water here on us with the roads and things plus all the stuuf that will be pushed to our property ... and if we are going to need to move need to know way in advance in order to move the vets that we have .. because a new place would need to be inspected before we could move them.. and the ones we have now have no family so that would put them in a homeless situation . we are there family... so we know the ramp is needed but what we need is to know are vets will be safe and if we need to go ahead and prepare to move them... or stay here.		Thank you for your comment. WVDOH understands your concerns. Temporary construction impacts will be minimized by: <ul style="list-style-type: none"> Minimizing noise levels, including the mandatory use of construction equipment with operable mufflers. During construction, the use of heavy construction equipment will cause a short-term increase in dust and emissions. All construction equipment will be maintained, repaired, and adjusted to minimize pollutant emissions. Dust generated by construction activities will be minimized by the performance of the work in compliance with WVDOH specifications, manuals, and guidelines, and the requirements of the Clean Air Act. Post construction flows will be no greater than existing conditions. Appropriate erosion and sedimentation control measures will be considered as part of this project, such as and may include, but not be limited to: diverting stormwater originating off-site away from the construction area; implementing channel construction during low-flow months; using proper materials for temporary stream crossings and causeways; using temporary and permanent seeding and mulching; constructing temporary sedimentation ponds; using silt barrier fence and/or hay bales; and limiting the length of time and amount of unprotected soil that can be exposed. Rock construction entrances will also be implemented at all site entrances that exit onto paved roads. As the planning and design process continues efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.

CULLODEN INTERCHANGE
PUBLIC COMMENT SUMMARY

FirstName	LastName	Email	MailingAddress	City	State	ZipCode	Comments	Organization	WVDOH Response
Betty	Keyser	dkeyser@aol.com	2250 Virginia Ave	Culloden	WV	25510	I'm 85 years old with COPD and on oxygen 24/7. I live between Bebeduct and 1st av on Virginia av across from socker field. What will happen to my house???? All the dust and pollution while I'm trying to survive?????		Thank you for your comment. WVDOH understands your concerns. There is a potential that a small portion of your propoerty may be needed for the project. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws. During construction, the use of heavy construction equipment will cause a short-term increase in dust and emissions. All construction equipment will be maintained, repaired, and adjusted to minimize pollutant emissions. Dust generated by construction activities will be minimized by the performance of the work in compliance with WVDOH specifications, manuals, and guidelines, and the requirements of the Clean Air Act.
Charles T	Forth	tim@foodfairmarkets.com	3090 Woodville Drive	huntingtor	WV	25701	I was very happy to meet with representatives of WV Dept of Transportation. As the owner of a local business in the area we are excited to get this improvement to the area. Option 2 will take a small part of our property but will not interrupt our business. Obviously this would be the option that I would favor. Looking at it objectively, it seems this is the least expensive and seems like the logical choice. If this is the choice you will find a willing partner with Forth foods inc. and Tower Land Company LLC	Forth Foods inc / Tower land Company LLC	Thank you for your comment and support for the project. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Billy	Gregg	bjgregg@frontier.com	3600 Benedict Road	Culloden	WV	25510	I support Connector Alternative 1. This Alternative will provide a straight shot for traffic exiting I-64 to access US 60, going either east or west. However, I ask that the intersection of the Connector with US 60 be moved slightly to the east, and/or the intersection of Thompson Road with US 60 be moved slightly to the west, so that the intersection of of Connector Alternative 1/Thompson Road and US 60 is a plain four-way intersection. Having the Connector and Thompson Road offset at the point of intersection with US 60 will only lead to confusion and backed up traffic patterns. This is the one opportunity to get it right.		Thank you for your comment and support for the project. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative. As the planning and design process continues and efforts are made to address, minimize, and mitigate potential effects.
Patsy	Smith	smithpoca@aol.com	Teays Valley Rd.	Scott Depc	WV	25560	I will be losing 2 rentals that I own if you go with Alt. 2. Both properties on the map show that you are only taking a portion of the property leaving the remainder useless.		Thank you for your comment. WVDOH understands your concerns. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners and tenants to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Jeff	Smith	smithja2@suddenlink.net	48 Spicewood Lane	Culloden	WV	25510	Alt. 1 makes more sense. With this option less residences will be affected. With Alt 2 I will be losing 2 rentals.		Thank you for your comment. WVDOH understands your concerns. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners and tenants to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Stephanie	Smith	stephsmith4245@gmail.com	48 Spicewood Lane	Culloden	WV	25510	Alt. 2 will effect many families. With this option several families with children will be uprooted having to find another place to live. With that move several children could be forced to move schools which is hard for kids. Also with Alt 2 several people will lose rental income. Alternat 1 does not directly affect any residences that would cause people to have to move. I feel Alt 1 is the better option for all.		Thank you for your comment. WVDOH understands your concerns. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative. Based on the preliminary design, Alternative 2 would displace 11 residences, 8 of which are mobile homes. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners and tenants to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Gregory and Denise	Dent	ddd643@suddenlink.net	40 Western Dr.	Hurricane	WV	25526	We own the 13.4 acres along the NE side of Benedict Road. From the informational meeting on Jan. 17, 2019, we understand that when the Culloden interchange is built that the existing Benedict Road will become only an access road for the 14 residential parcels and a new road will be built alongside it to connect the interchange with Virginia Ave. We were informed by the engineers present at the meeting that approximately 1.76 acres of our property would be needed to construct this new connector road. This will take 1,069.50 feet of prime access frontage of our property. Therefore, we would like for engineering to verify that 1.76 acres is actually needed for the project (In May 2000 when a similar Culloden interchange project was proposed, engineering informed us that 1.2 acres would be needed). In addition, when constructing the turn lane onto and the widening of Virginia Ave., be aware that there is also a large amount of right-of-way on the US Foodservice side of the road.		Thank you for your comment. WVDOH understands your concerns. The preliminary design requires approximately 1.76 acres from your property; however, as the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Dawn	Mandarino	dawn.mandarino@usfoods.c	9399 W. Higgins Road, Suite 800	Rosemont	IL	60018	US Foods, Inc. on behalf of its West Virginia location (2301 Virginia Avenue, Culloden, WV 25510) objects to the state's infractions plan that results in the taking of US Foods' property. As a business and community leader, US Foods employs numerous West Virginia residents, and the proposed project curtails our ability to expand and increase local jobs, which in turn would expand the local and state tax base. US Foods plans to use the property at issue in potential future expansion of the current facilities. Currently, US Foods operates a highly efficient and business critical cross dock operation at the property and this location is key to our long-term logistics strategy in West Virginia and the greater region. In addition, we are considering plans to expand into rail transportation and the potential expansion of the current facilities will include refrigeration space to increase our product offerings to our local and regional customers. Our potential expansion plans will be negatively impacted if the West Virginia Department of Highways (WVDOH) takes the land for its proposed infrastructure project. We'd like the opportunity to engage in a discussion and work collaboratively with the WVDOH and other involved parties to create a solution that removes any taking of property from US Foods which will hinder future expansion. To that end, please be advised we are prepared to share more detail as necessary and to engage in meetings with the WVDOH and other involved parties to work through the issues at hand.	US Foods	Thank you for your comment. WVDOH understands your concerns. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative. While there may be some disruption to future expansion plans for US Foods, the introduction of the new interchange opens the possibility for future commercial and residential development, and the enhanced mobility of freight and services. US Foods and other freight-related businesses could see potential benefits from the introduction of the I-64 interchange and associated improvements through enhanced accessibility and expected decreases in traffic congestion. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Frank	Doll	fedsewd@hotmail.com	2215 Oak St	Culloden	WV	25510	In respect to the Culloden bypass both of the routes have little differences. My concern is the effect of traffic using Virginia Avenue as a shorter, quicker route to Rt. 60. It would be quicker and easier for someone traveling to the Milton area to use Virginia Ave, bypassing the light at the new interchange, and increasing traffic on an already dangerous intersection at the junction of Virginia and Rt. 60. Travelers coming from the Milton area who would use the new overpass would turn on Virginia Avenue. Constantly people turning onto Virginia Ave are traveling at unsafe speeds, with most of these people not using blinkers. Increasing the traffic at this intersection would create more possibilities for serious auto accidents. This intersection needs to be addressed! My solution is to make the intersection more pronounced... Make the vehicles turning onto Virginia Avenue from Rt 60 make more of a 90 degree turn, making the drivers slow to make the turn. A traffic light would be ideal at this intersection. Also, make Walton Avenue one way heading west, relieving some traffic from the intersection. The representatives who attended the meeting were very helpful and I appreciate their time. I asked about widening Virginia Ave and they said the plans didn't call for anything past the turn lanes from Virginia Ave to Benedict. In my opinion, Virginia needs to be widened all the way to Rt 60 because of the volume of traffic the new interchange would create. The road is too narrow to accomodate the inceased traffic.		Thank you for your comment. WVDOH understands your concerns. Based on the traffic analysis performed for this project, the traffic volumes for the movement under concern (eastbound direction traffic turning left onto Virginia Avenue or staying on US 60), are reduced under the Build Alternatives when compared to the No-Build Alternative. The current project scope does not extend to this intersection and therefore is excluded from the work. The intersection could be striped to better channelize movements in an effort to reduce the unsafe speeds.
Kimberly	Taylor						How long will the project take and will the people living on benedict road have to move?		Thank you for your comment. WVDOH understands your concerns. The residents on Benedict Road will not be relocated as part of this project. Existing Benedict Road will become a frontage road serving those existing residents and a new roadway will be built parallel to it, tying into the proposed interchange. The public will be informed as soon as the project schedule has been finalized.

CULLODEN INTERCHANGE
PUBLIC COMMENT SUMMARY

FirstName	LastName	Email	MailingAddress	City	State	ZipCode	Comments	Organization	WVDOH Response
Cathy	Bays		131 East 1st Street				I think the interchange is a good idea. But they need to buy the houses on East 1st Street. This would chop our property value and will be too noisy to live here. Please don't build it or please buy our property.		Thank you for your comment and support for the project. WVDOH understands your concerns. WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments.
Daniel	Casdorph		23 Crandall Dr.	Culloden	WV	25510	You need to address the drainage concern because water does back up in the field and also my yard due to the culvert pipe and small creek. My house has never flooded and is this new interchange going to have a negative impact on this. I feel the drainage can't handle no more water without flooding my home.		Thank you for your comment. WVDOH understands your concerns. Post construction flows will be no greater than existing conditions. Appropriate erosion and sedimentation control measures will be considered as part of this project, and may include, but not be limited to: diverting stormwater originating off-site away from the construction area; implementing channel construction during low-flow months; using proper materials for temporary stream crossings and causeways; using temporary and permanent seeding and mulching; constructing temporary sedimentation ponds; using silt barrier fence and/or hay bales; and limiting the length of time and amount of unprotected soil that can be exposed. Rock construction entrances will also be implemented at all site entrances that exit onto paved roads.
Pam	Gibson		136 East 1st Street	Culloden	WV	25510	Either buy our property on East 1st Street or do not build. Our property value will go down and we will get the noise. We will need a visual barrier or noise wall. So please don't build on top of our property.		Thank you for your comment. WVDOH understands your concerns. WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Janice	Goins		129 East 1st Street	Culloden	WV	25510	Please buy my house or don't build. It will be to noise and I and my husband have heart problems.		Thank you for your comment. WVDOH understands your concerns. WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Angela	Johnston		139 East 1st Street	Culloden	WV	25510	I don't want to live on top of this it will decrease my property value and I will never be able to sell my home. I want bought out or don't build. I live on top of Benedict and the interstate. To much traffic and mess to live on top of.		WVDOH has conducted a traffic noise study and determined that noise barriers are not feasible for the project. However, during final design, other abatement elements may also be considered, if appropriate and applicable, including traffic management measures and alteration of horizontal and vertical alignments. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties.
David	Lincolnogger		88 US Hwy 60	Culloden	WV	25510	WVDOH potential property line would be literally upon our house front porch and looking up approx. 30' elevation and potential in and out access. Traffic and weather wise and personal safety and environmental hazards. Our front yard and view would be gone. No longer have any personal privacy and not to say we would loose a significant loss house and property value and a private driveway. *Note: Shaw Lane Road is not a thru road.		Thank you for your comment. WVDOH understands your concerns. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative. Alternative 2 does not impact your property. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.
Kim	Marcum						My concern is the already drainage problem of water that exist on Benedict when the water gets up due to a lot of rain. With my house being the 1st one closest to the interstate bridge. I worry will there be a worse drainage problem after the project of the on and off ramps?		Thank you for your comment. WVDOH understands your concerns. As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws. Post construction flows will be no greater than existing conditions. Appropriate erosion and sedimentation control measures will be considered as part of this project and may include, but not be limited to: diverting stormwater originating off-site away from the construction area; implementing channel construction during low-flow months; using proper materials for temporary stream crossings and causeways; using temporary and permanent seeding and mulching; constructing temporary sedimentation ponds; using silt barrier fence and/or hay bales; and limiting the length of time and amount of unprotected soil that can be exposed. Rock construction entrances will also be implemented at all site entrances that exit onto paved roads.
Sollie	Marcum						We live on the last house before the interstate bridge on Benedict Rd. My concern is bringing heavy equipment where my children play and if they're going to use the property for an access way without being payed or reprimanded for it.		Thank you for your comment. WVDOH understands your concerns. WVDOH will comply with Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children. Construction will be performed to comply with all applicable federal, state, and local laws regarding safety, health, and sanitation. All contractors are required to adhere to Occupational Safety and Health Administration guidelines to protect the lives and health of employees, the safety of the public, and the integrity of adjacent properties.
Myra	Simmons		2451 Rt. 60				Go Alternate 1 - green one		Thank you for your comment. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative.
Betty	White		2251 4th Street	Culloden	WV	25510	My vote would be Connector #1. There is less congestion in the area (Super Market - Family Dollar - Service Station - U.S. Food trucks - etc.) Plus population is a lot less in this area. I know property was purchased for this project years ago, but there is property east on Route 60 at the concrete firm which is pretty much not occupied.		Thank you for your comment. WVDOH understands your concerns. After careful consideration of all impacts and the purpose and need for the project, WVDOH has identified Alternative 2 as the Preferred Alternative.

CULLODEN INTERCHANGE
PUBLIC COMMENT SUMMARY

FirstName	LastName	Email	MailingAddress	City	State	ZipCode	Comments	Organization	WVDOH Response
Matthew	White	GTSCPres@gmail.com	PO Box 452	Scott Depc	WV	25560	<p>Thank you for taking the time to read and consider the issue I am writing to you about. I am currently the president of Great Teays Soccer Club, a local, recreational, non-profit, youth organization located in Hurricane WV. We have been an active organization in the area since the early 1990's, providing recreational soccer activities and opportunities to the Teays Valley area. Serving as a close to home, easily accessible club has allowed the youth to remain in their hometown and prevent parents from running back to Charleston and Huntington after traveling home from those locations for work. The easy access and close proximity to our program allows 300 to 500 children per season the ability to participate in an athletic program that they may not otherwise be able to participate due to time restraints of working parents. At Great Teays Soccer Club, we provide children with an outlet to learn to work hard, work towards a goal, teamwork, fair play, sportsmanship, and the learn about the gift of giving. The organization has survived for over 20 years squarely on the back of volunteers who want nothing more than for their children and all children to enjoy a fun, healthy, past time. The club is funded solely by registration fees, and a lot of the time the Club's board member's wallets. It is the passion and commitment by the board that has allowed us to provide the area with a low cost all inclusive sports club. Anyone who wants to play, will play. GTSC gives numerous registration waivers to families who express concern with the cost. We just want the kids to play. Our club has been located at the US Foods Building on Virginia Avenue on the Hurricane / Culloden line long before I ever came to the Putnam County area. In fact the fields are still known as the Grief Brothers fields. The club spent numerous hours and money getting the fields set up on both sides of what is now the US Foods building. We maintain the fields year round, which in turns provides an open area that the general public uses for recreation of their own. It is not unusual to see children flying kites, golfing grandfathers, dogs chasing balls, or a good pickup game of soccer taking place during our off season. And while our counterparts in the surrounding cities have ample access to playing fields, we are not that fortunate to have multiple parks that give us fields in this area. We have looked into the county park but it must be shared among numerous activities and with the added cost of paying for fields, it may make the cost of playing out of reach for many. We have had the best fields in the league for a long time. We are proud of what we have accomplished and only seek a way to continue our mission of providing local affordable soccer. Please, we ask for your assistance in keeping this program alive. Without fields to hold practices 5 nights a week, and games on Saturdays the club will not be able to survive, and the local children will lose out on a healthy, character building experience that can influence them for the rest of their lives. And you might be thinking that the only one set of fields will be taken by this interchange. But the set of fields that this will take will be 6 fields used by children aged 4 years to 8 years. If you have any questions pertaining to the club or have any ideas or suggestions to the relocation of our fields, as we are out of ideas having coming up empty handed numerous times, please contact me at any time. My phone number and mailing address are located below my signature. Again, thank you for your time and consideration in this matter. I look forward to hearing any thoughts you have about this matter. Thank you</p>	Great Teays Soccer Club	<p>Thank you for your comment. WVDOH understands your concerns.</p> <p>Both Build Alternatives include acquisition of a portion of the Great Teays Soccer Fields West, likely resulting in the partial or complete loss of this field for use by the Great Teays Soccer Club; Alternative 1 acquires 70,160 square feet of the soccer field and Alternative 2 (the Preferred Alternative) acquires 42,000 square feet.</p> <p>As the planning and design process continues, efforts will be made to address, minimize, and mitigate potential effects and impacts to properties. WVDOH will work directly with impacted property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.</p>
Tony	Stillwell		72 Spicewood Lane	Culloden	WV	25510	<p>I own the motel building on Benedict Road and operate a commercial business from there. I also live out Benedict Ln. Holly Brook Subdivision. Some of my concerns are: (1) The length/size of opening accessing Benedict Road. I am constantly moving long trailers 30'-35' in and out of this area. I would request that the opening be made long enough to allow a 35' trailer to make the turn off the proposed Benedict road coming from Virginia Avenue. I would also be concerned that in the event there was a need for a firetruck, it would have a hard time entering and exiting this area.</p> <p>2. Are there any other options to maintain open access to the residential areas vs putting up a barrier wall with a cull de sac? I know the major concern are the driveways at close proximity. However, the average speed up and down Benedict is between 30-40 mph. There has never been any problems or accidents with ingress and egress of driveways. With exit ramps and stop signs, this would definitely slow traffic down and don't see a problem with keeping Benedict the way it is. If you look at Rt. 60, between Culloden and Milton, there are several residential properties with driveways merging onto Rt. 60. The average speed through here is 40-45 mph. This would also allow 2 residence to keep their current homes. Another fear of mine is that there is currently a lot of foot traffic up and down Benedict. Possibly due to drug activity. If we block off the current Benedict Road area, I'm afraid it will increase the amount of foot traffic in that particular area.</p> <p>3. I don't know what the long term plans would be with commercial and industrial use for this area, but would you consider putting in a nice lawn area with shrubbery or small trees vs. a 42" barrier wall? It would look much nicer, and be much more inviting.</p> <p>Thank you for your consideration with these requests.</p>		<p>Thank you for your comment. WVDOH understands your concerns.</p> <p>1 - The size opening will be considered and addressed in final design to accommodate emergency vehicles. 2 - The frontage road provides a safer access for those on existing Benedict including those that would have to back out from their driveway into the new connector. It also provides one entrance and exit providing a safer situation for those exiting the new interchange by reducing the number of conflict points. 3 - This is not feasible due to obstructions within the clear zone per AASHTO criteria.</p> <p>As the planning and design process continues and efforts are made to address, minimize, and mitigate potential effects, impacts to properties may change. If displacements are ultimately necessary, the property owners will be contacted to discuss the property acquisition and relocation process. WVDOH will work directly with displaced property owners to discuss the property acquisition process and their rights. All properties to be acquired, or used temporarily, will be purchased or utilized in accordance with the Uniform Relocation and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and applicable West Virginia laws.</p>

APPENDIX C
Noise Analysis

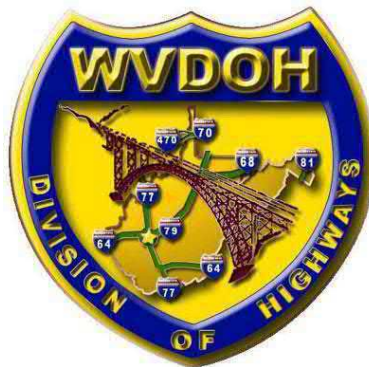
CULLODEN INTERCHANGE PROJECT

Cabell and Putnam Counties, West Virginia

FINAL NOISE ANALYSIS

State Project Number: U306-64-31.65 00
Federal Project Number: NHPP-2317(001)D

Prepared for:
West Virginia Department of Transportation
Division of Highways



May 15, 2019

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1.0 PREFACE

This report details the noise analysis of alternatives for the Culloden Interchange Project to support the Environmental Assessment (EA), prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), and FHWA's Environmental Impact and Related Procedures (23 CFR 771).

During the project development process, WVDOH will consider comments from agencies, the public, and project stakeholders and make refinements to the Build Alternatives to avoid and minimize impacts to both the human and natural environment.

2.0 PROJECT DESCRIPTION

WVDOH, in cooperation with the Federal Highway Administration (FHWA), has considered a range of alternatives for constructing a new interchange on I-64 near Culloden in Cabell and Putnam counties, West Virginia. The interchange was originally conceived in the 1960s when I-64 was constructed. In the 1990s, the interchange idea was reinitiated as an additional access point for a regional airport. The proposed project began at that time with interchange ramp design and right-of-way acquisition, but did not proceed to construction.

The study was restarted due to growing concerns regarding increased traffic and congestion on I-64 between Hurricane and Milton, West Virginia. WVDOH is planning to replace the bridges carrying eastbound and westbound I-64 over County Route 60/21 (Benedict Road) and add a diamond interchange at the location of these bridges (milepost 32). The Benedict Road corridor would be modified by constructing a three-lane road immediately parallel to Benedict Road from the new interchange to County Route 60/10 (Virginia Avenue). Existing Benedict Road would be converted to a frontage road providing access to existing homes. The proposed project also includes a new connector road from Benedict Road/Virginia Avenue to US 60.

2.1 Project Need

The current focus on the interchange, bridge improvements, modifications to Benedict Road, and the connector road from Benedict Road/Virginia Avenue to US 60 resulted from growing concerns regarding increased traffic and congestion on I-64 between Hurricane and Milton, West Virginia. The need for the project is to reduce traffic congestion on I-64 and provide additional access for round-trip daily traffic moving from Hurricane to Charleston or west to Huntington. In 2015, WVDOH developed an analysis of construction impacts associated with this interchange. The analysis included recommendations for local road improvements and revised traffic patterns that would ease local consequences of the proposed new interchange.

2.2 Project Purpose

The purpose of the project is to efficiently and effectively serve the transportation needs of through travelers and residents of the area by:

- replacing the bridges carrying eastbound and westbound I-64 over County Route 60/21 (Benedict Road) and adding a diamond interchange at the location of these bridges (milepost 32),
- modifying the Benedict Road corridor by constructing a three-lane road immediately parallel to Benedict Road from the new interchange to County Route 60/10 (Virginia Avenue),
- converting existing Benedict Road to a frontage road providing access to existing homes, and
- adding a new connector road from Benedict Road/Virginia Avenue to US 60.

2.3 Build Alternatives

All build alternatives include the interchange and bridge improvements, modifications to Benedict Road, and a connector road to US 60. Because of the unique parameters associated with the study area, options for new location alternatives are limited. The I-64 interchange and Benedict Road modifications are proposed without any options or variations. Two build alternatives for the connector road to US 60 are proposed.

2.3.1 Alternative 3 (New Alternative 1)

Alternative 3 (New Alternative 1) connects Benedict Road/Virginia Avenue to US 60 by extending south across the active Class I railroad and meeting US 60 approximately 100 feet west of the Thompson Road intersection.

2.3.2 Alternative 2

Alternative 2 connects Benedict Road/Virginia Avenue to US 60 by extending to the west in the vicinity of Whites Mobile Home Park and south to tie in to US 60 at the intersection of State Street and US 60. Benedict Road is extended further south to tie in to US 60 at the intersection of State Street and US 60.

3.0 NOISE ANALYSIS OVERVIEW

This section describes the methodology and policy for the technical tasks and analyses used in this report. The results of these tasks and analyses are presented in subsequent sections of this report.

3.1 Federal Regulations

The FHWA noise policy is contained within the Code of Federal Regulations, Title 23, Part 772 (23 CFR 772) which provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. The code was updated in July of 2010. Under the current version of 23 CFR 772.5, projects are categorized as Type I, Type II, or Type III projects. The FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. Because the project adds a new roadway segment it would be considered a Type I project as defined by the FHWA regulations.

Under 23 CFR 772.13, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project sponsor consider noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR 772.5, occur when the design year condition noise levels approach or exceed the noise abatement criteria (NAC) specified in 23 CFR 772, or design year condition noise levels create a substantial noise increase over existing noise levels. 23 CFR 772 does not specifically define the terms “approach” or “substantial increase;” these criteria are defined in the WVDOT *Highway Traffic Noise Policy* (July 13, 2011), as described in the next section.

Table 1 summarizes the FHWA NAC corresponding to various defined land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual land use in a given area. Background information on noise levels and noise metrics may be found in Appendix A.

In identifying noise impacts, primary consideration is given to exterior areas of frequent human use. In situations where there are no exterior activities, or where the exterior activities are far from the roadway or physically shielded in a manner that prevents an impact on exterior activities for non-residential properties, the interior criterion (Activity Category D) may be used as the basis for determining a noise impact.

The federal regulation also covers such topics as traffic noise prediction, analysis of traffic noise impacts, analysis of noise abatement, information for public officials, and construction noise issues, all of which have been incorporated into the current WVDOT noise guidelines, as discussed in the next section.

Table 1. FHWA Noise Abatement Criteria

Activity Category	Activity Criteria ^{1,2}		Evaluation Location	Activity description
	L _{eq} (h)	L ₁₀ (h)		
A	57	60	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ³	67	70	Exterior	Residential.
C ³	67	70	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	55	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E ³	72	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--	--	Undeveloped lands that are not permitted.

¹ Either L_{eq}(h) or L₁₀(h) (but not both) may be used on a project.

² The L_{eq}(h) and L₁₀(h) Activity Criteria values are for impact determination only and are not design standards for noise.

³ Includes undeveloped lands permitted for this activity.

3.2 State Regulations and Policies

WVDOH has published a noise policy which provides guidelines in the analysis of highway traffic noise and the evaluation of noise mitigation measures. The WVDOH noise policy includes current policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or federal-aid highway projects. The NAC specified in the WVDOH noise guidelines are the same as those specified in the most recent version of 23 CFR 772. The WVDOH noise guidelines state that a sound level is considered to approach the NAC level when the L_{eq}(h) sound level is 1 dBA less than the NAC identified in 23 CFR 772. This means that a peak-hour noise level of 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA does not. The WVDOH noise guidelines define a noise increase as substantial when the predicted traffic noise levels with project implementation exceed existing noise levels by 15 dBA. The WVDOH noise guidelines provide detailed technical guidance for the evaluation

of highway traffic noise, including field measurement methods, noise modeling methods, and guidelines for abatement assessment.

In addition to the NAC criteria above, the WVDOH noise guidelines also specify the following definitions and policies:

- A **benefitted receptor** is a receptor that receives at least a 5 dBA reduction in noise level after the addition of noise abatement measure(s).
- A **feasible noise abatement measure** is a mitigation measure that is acoustically feasible and meets engineering requirements for constructability. A noise abatement measure is considered acoustically feasible when it can provide a minimum of a 5 dBA reduction at any impacted receptors.
- A **reasonable noise abatement measure** is an abatement measure that has been determined to be cost effective (no greater than \$30,000 per benefitted receptor) and approved by more than 50% of property owners and residents. The barrier cost must include the cost of construction (material and labor at a rate of \$25 per square foot), the cost of additional right-of-way, the cost of relocating utilities, and any other costs associated with the barrier. Also, at least 10% of all benefitted receptors must receive at least a 7 dBA noise reduction from each barrier. In addition to the required reasonableness criteria above, WVDOH has optional criteria that can be evaluated, including a minimum 5 dBA increase of noise levels over existing levels and a minimum 3 dBA increase of noise levels over future no-build conditions. If both of these optional reasonableness criteria are not satisfied for a noise barrier evaluation, the abatement measure will not be considered reasonable by WVDOH guidelines.

3.3 Noise Measurement Procedures

A number of field noise measurements were conducted for this project. The noise measurement procedures in the field followed the recommended standard procedures, including those outlined in the FHWA's *Measurement of Highway Related Noise*, May 1996, and the WVDOH noise guidelines. Specifically, to validate the noise model, one long-term (24 continuous hours) measurement was taken to document the diurnal variation of noise levels in the area and nine short-term measurements were taken at representative noise-sensitive locations.

The short-term noise measurements (typically 15-25 minutes) were conducted at actual or representative receptor locations and were used primarily to validate noise models (at locations where traffic noise was dominant).

Short-term noise measurements were generally conducted at exterior areas of frequent human use and were only conducted during periods of free flowing traffic, dry roadways, and low to moderate wind speeds (less than 12 mph, to avoid extraneous wind noise).

Only American National Standards Institute (ANSI) Type 1 and Type 2 sound level meters were used for short-term measurements. The meters were subjected to a field calibration check before and after each measurement. Calibration certificates for each meter used for the project are included in Appendix B.

Concurrent traffic counts (classified as automobiles, buses, motorcycles, and medium and heavy trucks) for the acoustically dominant road were conducted for each short-term measurement where there was a clear line-of-sight to the vehicles on the roadway.

All field data were recorded on field measurement data sheets, which included the time, name and location of the measurement, instrumentation data, observed meteorological data, field calibration data, a measurement site diagram, GPS coordinates, and notes as to the dominant noise sources and any other observed acoustically relevant events (such as aircraft over-flights, emergency vehicle passbys, etc.). Field measurement data sheets used for this project are included in Appendix B.

Photographs were taken for each measurement location showing the measurement location relative to the dwelling and the noise source. Photographs of each of the measurement locations, along with a general description of the location, are included in Appendix B.

3.4 Analysis Objectives

The purpose of this noise analysis report is to identify and document potential noise impacts associated with the build alternatives for the project and to identify feasible and reasonable abatement where warranted. The general analysis procedure for the Project noise study includes the following steps:

1. **Review Project Description:** Review the project description and project data to be analyzed and collect additional required data (including roadway design files, existing and future traffic data, land use data, etc.). Consider all alternatives, design options, and construction phasing scenarios.
2. **Identify Regulatory Framework:** Investigate and establish the regulatory framework to be followed for the noise analysis, including federal, state, and local regulations and ordinances applicable to the project.
3. **Establish Existing Land Use and Noise Environment:** Investigate and document the existing noise environment for the study area, including existing noise-sensitive land uses and existing noise levels in the study area. These were accomplished with a careful review of local zoning information, review of aerial photography and a site visit to the study area.
4. **Predict Future Noise Levels and Assess Noise Impacts:** Future noise levels at noise-sensitive land uses for the future build alternative were predicted using the FHWA Traffic Noise Model (TNM) Version 2.5. For each alternative, future noise levels (as well as increases in future noise levels over existing noise levels) were compared with appropriate identified noise impact criteria and resulting noise impacts were determined.
5. **Evaluate Noise Abatement:** Where noise impacts were identified, potential noise abatement measures were evaluated. Abatement measures were evaluated for feasibility and reasonableness according to FHWA and WVDOH standards.
6. **Consider Construction Noise Impacts:** Analyze potential construction noise impacts and discuss available mitigation options.
7. **Information for Public Officials:** Provide or identify appropriate information for local public officials to help avoid future noise impacts.

A more detailed accounting of the specific procedures involved in each of the above analysis steps is provided in the following sections.

3.5 Selection of Noise Sensitive Receptors

The study area for noise analysis is typically defined as being within 500 feet of the roadway improvement since impacts rarely occur beyond that distance. In general, noise-sensitive receptors are selected to represent potentially impacted land uses within the study area. A common noise environment (CNE) is generally defined as a geographical area covering multiple properties with similar land uses and noise environments that might benefit from a single noise abatement measure, such as a noise wall. The number and locations of the receptors (measurement and modeling locations) associated with each building were selected to adequately represent all of the noise-sensitive units (dwellings) within the residential communities. Noise prediction locations were chosen to represent an exterior area of frequent human use on each property.

3.6 Worst-Case Noise Conditions

When determining noise impacts, traffic noise predictions must be made for the worst case noise hour (generally during level of service [LOS] C or D with high heavy truck volumes and speeds close to the posted speed limit or design speed). The worst case noise hour is typically either the peak vehicular truck hour or the peak vehicular volume hour (with LOS A through D conditions). The traffic data provided for purposes of this analysis did not include peak vehicular truck traffic information; thus, the average percentage of truck traffic observed during the field measurement period for each roadway was implemented in the TNM traffic mixes.

3.7 Noise Abatement Requirements

According to the WVDOH noise guidelines, once a noise impact has been identified, feasible and reasonable noise abatement measures must be considered. For noise abatement, primary consideration is given to the exterior areas of frequent human use.

When traffic noise impacts are identified, noise barrier walls, at a minimum, are required to be considered. In addition to noise walls, or if noise walls are not feasible, other abatement elements may also be considered, if appropriate and applicable, including the following:

- Traffic management measures;
- Alteration of horizontal and vertical alignments;
- Acquisition of property to serve as a buffer to preempt development that would be adversely impacted by traffic noise; and
- Noise insulation (institutional buildings only).

When noise barriers are considered, a noise barrier design analysis must show that the barrier is feasible. This typically requires that the barrier provides a minimum required level of noise reduction. According to the WVDOH noise guidelines, feasible noise barriers must provide at least 5 dBA of noise reduction to impacted receivers. In addition to meeting minimum noise reduction requirements, noise barriers must also meet engineering and constructability feasibility requirements in terms of safety, property and emergency access, drainage control, overhead and underground utilities clearance, and other issues.

Noise barrier reasonableness is generally related to cost-effectiveness and benefitted receptors, where a benefitted receptor receives at least a 5 dBA noise reduction. Noise barriers must meet

cost effectiveness requirements of not exceeding \$30,000 per benefitted receptor and provide a minimum of a 7 dBA insertion loss for at least 10% of all benefitted receptors.

If noise barriers are determined to be reasonable and feasible as defined above, then the viewpoints of property owners and residences should be taken into consideration. Approval by a simple majority (greater than 50%) of all responding benefitted owners and residents is needed to implement noise abatement.

3.8 Noise Modeling Methodology

Future build noise levels, along with existing noise levels, were predicted using the FHWA TNM Version 2.5, the most recent version available at the time of the analysis. All conventional modeling techniques and recommendations for TNM by both FHWA and WVDOH were implemented. These included the following modeling procedures and conventions:

- TNM roadways were generally modeled as bundled roadways with no more than two lanes per roadway. Although it is recognized that in some topographical scenarios, such as receivers located on a downslope from the roadway (NCHRP 2014), it is pertinent to model roadways as individual lanes, the topographic relationship between project roadways and elevated receiver points in this study are expected to reflect near-identical values whether lanes are bundled or modeled individually.
- All roadway pavement types were modeled as “Average.”
- Traffic speeds and volumes for the peak traffic hour as provided in the traffic data were modeled to predict worst case noise levels. Traffic speeds and volumes used in this analysis were based on the predicted traffic data included in Appendix C.
- Building structures were modeled where appropriate.
- Terrain lines (topography) were modeled where appropriate.
- All TNM model runs were detail checked for accuracy by an independent noise analyst.

3.9 Project Traffic Data

Predicted traffic data, including peak-hour volumes for the existing and future build were provided by the project traffic consultant. Traffic data used in this analysis are included in Appendix C.

4.0 EXISTING NOISE ENVIRONMENT AND NOISE-SENSITIVE AREAS

4.1 Existing Land Use

The study area is generally a suburban residential area with dominant noise sources being traffic on I-64 and local roadways, a freight rail line, birds, and dogs. Ten representative noise monitoring locations were chosen (one long-term and nine short-term) as shown in Figure 1.



Figure 1. Noise Monitoring Locations

4.2 Existing Noise Levels

4.2.1 Noise Measurements

Multiple noise measurements were conducted for this project from March 18 to 19, 2019. Noise measurements were conducted to provide information for noise model validation (short-term measurements with concurrent classified traffic counts). Noise measurements were conducted as described in Section 3.2, using Type 1 (re: ANSI S1.4) Larson Davis Model LxT sound level meters (serial numbers 4925 and 4926) that were field-calibrated before and after each monitoring session using a Larson Davis Model CAL200 calibrator (serial number 5789). All of these instruments had been factory-calibrated within 12 months of their use and their calibration certificates are included in Appendix B. Weather conditions were appropriate for outdoor noise

monitoring, with winds less than 10 mph, partly cloudy skies (no precipitation), and temperatures from the mid-20s to the mid-50s in degrees Fahrenheit.

One long-term (24-hour) measurement was taken near the center of the study area (at location LT-01) to document the general diurnal variation of background sound levels in the area. The results of this measurement, in terms of hourly values, are shown graphically in Figure 2, with hourly L_{eq} values generally between 48 and 54 dBA. A total of nine short-term (ST) noise measurements were conducted as summarized in Table 2. All measurement locations are residential properties (FHWA Activity Category B).

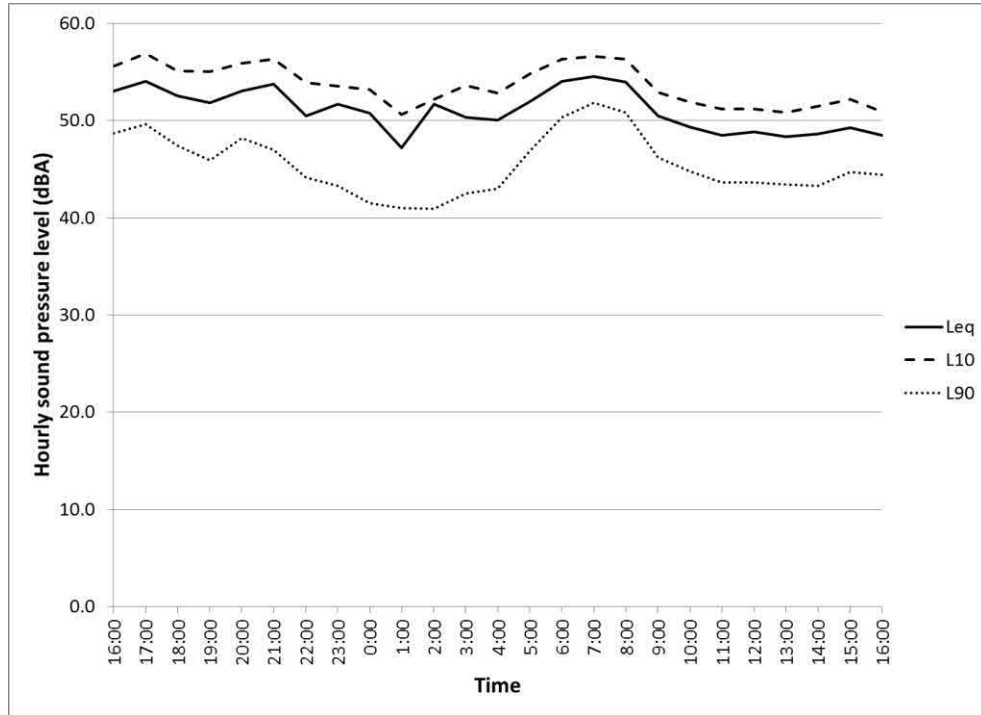


Figure 2. Noise Monitoring Results, Location LT-01 (2445 1st Street E), March 18-19, 2019

Table 2. Short-Term Measurement Summary

Measurement ID	Location	Date/Time	Measured
ST-01	165 Meadow Drive	3-19-19/10:40-11:00 AM	52.5
ST-02	2443 Benedict Road	3-19-19/9:55-10:10 AM	61.0
ST-03	2306 County Road 60/78	3-19-19/9:15-9:30 AM	60.0
ST-04	2270 1 st Street	3-19-19/11:30-11:50 AM	61.0
ST-05	2416 Benedict Road	3-19-19/12:15-12:30 PM	60.5
ST-06	283 Virginia Avenue	3-19-19/1:20-1:40 PM	53.4
ST-07	#4 Whites Trailer Park	3-19-19/2:05-2:20 PM	48.7
ST-08	2350 State Street	3-19-19/2:45-3:10 PM	50.2
ST-09	88 County Road 60/21	3-19-19/3:25-3:40 PM	51.2

4.2.2 Noise Model Validation and Results

The FHWA TNM Version 2.5 was used to predict noise levels for the future build alternatives as well as existing noise levels at receptor locations where noise levels are dominated by traffic noise on project roadways. To demonstrate that the noise model is predicting noise levels within a reasonable margin of error, the noise model runs are validated by comparing predicted noise levels to measured noise levels for similar traffic conditions. However, since the TNM only predicts noise levels associated with traffic noise, the model runs can only be validated at measurement locations where current noise levels are dominated by project roadways. For this project, noise model validation was possible for eight short-term noise measurement locations. Noise models are considered to be validated if the difference between measured and modeled noise levels for comparable conditions is 3 dBA or less. The results of the noise validation effort are presented in Table 3.

As shown in Table 3, all calculated differences between modeled and measured noise levels are less than 3 dBA; therefore, the noise models in those locations are considered to be validated.

TNM validation runs developed for this project are digitally archived and will be made available upon request.

Table 3. TNM Validation Summary

Measurement Location	Observed Traffic Data (1 Hour Equivalent)			Measured Leq, dBA	Modeled Leq, dBA	Delta
ST-01	Type	I-64 EB	I-64 WB	52.5	54.3	+1.8
	Auto	740	696			
	MT	32	36			
	HT	136	152			
ST-02	Type	I-64 EB	I-64 WB	61.0	62.4	+1.4
	Auto	580	688			
	MT	40	40			
	HT	76	132			
ST-04	Type	I-64 EB	I-64 WB	61.0	63.0	+2.0
	Auto	752	756			
	MT	20	20			
	HT	120	156			
ST-05	Type	Benedict Rd	Virginia Ave	60.5	59.3	-1.2
	Auto	64	184			
	MT	4	4			
	HT	0	20			
ST-06	Type	Virginia Ave	N/A	53.4	56.1	+2.7
	Auto	172				
	MT	4				
	HT	12				
ST-07	Type	Virginia Ave	N/A	48.7	46.4	-2.3
	Auto	148				
	MT	0				
	HT	4				
ST-08	Type	US-60	N/A	50.2	52.1	+1.9
	Auto	464				
	MT	20				
	HT	44				
ST-09	Type	US-60	N/A	51.2	51.0	-0.2
	Auto	716				
	MT	24				
	HT	20				

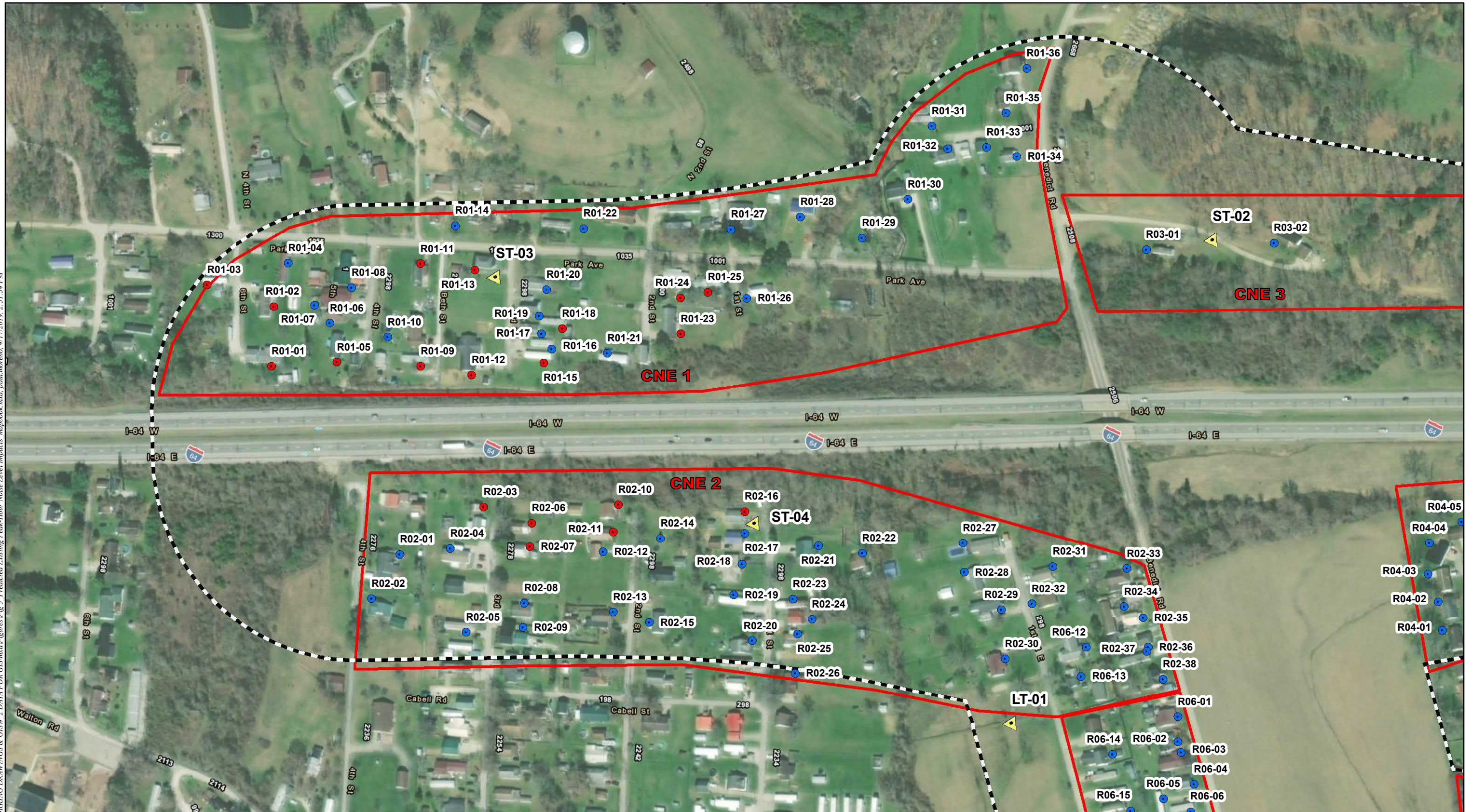
4.2.3 Existing Noise Levels

Existing noise levels for receptors were predicted by modeling the receptor locations using the FHWA TNM. Table 4 presents a summary of existing noise levels for all modeled receptors in the study area. Existing levels for the study area range from 49 to 71 dBA. Figures 3 through 6 contain aeriels of the study area showing modeled receptor locations. Due to the large number of modeled locations, detailed prediction information for each receptor is presented in Appendix D.

Table 4. Summary of Predicted Existing Traffic Noise Levels

CNE	Quantity of Receptors	Existing Peak-Hour Noise Level Range (Leq, dBA)	Quantity of Impacted Receptors
1	40	57 – 68	13
2	42	60 - 71	6
3	3	63 - 65	0
4	59	53 - 69	8
5	30	53 - 66	2
6	30	54 - 62	0
7	12	52 - 59	0
8	11	53 - 57	0
9	25	49 - 68	3
10	21	53 - 71	1
11	13	52 - 66	1
Total	286	49 - 71	34

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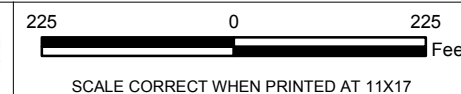
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- Non-Impacted Receptor
- Impacted Receptor
- CNE Boundaries
- 500' buffer



SOURCES: ESRI.

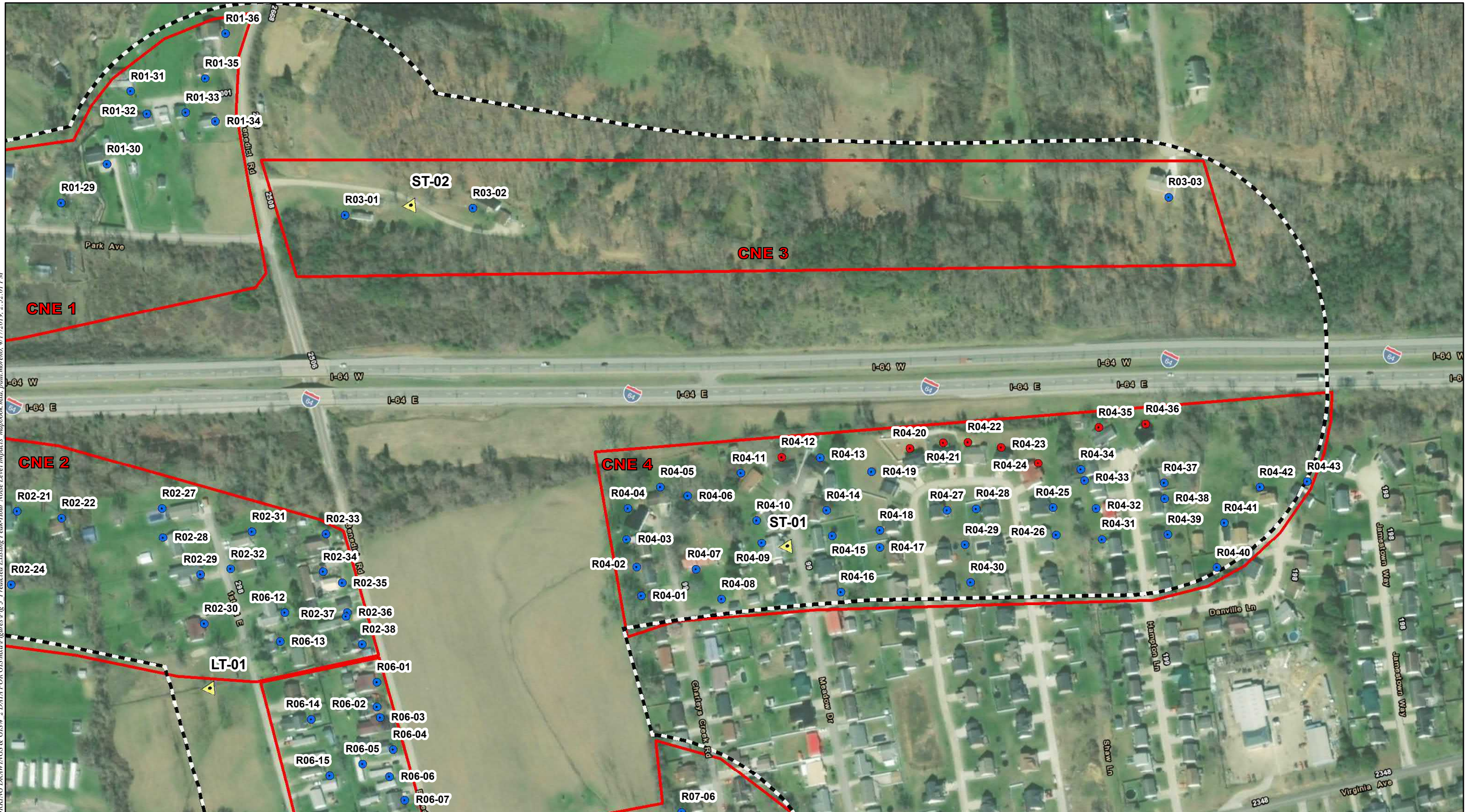
PREDICTED EXISTING PEAK-HOUR NOISE LEVEL IMPACTS

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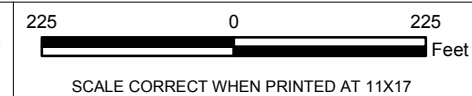
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- Non-Impacted Receptor
- Impacted Receptor
- CNE Boundaries
- 500' buffer



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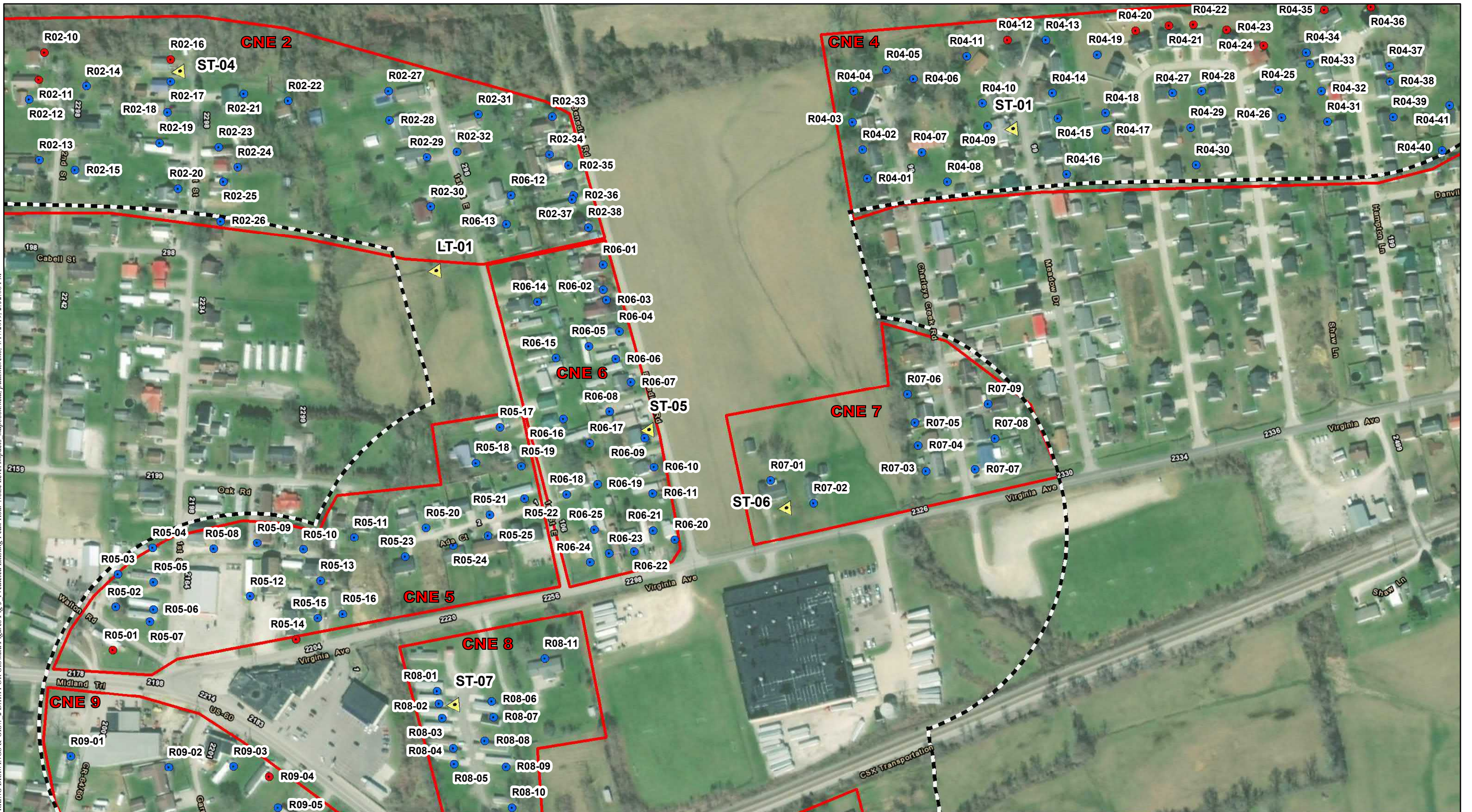
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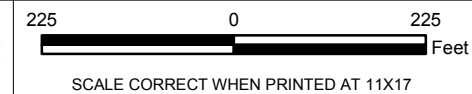
- ▲ Measurement Locations
- Non-Impacted Receptor
- Impacted Receptor
- CNE Boundaries
- 500' buffer



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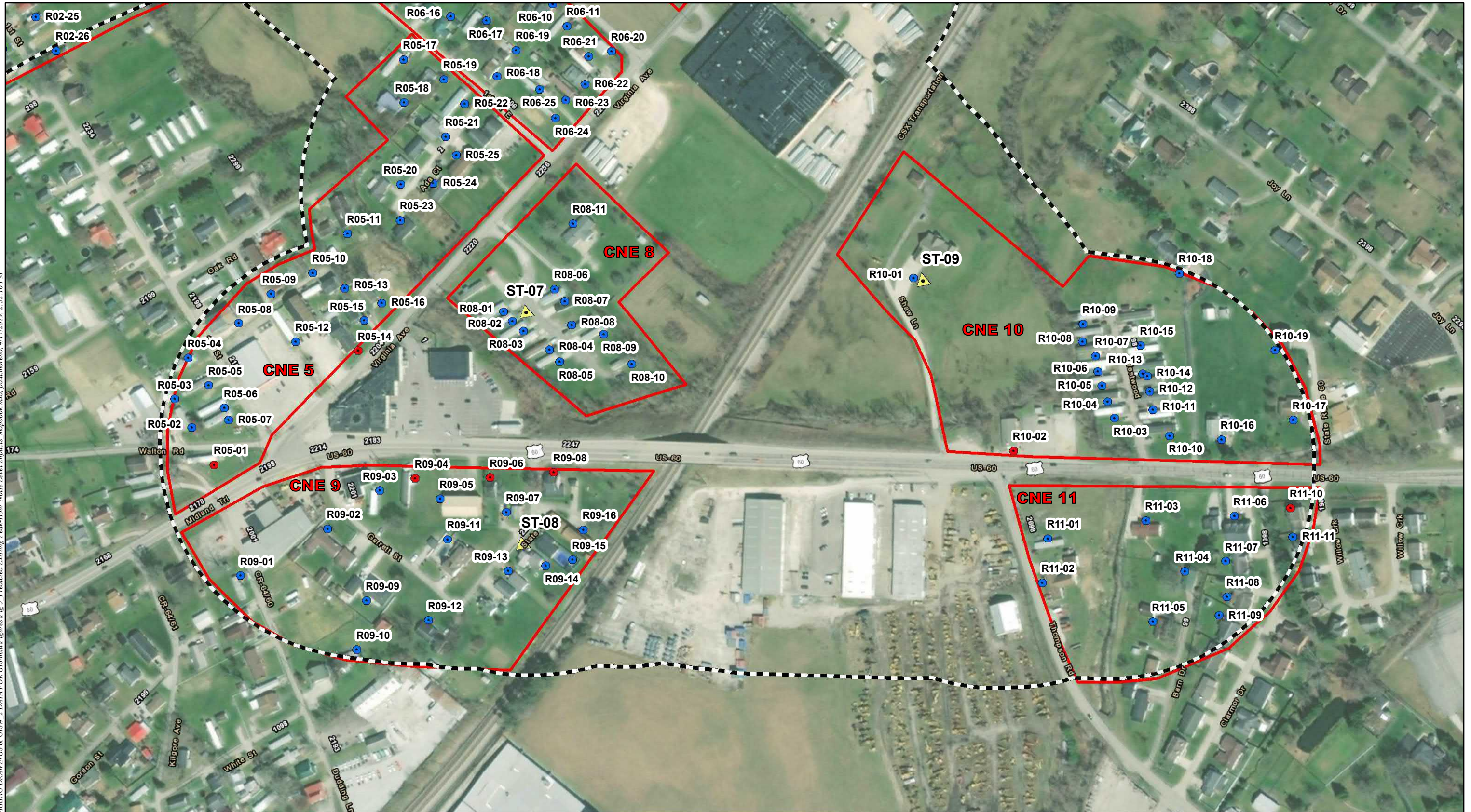
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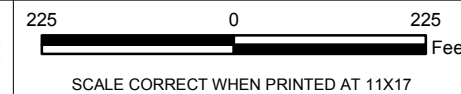
- Measurement Locations
- Non-Impacted Receptor
- Impacted Receptor
- CNE Boundaries
- 500' buffer



SOURCES: ESRI.

PREDICTED EXISTING PEAK-HOUR NOISE LEVEL IMPACTS

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5.0 PREDICTED NOISE LEVELS AND NOISE IMPACTS

Future no-build, Alternative 3 (New Alternative 1) build, and Alternative 2 build peak-hour noise levels were predicted using the FHWA TNM Version 2.5, the most recent version available at the time of the analysis. All conventional modeling techniques and recommendations for TNM by both FHWA and WVDOH were implemented, as described in Section 3.7.

An “approach or exceed” noise impact occurs when the predicted future noise level at an identified noise receptor location approaches or exceeds the FHWA NAC within 1 dBA. A “substantial increase” noise impact occurs when the predicted future noise level at an identified noise receptor location exceeds the existing condition noise level by 15 dBA or more. No receptors in the study area would experience a substantial increase noise impact.

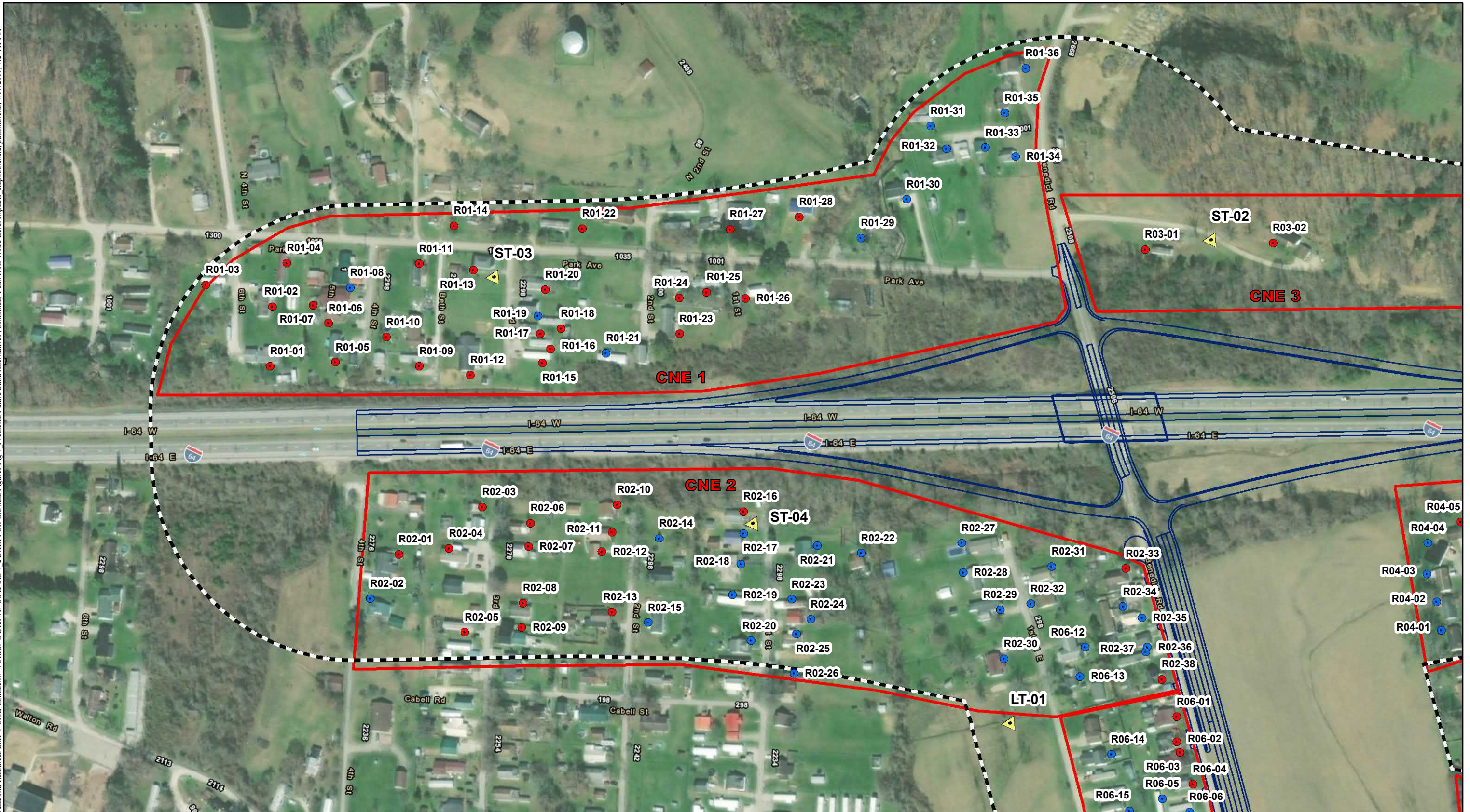
Table 5 contains a summary of the predicted build alternative noise levels and noise impacts at all modeled receptor locations in the study area. Figures 7 through 10 contain aerial photographs of the study area showing all modeled receptor locations and predicted future Alternative 3 (New Alternative 1) and Alternative 2 build impacts. All existing (where applicable) and proposed project roadways were included in the TNM model.

Due to the large number of modeled receptors within the model, prediction information for individual receptors is presented in detail in Appendix D.

Table 5. Summary of Predicted 2045 No-Build and Alternative Build Traffic Noise Levels

CNE	Quantity of Receptors	2045 No-Build		2045 Alternative 3 (New Alternative 1)		2045 Alternative 2	
		Future Peak-Hour Noise Level Range (L _{eq} , dBA)	Quantity of Impacted Receptors	Future Peak-Hour Noise Level Range (L _{eq} , dBA)	Quantity of Impacted Receptors	Future Peak-Hour Noise Level Range (L _{eq} , dBA)	Quantity of Impacted Receptors
1	40	59 - 69	21	59 - 71	29	59 - 71	29
2	42	61 - 72	9	61 - 72	17	61 - 72	17
3	3	64 - 67	1	67 - 68	3	67 - 68	3
4	59	54 - 70	11	54 - 69	13	54 - 69	13
5	30	54 - 68	2	54 - 68	1	55 - 68	1
6	30	55 - 64	0	56 - 69	7	56 - 70	5
7	12	53 - 60	0	51 - 59	0	51 - 59	0
8	11	55 - 59	0	55 - 61	0	56 - 63	0
9	25	50 - 69	3	51 - 69	3	51 - 72	11
10	21	54 - 72	2	55 - 73	3	54 - 72	3
11	13	53 - 67	1	55 - 67	1	53 - 67	1
Total	286	50 - 72	50	51 - 73	77	51 - 72	83

Path: \\ussdglp001\macacommnet.com\LaJolla Resources\EMP\NOISE\Culbden4\WORKING DRAWINGS & GIS\4.2 DATA FOR GIS\mxd\Figures\Fig 4 Predicted Future Build Alternatives (Combined) Peak-Hour Noise Level Impacts.mxd, 4/17/2019, 4:27:11 PM



Legend

- ▲ Measurement Locations
- Impacted Receptor
- Non-Impacted Receptor
- Future Design (Both Alts)
- CNE Boundaries
- 500' buffer

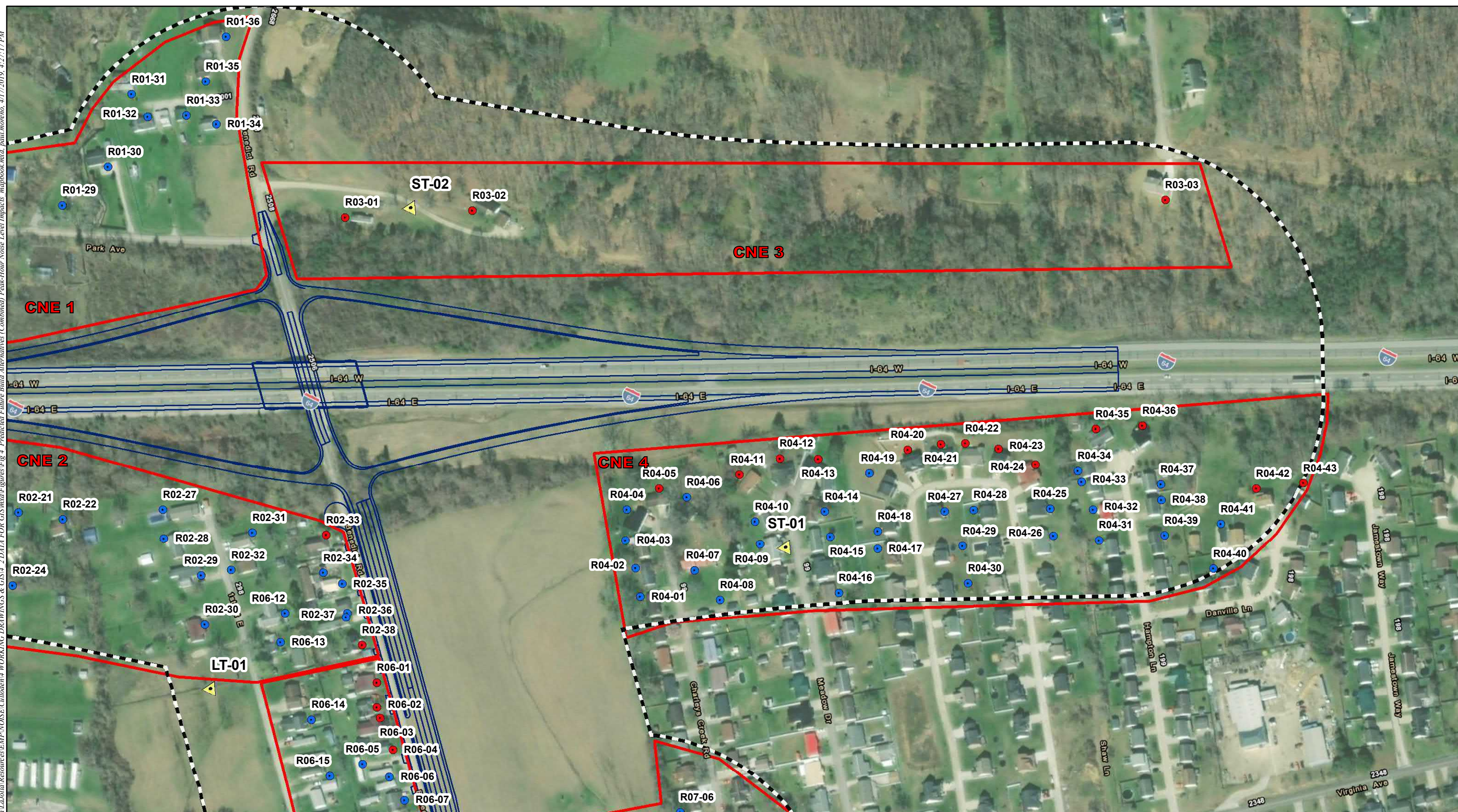


SOURCES: ESRI.

PREDICTED FUTURE BUILD ALTERNATIVES (COMBINED) PEAK-HOUR NOISE LEVEL IMPACTS

		CREATED BY: PM	DATE: 4/17/2019	FIG. NO:
	SCALE CORRECT WHEN PRINTED AT 11X17	PM: PB	PROJ. NO: 60307722.212	7

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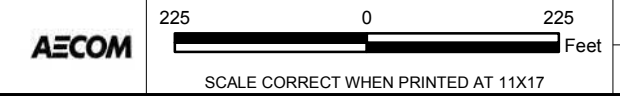
Legend

- ▲ Measurement Locations
- Impacted Receptor
- Non-Impacted Receptor
- Future Design (Both Alts)
- CNE Boundaries
- 500' buffer



SOURCES: ESRI.

**PREDICTED FUTURE BUILD ALTERNATIVES (COMBINED)
PEAK-HOUR NOISE LEVEL IMPACTS**




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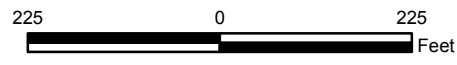
Legend

- ▲ Measurement Locations
- Non-Impacted Receptor
- Future Design (Alt 1)
- CNE Boundaries
- Impacted Receptor
- Future Design (Both Alts)
- Future Design (Alt 2)
- 500' buffer



SOURCES: ESRI.

**PREDICTED FUTURE BUILD ALTERNATIVES (COMBINED)
PEAK-HOUR NOISE LEVEL IMPACTS**

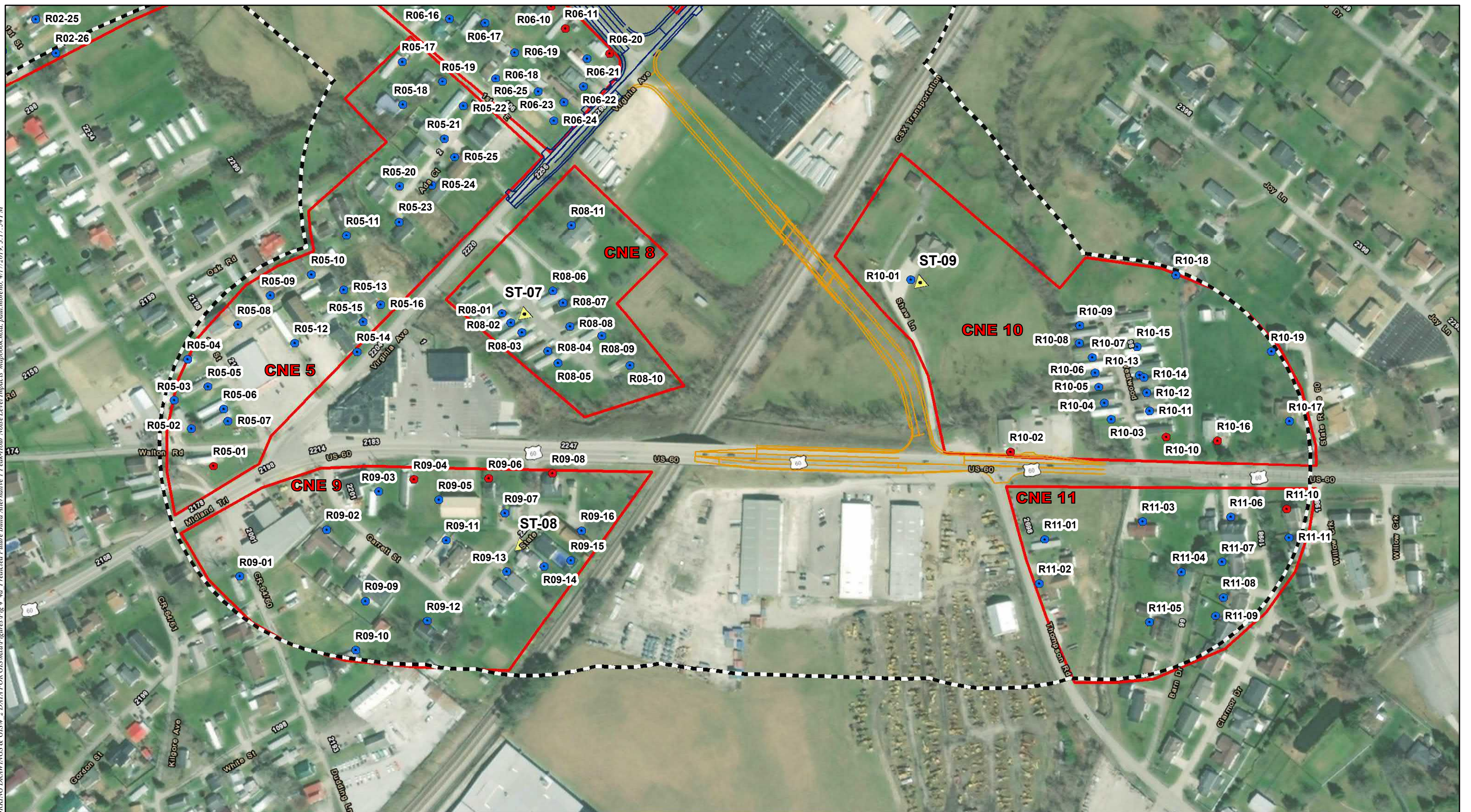


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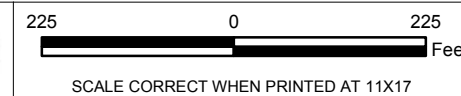
- ▲ Measurement Locations
- Non-Impacted Receptor
- Future Design (Alt 1)
- 500' buffer
- Impacted Receptor
- Future Design (Both Alts)
- CNE Boundaries



SOURCES: ESRI.

PREDICTED FUTURE BUILD ALTERNATIVE 3 (NEW ALTERNATIVE 1) PEAK-HOUR NOISE LEVEL IMPACTS

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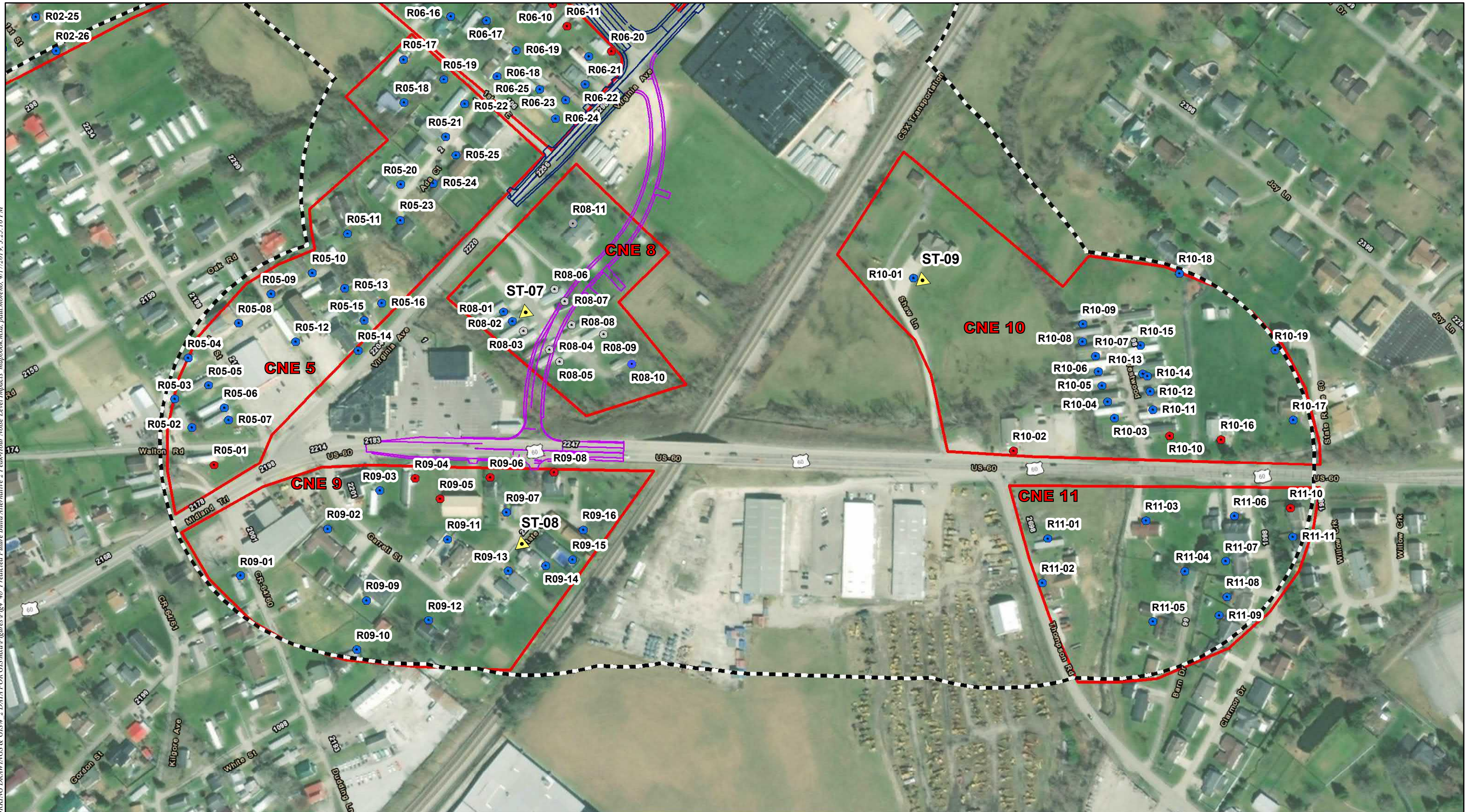
FIG. NO:

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10a

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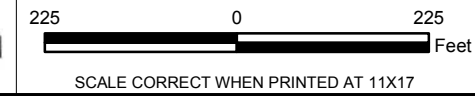
Legend

- ▲ Measurement Locations
- Impacted Receptor
- Non-Impacted Receptor
- Taken Structure
- Future Design (Both Alts)
- Future Design (Alt 2)
- CNE Boundaries
- 500' buffer



SOURCES: ESRI.

PREDICTED FUTURE BUILD ALTERNATIVE 2 PEAK-HOUR NOISE LEVEL IMPACTS



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6.0 NOISE ABATEMENT EVALUATION

6.1 Noise Abatement Measures

According to FHWA and WVDOH policies, when noise impacts are identified, noise barriers (at a minimum) must be considered as noise abatement. Other potential noise abatement measures might include heavy truck or speed restrictions, alignment changes, and depressed roadways. Of these alternatives, the project alignment was evaluated and compared for noise impacts (as presented in Section 5), but truck restrictions and speed restrictions below proposed speed limits would significantly reduce the value of the roadway. Noise barriers were evaluated for feasibility and reasonableness. The following sections describe the results of the barrier assessments for each evaluated CNE.

6.2 Feasible and Reasonable Criteria and Requirements

For mitigation to be recommended, each barrier must meet certain feasibility and reasonableness requirements established by WVDOH in its *Highway Traffic Noise Policy*.

When noise barriers are considered, a preliminary noise barrier design analysis must show that the barrier is feasible. According to the WVDOH noise guidelines, feasible noise barriers must provide at least 5 dBA of noise reduction for impacted receivers. In addition to meeting minimum noise reduction requirements, noise barriers must also meet engineering and constructability feasibility requirements in terms of safety, property and emergency access, drainage control, overhead and underground utilities clearance, existing noise sources, and other issues.

Noise barrier reasonableness is generally related to noise abatement dimension and benefitted receptors (with receptors receiving 5 dB or more of insertion loss from the proposed abatement). The WVDOH noise guidelines express barrier cost effectiveness as cost per benefitted receptor, which must not exceed \$30,000. Barriers must also achieve the WVDOH noise reduction design goal by providing a minimum noise reduction of 7 dBA for at least 10% of benefitted receptors. In addition to the required reasonableness criteria above, WVDOH has optional criteria that can be evaluated, including a minimum 5 dBA increase of noise levels over existing levels and a minimum 3 dBA increase of noise levels over future no-build conditions. If both of these optional reasonableness criteria are not satisfied for a noise barrier evaluation, the abatement measure will not be considered reasonable by WVDOH guidelines.

For a noise barrier to be considered feasible and reasonable, the viewpoints of benefitted property owners and residents must be taken into consideration. Approval by a simple majority (acceptance by more than 50% of responding benefitted property owners and residents) is required.

6.3 Findings and Recommendations for Noise Abatement

Initially, noise abatement was checked for feasibility (at least a 5 dBA reduction at impacted receptors and access/safety/engineering restrictions). If abatement was determined to be feasible, the abatement was analyzed for cost effectiveness and other reasonableness factors. For all impacted receptors meeting feasibility requirements, preliminary barrier designs were evaluated using TNM. If the barrier was found to be both reasonable and feasible, it would be recommended for inclusion in the project pending a polling of viewpoints from benefitted receptors. The results of abatement evaluations for each impacted CNE are summarized below; the summaries are followed by the analyzed barriers which are shown in Figures 11 through 13.

6.3.1 Summary of Impacts and Noise Abatement at CNE 1

CNE 1 contains a total of 29 impacted receptors on the north side of I-64, west of Benedict Road. Due to the varying terrain, the analyzed abatement comprised a pair of overlapping barriers (Table 6). A barrier close to the project right-of-way, and adjacent to the impacted receptor properties sharing a similarly high elevation, was analyzed and determined to be incapable of providing benefits while maintaining a cost per benefitted unit criterion below \$30,000 (Table 6).

Statement of Likelihood: The analyzed barrier at CNE 1 was incapable of meeting all reasonableness criteria. As a result, noise abatement at CNE 1 is not recommended.

Table 6. Noise Abatement Analysis Summary for CNE 1

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	TBD
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	Yes
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	No
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	Yes
Is the barrier desired by the majority of benefitted receptors?	TBD
Barrier Design and Performance Details	
Number of Barriers	2
Total Square Footage	32,443 ft ²
Total Length	2,538 ft
Minimum Height	12 ft
Maximum Height	16 ft
Average Height	13 ft
Cost (Ft ² x \$25)	\$811,075
Other Costs	\$200,000
Total Cost	\$1,011,075
Cost Per Benefitted Receptor	\$31,596
No-Abatement Quantity of Impacted Receptors	29
Quantity Impacted Receptors Receiving Benefit	29
Total Quantity of Receptors Receiving Benefit	32
Percent of Receptors Experiencing 7 dBA or greater reduction	69%

6.3.2 Summary of Impacts and Noise Abatement at CNE 2

CNE 2 contains a total of 17 impacted receptors on the south side of I-64, west of Benedict Road. Due to the varying terrain, the analyzed abatement comprised a pair of overlapping barriers (Table 7). A barrier close to the project right-of-way, and adjacent to the impacted receptor properties sharing a similarly high elevation, was analyzed and determined to be incapable of providing benefits while maintaining a cost per benefitted unit criterion below \$30,000 (Table 7).

Statement of Likelihood: The analyzed barrier at CNE 2 was incapable of meeting all reasonableness criteria. As a result, noise abatement at CNE 2 is not recommended.

Table 7. Noise Abatement Analysis Summary for CNE 2

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	TBD
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	Yes
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	No
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	Yes
Is the barrier desired by the majority of benefitted receptors?	TBD
Barrier Design and Performance Details	
Number of Barriers	2
Total Square Footage	24,200 ft ²
Total Length	1,991 ft
Minimum Height	12 ft
Maximum Height	14 ft
Average Height	12 ft
Cost (Ft ² x \$25)	\$605,000
Other Costs	\$155,000
Total Cost	\$760,000
Cost Per Benefitted Receptor	\$30,400
No-Abatement Quantity of Impacted Receptors	17
Quantity Impacted Receptors Receiving Benefit	15
Total Quantity of Receptors Receiving Benefit	25
Percent of Receptors Experiencing 7 dBA or greater reduction	21%

6.3.3 Summary of Impacts and Noise Abatement at CNE 3

CNE 3 contains a total of 2 impacted receptors on an elevated mountainside north of I-64 and east of Benedict Road. A barrier close to the project right-of-way, adjacent to the impacted receptor properties sharing a similarly high elevation, was analyzed and determined to be incapable of providing benefits while maintaining a cost per benefitted unit criterion below \$30,000 (Table 8).

Statement of Likelihood: The analyzed barrier at CNE 3 was incapable of meeting all reasonableness criteria. As a result, noise abatement at CNE 3 is not recommended.

Table 8. Noise Abatement Analysis Summary for CNE 3

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	TBD
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	Yes
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	No
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	Yes
Is the barrier desired by the majority of benefitted receptors?	TBD
Barrier Design and Performance Details	
Number of Barriers	1
Total Square Footage	5201 ft ²
Total Length	400 ft
Minimum Height	8 ft
Maximum Height	16 ft
Average Height	13 ft
Cost (Ft ² x \$25)	\$130,025
Other Costs	\$35,000
Total Cost	\$165,025
Cost Per Benefitted Receptor	\$82,513
No-Abatement Quantity of Impacted Receptors	2
Quantity Impacted Receptors Receiving Benefit	2
Total Quantity of Receptors Receiving Benefit	2
Percent of Receptors Experiencing 7 dBA or greater reduction	50%

6.3.4 Summary of Impacts and Noise Abatement at CNE 4

CNE 4 contains a total of 13 impacted receptors on the south side of I-64, east of Benedict Road. The contiguous barrier follows the near-edge of the proposed I-64 eastbound on-ramp along its peak fill terrain, extending east along the I-64 mainline (Table 9). Although the barrier meets the cost per benefitted receptor limit, the two WVDOH optional criteria of future build levels exceeding existing levels by at least 5 dBA and future build levels exceeding future no-build levels by at least 3 dBA are each not satisfied.

Statement of Likelihood: The analyzed barrier at CNE 4 was incapable of meeting all reasonableness criteria. As a result, noise abatement at CNE 4 is not recommended.

Table 9. Noise Abatement Analysis Summary for CNE 4

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	TBD
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	Yes
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	Yes
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	Yes
Do the future build noise levels exceed existing levels by 5 dBA or more at impacted receptors OR do the future build noise levels exceed future no-build levels by 3 dBA or more at impacted receptors?	No
Is the barrier desired by the majority of benefitted receptors?	TBD
Barrier Design and Performance Details	
Number of Barriers	1
Total Square Footage	23,956 ft ²
Total Length	2,194 ft
Minimum Height	8 ft
Maximum Height	12 ft
Average Height	11 ft
Cost (Ft ² x \$25)	\$598,900
Other Costs	\$160,000
Total Cost	\$758,900
Cost Per Benefitted Receptor	\$17,649
No-Abatement Quantity of Impacted Receptors	13
Quantity Impacted Receptors Receiving Benefit	12
Total Quantity of Receptors Receiving Benefit	43
Percent of Receptors Experiencing 7 dBA or greater reduction	44%

6.3.5 Summary of Impacts and Noise Abatement at CNE 5

CNE 5 contains a single impacted receptor located on a corner lot, south of Walton Road and north of US 60. Abatement measures at the impacted receptor were determined to be not feasible due to prohibitions in length and subsequent performance due to the access driveway on US 60 (Table 10).

Statement of Likelihood: A barrier at CNE 5 was determined to be incapable of meeting all feasibility requirements due to driveway access restrictions along US 60.

Table 10. Noise Abatement Analysis Summary for CNE 5

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	No
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	N/A
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	N/A
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	N/A
Is the barrier desired by the majority of benefitted receptors?	N/A
Barrier Design and Performance Details	
Number of Barriers	N/A
Total Square Footage	N/A
Total Length	N/A
Minimum Height	N/A
Maximum Height	N/A
Average Height	N/A
Cost (Ft ² x \$25)	N/A
Cost Per Benefitted Receptor	N/A
No-Abatement Quantity of Impacted Receptors	1
Quantity Impacted Receptors Receiving Benefit	N/A
Total Quantity of Receptors Receiving Benefit	N/A
Percent of Receptors Experiencing 7 dBA or greater reduction	N/A

6.3.6 Summary of Impacts and Noise Abatement at CNE 6

Noise abatement analysis at CNE 6 considered a total of 6 impacted receptors that line the west side of Benedict Road, including receptors from CNE 6 as well as the easternmost portion of CNE 2. The barrier spans between the proposed Benedict Road realignment and the existing Benedict Road, breaking across the proposed access driveway (Table 11). A barrier close to the project right-of-way, and adjacent to the impacted receptor properties sharing a similarly

high elevation, was analyzed and determined to be incapable of providing benefits while maintaining a cost per benefitted unit criterion below \$30,000 (Table 11).

Statement of Likelihood: The analyzed barrier at CNE 6 was incapable of meeting all reasonableness criteria. As a result, noise abatement at CNE 6 is not recommended.

Table 11. Noise Abatement Analysis Summary for CNE 6

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	TBD
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	Yes
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	No
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	Yes
Is the barrier desired by the majority of benefitted receptors?	TBD
Barrier Design and Performance Details	
Number of Barriers	2
Total Square Footage	11,863 ft ²
Total Length	986 ft
Minimum Height	8 ft
Maximum Height	16 ft
Average Height	12 ft
Cost (Ft ² x \$25)	\$283,075
Other Costs	\$190,000
Total Cost	\$473,075
Cost Per Benefitted Receptor	\$47,308
No-Abatement Quantity of Impacted Receptors	6
Quantity Impacted Receptors Receiving Benefit	4
Total Quantity of Receptors Receiving Benefit	10
Percent of Receptors Experiencing 7 dBA or greater reduction	11%

6.3.7 Summary of Impacts and Noise Abatement at CNE 9

CNE 9 contains between 2 and 3 impacted receptors based on which alternative is analyzed, all located on the south side of US 60 between Virginia Avenue and the railroad alignment. In both alternatives, abatement measures at the impacted receptors were determined to be not feasible due to prohibitions in length and subsequent performance due multiple access driveways along US 60 (Table 12).

Statement of Likelihood: Noise abatement at CNE 9 was determined to be incapable of meeting all feasibility requirements due to driveway access restrictions along US 60.

Table 12. Noise Abatement Analysis Summary for CNE 9

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	No
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	N/A
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	N/A
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	N/A
Is the barrier desired by the majority of benefitted receptors?	N/A
Barrier Design and Performance Details	
Number of Barriers	N/A
Total Square Footage	N/A
Total Length	N/A
Minimum Height	N/A
Maximum Height	N/A
Average Height	N/A
Cost (Ft ² x \$25)	N/A
Cost Per Benefitted Receptor	N/A
No-Abatement Quantity of Impacted Receptors	2 - 3
Quantity Impacted Receptors Receiving Benefit	N/A
Total Quantity of Receptors Receiving Benefit	N/A
Percent of Receptors Experiencing 7 dBA or greater reduction	N/A

6.3.8 Summary of Impacts and Noise Abatement at CNE 10

CNE 10 contains between 2 and 3 impacted receptors based on which alternative is analyzed, all located on the north side of US 60 east of the railroad alignment. In both alternatives, abatement measures at the impacted receptors were determined to be not feasible due to prohibitions in length and subsequent performance due multiple access driveways along US 60 (Table 13).

Statement of Likelihood: Noise abatement at CNE 10 was determined to be incapable of meeting all feasibility requirements due to driveway access restrictions along US 60.

Table 13. Noise Abatement Analysis Summary for CNE 10

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	No
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	N/A
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	N/A
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	N/A
Is the barrier desired by the majority of benefitted receptors?	N/A
Barrier Design and Performance Details	
Number of Barriers	N/A
Total Square Footage	N/A
Total Length	N/A
Minimum Height	N/A
Maximum Height	N/A
Average Height	N/A
Cost (Ft ² x \$25)	N/A
Cost Per Benefitted Receptor	N/A
No-Abatement Quantity of Impacted Receptors	2 - 3
Quantity Impacted Receptors Receiving Benefit	N/A
Total Quantity of Receptors Receiving Benefit	N/A
Percent of Receptors Experiencing 7 dBA or greater reduction	N/A

6.3.9 Summary of Impacts and Noise Abatement at CNE 11

CNE 11 contains 1 impacted receptor located on the south side of US 60, east of the railroad alignment. Abatement measures at the impacted receptor were determined to be not feasible due to prohibitions in length and subsequent performance due to the access driveway on US 60 (Table 14).

Statement of Likelihood: Noise abatement at CNE 11 was determined to be incapable of meeting all feasibility requirements due to driveway access restrictions.

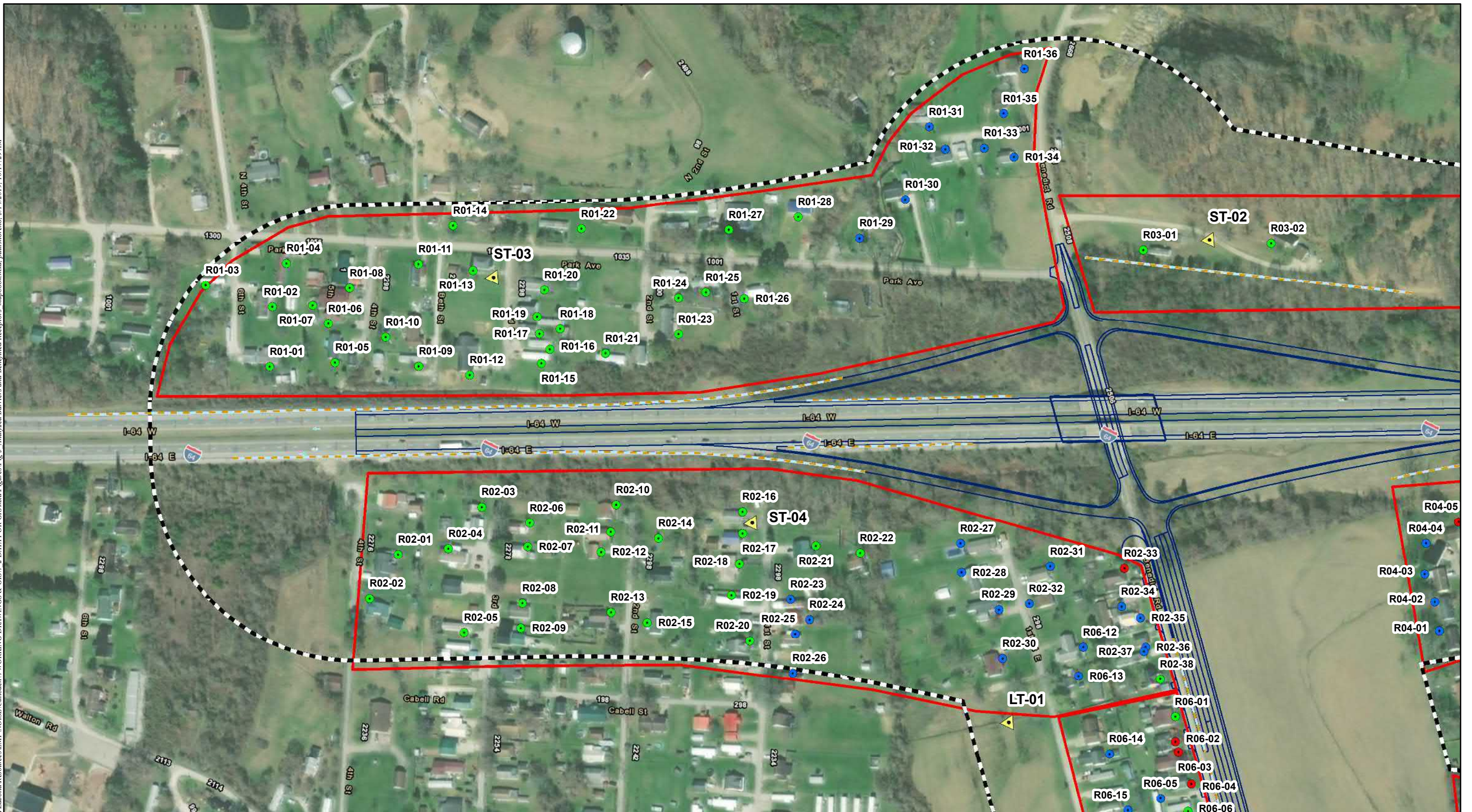
Table 14. Noise Abatement Analysis Summary for CNE 11

Feasibility	
Does the proposed noise abatement avoid issues related to engineering considerations?	No
Does the proposed noise abatement achieve a noise reduction of at least 5 dBA at one impacted receptor?	N/A
Reasonableness	
Does the proposed noise abatement cost less than \$30,000 per benefitted receptor?	N/A
Does the proposed noise abatement provide 7 dBA or greater reduction to at least 10% or more of benefitted receptors?	N/A
Is the barrier desired by the majority of benefitted receptors?	N/A
Barrier Design and Performance Details	
Number of Barriers	N/A
Total Square Footage	N/A
Total Length	N/A
Minimum Height	N/A
Maximum Height	N/A
Average Height	N/A
Cost (Ft ² x \$25)	N/A
Cost Per Benefitted Receptor	N/A
No-Abatement Quantity of Impacted Receptors	1
Quantity Impacted Receptors Receiving Benefit	N/A
Total Quantity of Receptors Receiving Benefit	N/A
Percent of Receptors Experiencing 7 dBA or greater reduction	N/A

6.3.10 Summary of Recommended Barriers

As shown in Figures 11 through 13, none of the analyzed noise barriers meet all of the WVDOH feasible and reasonableness criteria requirements. Therefore, no barriers are recommended for this project.

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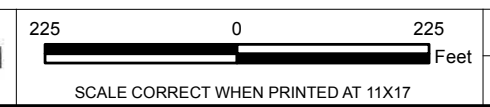
Legend

- ▲ Measurement Locations
- Benefitted Receptor
- Non-Impacted Receptor
- Impacted Receptor
- Future Design (Both Alts)
- CNE Boundaries
- Barrier Analyzed but Not Recommended
- 500' buffer



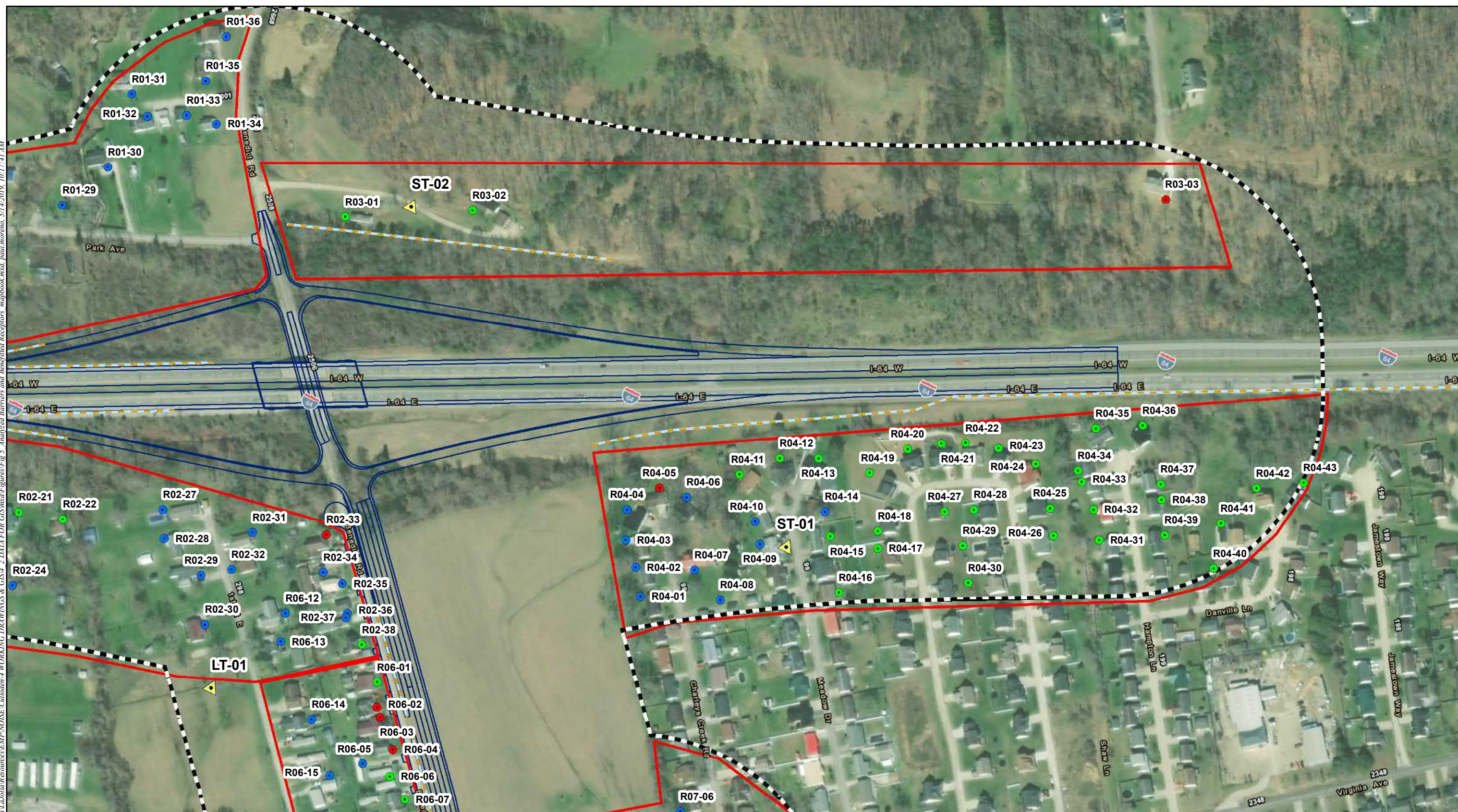
SOURCES: ESRI.

ANALYZED BARRIERS AND BENEFITTED RECEPTORS



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Legend

- ▲ Measurement Locations
 ● Impacted Receptor
— Future Design (Both Alts)
- - - Barrier Analyzed but Not Recommended
- Benefitted Receptor
 ● Non-Impacted Receptor
— CNE Boundaries
 500' buffer

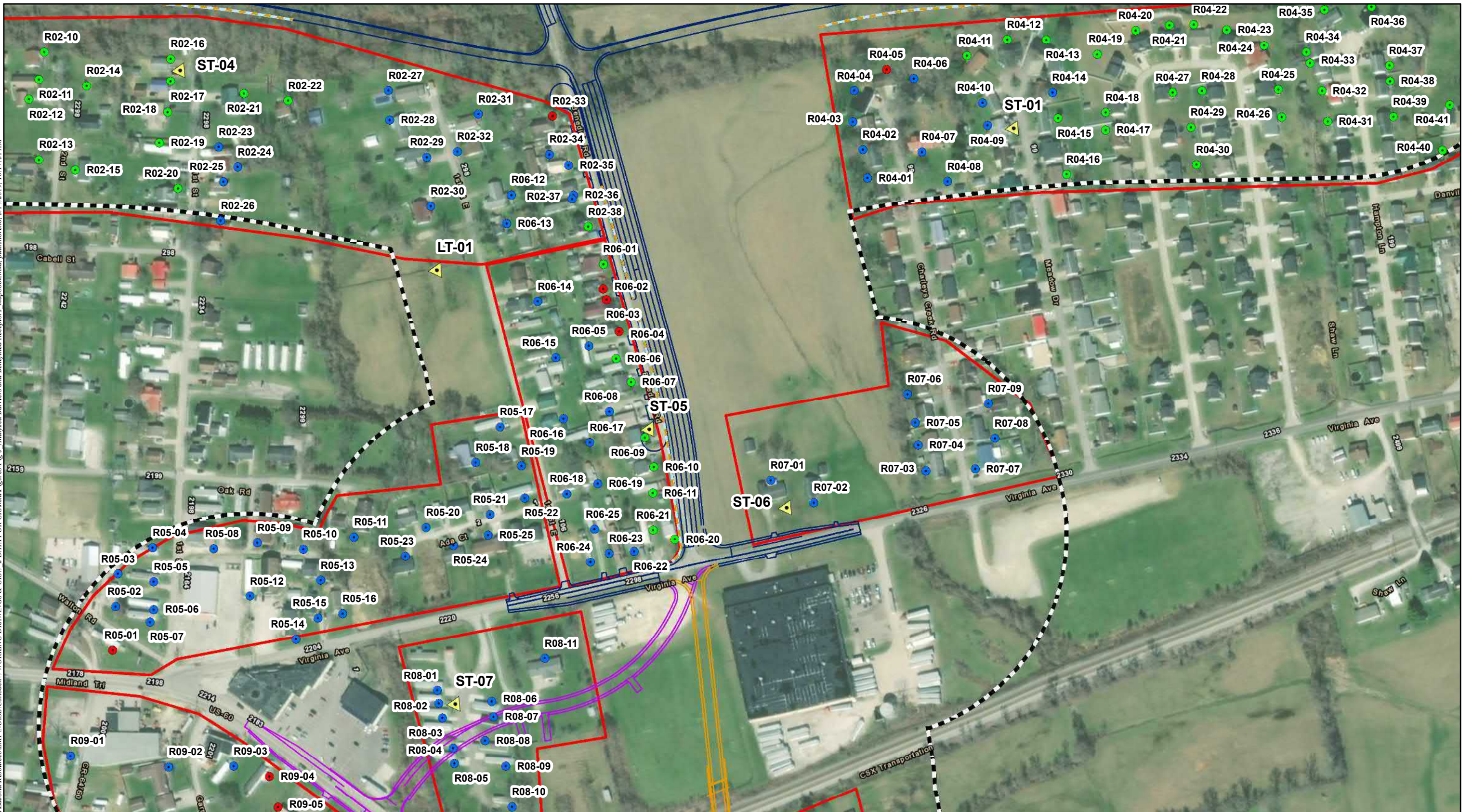


SOURCES: ESRI.

ANALYZED BARRIERS AND BENEFITTED RECEPTORS

	<p>225 0 225 Feet</p> <p>SCALE CORRECT WHEN PRINTED AT 11X17</p>	CREATED BY: PM PM: PB	DATE: 5/14/2019 PROJ. NO: 60307722.212	FIG. NO: 12
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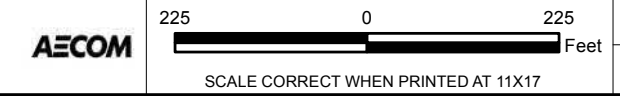
Legend

- ▲ Measurement Locations
- Benefitted Receptor
- Impacted Receptor
- Non-Impacted Receptor
- Future Design (Both Alts)
- Future Design (Alt 1)
- Future Design (Alt 2)
- CNE Boundaries
- Barrier Analyzed but Not Recommended
- 500' buffer



SOURCES: ESRI.

ANALYZED BARRIERS AND BENEFITTED RECEPTORS



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7.0 CONSTRUCTION NOISE ANALYSIS AND ABATEMENT MEASURES

FHWA policy requires that construction noise be considered in a Type I highway noise analysis. This analysis would generally include the following:

- Identify land uses that may be affected by construction noise.
- Determine the measures needed in the plans and specifications to minimize or eliminate construction noise impacts.
- Incorporate needed abatement into the plans and specifications.

FHWA and WVDOH do not identify specific construction noise impact criteria. Also, the detailed information required to predict actual construction noise levels (construction schedules, phasing, equipment lists, laydown areas, etc.) has not yet been determined.

It is recognized that areas adjacent to the highway right-of-way and other construction areas (such as staging and laydown areas) can temporarily be exposed to high levels of noise during peak construction periods. It is reasonable to assume that the same receptors identified for potential traffic noise impacts could also be exposed to construction noise. The effect of construction noise on the local area can be reduced if the hours and days of construction activity are limited to less sensitive time periods. Standard construction noise specifications help minimize the effects of construction noise.

The following special provisions may be incorporated into the construction contract:

- Inform the local public in advance of construction activities that may generate particularly high noise levels.
- Noise barriers, approved for incorporation into the project, should be constructed as close to the beginning of the project's construction timeline as practical.
- Noise created by truck movement shall not exceed 88 dBA at a distance of 50 feet.
- Have portable noise meters on the job at all times for noise level spot checks on specific operations. Employ an individual trained in the use of noise meters, with working knowledge of sound measurements and their meaning and use as applied to these mitigation/abatement measures.

Although WVDOH does not identify any specific abatement measures related to construction noise, the following list could be considered best practices for the avoidance of any potential problems related to construction noise impacts:

- No construction shall be performed within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 9:00 PM and 6:00 AM on other days without the approval of the WVDOH construction project manager.
- All equipment used shall have sound-control devices no less effective than those provided on the original equipment. All equipment shall have muffled exhaust.
- All equipment shall comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.

- No pile driving or blasting operations shall be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 9:00 PM and 6:00 AM on other days without the approval of the WVDOH construction project manager.
- The noise from rock crushing or screening operations performed within 3,000 feet of any occupied dwelling shall be mitigated by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the WVDOH construction project manager.

If a specific noise impact complaint is received during construction of the project, the contractor may be required to implement one or more of the following noise mitigation measures at the contractor’s expense, as directed by the WVDOH construction project manager:

- Locate stationary construction equipment as far from nearby noise-sensitive properties as feasible.
- Shut off idling equipment.
- Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy work will be occurring.
- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Operate electrically powered equipment using line voltage power or solar power.

8.0 INFORMATION FOR LOCAL GOVERNMENT OFFICIALS

As required by 23 CFR 772, future highway traffic noise estimates are typically reported for undeveloped land for use by local government officials to assist in planning and prevention of future impacts. Table 16 presents potential noise impact distances for developments in proximity to I-64. These distances are measured from the centerline of the highway.

Table 15. Noise Impact Distances for Local Officials

Study Area	Approximate Contour Distance (ft)	
	66 dBA	71 dBA
I-64 – West of Benedict Road	459	239
I-64 – East of Benedict Road	450	209

9.0 CONCLUSIONS AND RECOMMENDATIONS

The noise analysis for the project included a total of ten measurement locations and 236 prediction points representing 286 noise-sensitive land uses in the focused study area. To simplify the reporting of noise levels, noise impacts, and noise mitigation, these receptors were organized into 11 separate CNEs within the study area.

Nine CNEs contained receptors with predicted future noise levels approaching or exceeding the NAC. These CNEs were evaluated for noise abatement and, following WVDOH noise guidelines, no noise abatement measures were found to be both feasible and reasonable. Therefore, noise abatement is not recommended for the project.

10.0 STATEMENT OF LIMITATIONS

Background information, land use information, traffic data, roadway design files, and other data have been furnished to AECOM by WVDOH and/or third parties, which AECOM has used in preparing this report. AECOM has relied on this information as furnished, and is neither responsible for nor has confirmed the accuracy of this information.

Portions of this report have been prepared based on certain key assumptions made by AECOM which substantially affect the conclusions and recommendations of this report. These assumptions, although thought to be reasonable and appropriate, may not prove to be true in the future. The conclusions and recommendations of AECOM are conditioned upon several assumptions. Noise levels found in this report were predicted with the FHWA TNM Version 2.5 computer program as approved by WVDOH for this project. This report assumes that the algorithms within the traffic noise model are correct and comply with WVDOH standards for predictive noise modeling.

11.0 REFERENCES

- AECOM. 2015. *Culloden Interchange Study, Preliminary Traffic Analysis of a Potential New Interchange on Interstate 64 between Milton and Hurricane, West Virginia*. Prepared for West Virginia Department of Transportation Division of Highways. April 7.
- Federal Highway Administration (FHWA). 2010. 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. July.
- FHWA. 2011. *Highway Traffic Noise: Analysis and Abatement Guidance*. U.S. Department of Transportation, Federal Highway Administration, Washington, DC.
- HNTB Corporation (HNTB). 2018a. *Culloden Interchange Phase 1 Design Study Report. State Project Number: U306-64-31.65 00, Federal Project Number: NHPP-2317(001)D*. Prepared for West Virginia Department of Transportation Division of Highways. October 31.
- HNTB. 2018b. *Connector Road Alternative Screening Memorandum, I-64 Culloden Interchange at Benedict Road*. Submitted to West Virginia Department of Transportation Division of Highways. October 31.
- Lee, C.S.Y. and G.G. Fleming. 1996. *Measurement of Highway Related Noise*, Federal Highway Administration Report FHWA-PD-96-046. U.S. Department of Transportation, Research and Special Programs Administration, John A. Volpe National Transportation Systems Center, Cambridge, MA.
- National Cooperative Highway Research Program (NCHRP). 2011. Report 971, *Supplemental Guidance on the Application of FHWA's Traffic Noise Model*, Section 6.4.
- West Virginia Department of Highways. 2011. *Highway Traffic Noise Policy*, Effective July 13.

Appendix A
Fundamentals of Traffic Noise Assessment and Control

Noise is generally regarded as unwanted sound. Man-made noise is everywhere, from the busiest urban centers to the most remote national park. Excessive noise can interfere with sleep, work, recreation, and even one's health. One of the major contributors of noise in society, perhaps the greatest contributor in terms of the number of people affected, is highway or traffic noise. This appendix briefly discusses:

- How noise is measured;
- How highway noise is generated;
- How highway noise can be reduced; and
- Where to get more information.

How Noise is Measured

Sound can vary over an extremely large range of amplitudes. The decibel (dB) is a logarithmic unit that is the accepted standard unit for measuring the amplitude of sound because it accounts for these large variations in amplitude and reflects the way people perceive changes in sound amplitude. Different sounds may have different frequency content. Frequency content of a sound refers to its tonal quality or pitch. When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A weighted" refers to a filtering of the noise signal to emphasize frequencies in the middle of the audible spectrum and to de-emphasize low and high frequencies in a manner corresponding to the way the human ear perceives sound at moderate intensities. This filtering network has been established by the American National Standards Institute (ANSI). The A-weighted noise level has been found to correlate well with peoples' judgments of the noisiness of different sounds and has been used for many years as a measure of community noise. **Table A.1** lists sound pressure levels in dBA of various sound sources between 0 dBA (threshold of hearing) and 120 dBA (threshold of pain). An increase of 3 dBA in noise level can barely be perceived, while an increase of 5 dBA is readily noticeable and considered a significant noise increase. A 10 dBA increase corresponds to a subjective doubling of loudness. A relationship between changes in noise level and loudness is indicated in **Table A.2**. Since noise fluctuates from moment to moment, it is common practice to condense the noise level over a specified period of time into a single number called the Equivalent Noise Level (L_{eq}). Many surveys have shown that the L_{eq} properly predicts annoyance, and thus this metric is commonly used for noise measurements, prediction, and impact assessment. Noise levels are also described by percentage levels such as L_{10} and L_{90} , representing the level exceeded 10% and 90% of a measurement period, respectively. L_{10} has been used to describe highway noise and L_{90} is typically used to describe the background sound level in an area.

Table A.1. Common Indoor and Outdoor Noise Levels¹

Common Outdoor Noise Sources	Noise Level (A-weighted decibels)	Common Indoor Noise Sources
	110	Rock Band
Jet Flyover at 1000 feet	100	Inside Subway Train (NYC)
Gas Lawn Mower at 3 feet		
Diesel Truck at 50 feet	90	Food Blender at 3 feet
Noisy Urban Daytime	80	Garbage Disposal at 3 feet
Gas Lawn Mower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Small Theater
Quiet Suburban Nighttime		Library
	30	
Quiet Rural Nighttime		Bedroom at Night
	20	
		Broadcast & Recording Studio
	10	
	0	Threshold of Hearing

¹ Adapted from Guide on Evaluation and Attenuation of Traffic Noise, AASHTO-1974.

Table A.2. Relationship Between Changes in Noise Level and Perceived Loudness

Increase (or Decrease) in Noise Level	Loudness Multiplied (or Divided) by
3 decibels	1.2
6 decibels	1.5
10 decibels	2
20 decibels	4

How Highway Noise is Generated

Highway noise is generated from three primary sources – tire/pavement noise, engine noise, and exhaust noise. Tire/pavement noise is the noise generated by rubber tires rolling over the pavement surface and may vary in intensity and character depending on the type and condition of both the tires and the pavement. For automobiles and light trucks traveling at typical highway speeds (over about 50 mile/hour), tire/pavement noise is generally the dominant noise source. For medium and heavy trucks (such as large commercial delivery vehicles and long haul tractor-trailers), engine and exhaust noise also contribute to the overall noise that they produce. At typical highway speeds, one large truck can produce as much noise energy as ten automobiles. How highway noise is experienced at nearby homes is controlled by a number of factors, including the total number of vehicles on the highway, the percentage of large trucks, the average speed of the vehicles, the distance to the highway, obstructions blocking the view of

the highway, and meteorological conditions. Generally speaking, the more vehicles and the higher percentage of large trucks or the closer one is to the highway, the greater the noise will be. Intervening obstructions, either manmade (buildings, walls, berms) or natural (such as intervening terrain) will reduce noise levels. Foliage and vegetation can reduce noise levels, but it must be dense (completely obscuring the view of the highway) and thick (on the order of 50 to 100 feet) in order to make a noticeable difference.

How Highway Noise Can Be Reduced

Highway noise can be reduced in a number of ways. Here are some of the most commonly recognized:

Traffic Controls

The faster vehicles travel, and the higher percentage of large trucks, the louder the noise. Reduced speed limits, or more rigorously enforced existing speed limits, and heavy truck restrictions will reduce noise levels. However, the implementation of such measures is often logistically difficult for the sake of lower noise levels alone.

Land Use Controls

Perhaps the most common-sense and fiscally responsible solution to highway noise, and one favored by most highway agencies, is to restrict the development of lands near highways. Restricting development of land near new highway corridors to non-noise-sensitive land uses, such as commercial or industrial activities, can eliminate most noise problems. However, this approach is not suitable for circumstances when land near existing or future highways has already been developed for residential land use.

Quieter Vehicle Noise Sources

Quieter vehicles mean less highway noise. For automobiles this means quieter tires (since tire/pavement noise is the dominant noise source). For large trucks, the EPA has established standards for maximum noise levels for new and in-use trucks. The maximum noise levels for new trucks are lower than those for existing trucks, so as old trucks are phased out and replaced with newer ones the noise produced by the average truck may go down.

Noise Barrier Walls and Berms

Noise barriers, both structural walls and earthen berms, are often constructed specifically for the purpose of reducing highway noise levels. Noise barriers can be effective for reducing noise levels at nearby homes, often reducing noise levels by as much as 10 decibels at the closest homes (a perceived halving of loudness). Noise barriers can be expensive to build, on the order of \$2 million per mile. Because of their cost, the construction of noise barriers is often restricted to large highway improvement or construction projects. Some jurisdictions; however, are quite active in constructing "retrofit" noise barrier on existing highways.

Quieter Pavements

It has long been recognized that some pavement types tend to be quieter than others. White concrete pavement, for example, is typically louder than asphalt blacktop. White concrete with tining (grooves cut into the pavement surface) is louder still. However, white concrete pavement (also known as Portland Concrete Cement, or PCC) is thought to be more durable, and perhaps safer than blacktop pavements (due to better skid resistance and drainage). There is also considerable concern that the low noise advantages of some blacktop pavements may diminish over time. As the tiny "nooks and crannies" in the blacktop pavement that give it acoustical absorption may fill up with silt and sand or become compressed over time, the acoustical

benefits are reduced. The quest for quiet, safe and durable highway pavements is currently the focus of a considerable amount of research.

How Noise Barriers Work

Noise barriers reduce noise levels by interrupting or lengthening the path that the noise takes between the source and the receiver. In order to be effective at reducing noise, noise barriers must be able to block the line-of-sight between the object producing the noise (such as vehicles on the highway) and the person subjected to the noise (such as residents living near the highway). The amount that the noise will be reduced is related to the path length difference between the “direct path” that the uninterrupted sound would take between the source and receiver (with no barrier) and the “diffracted path” that the sound must take going over or around the barrier, as illustrated in **Figure A.1**.

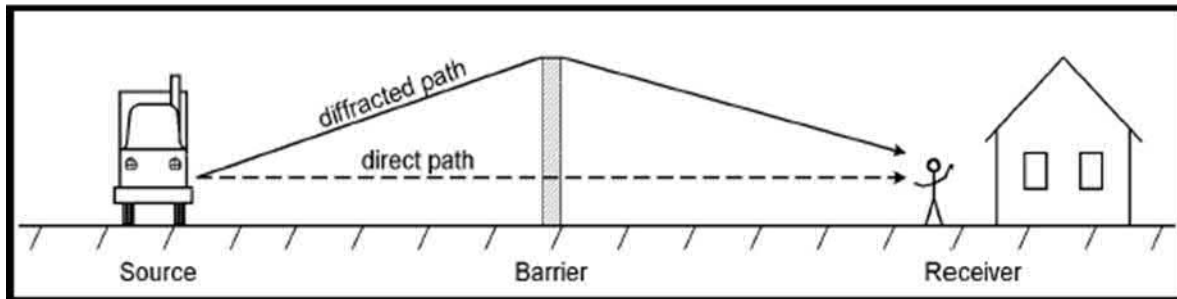


Figure A.1 Simple Noise Barrier Geometry

Noise barriers may work better for some homes than for others. In **Figure A.2**, below, home “A” is relatively close to the highway where the noise barrier can provide a large path length difference between the direct and diffracted paths, resulting in a substantial noise reduction (perhaps as much as 10 to 15 decibels). Home “B” is farther from the barrier and the path length difference is not as great, resulting in less noise reduction (perhaps 7 to 10 decibels). Home “C” is even farther from the highway, and also elevated above the highway level, providing an even smaller path length difference (resulting in a noise reduction of perhaps 3 to 5 decibels). In general, for a given barrier height and location, the farther the receiver is from the barrier or the higher the receiver is elevated, the smaller the path length difference (or angle of diffraction) and the smaller the resulting noise reduction.

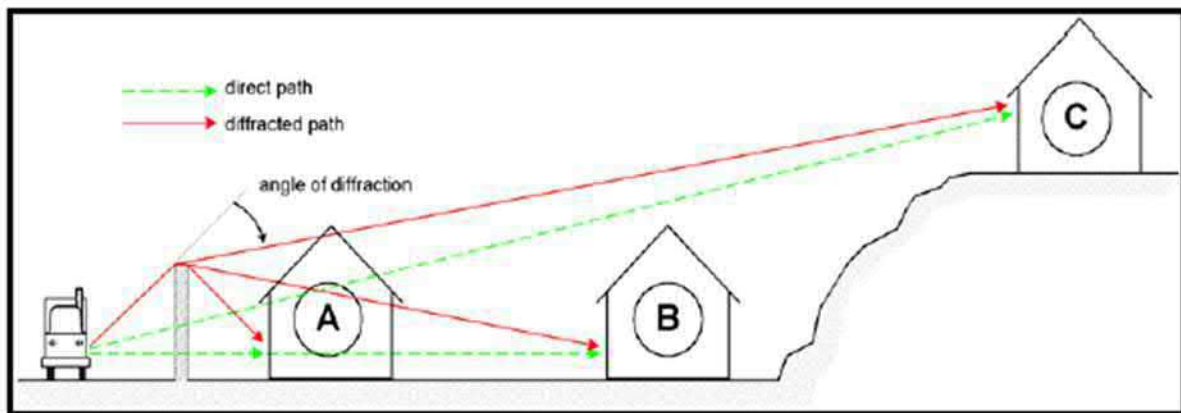


Figure A.2 Path Length Difference for Varying Receiver Geometry

References

1. Fundamentals and Abatement of Highway Traffic Noise, Bolt Beranek and Newman, 1973.
2. Assessment of Noise with Respect to Community Response, ISO R1996, International Organization for Standardization, Switzerland.
3. Federal Highway Administration, Procedures for Abatement of Highway Noise and Construction Noise. 23 CFR Part 772, Final Rule, effective July 13, 2010, and available online: <http://www.gpo.gov/fdsys/pkg/FR-2010-07-13/html/2010-15848.htm>
4. FHWA Highway Traffic and Construction Noise – Regulation and Guidance, available online: http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/

Appendix B
Noise Measurement Data

Appendix B contains the following noise measurement data collected while conducting field noise measurements as part of the noise analysis:

- Photographs and descriptions of measurement locations;
- Hand-written field measurement data sheets containing sketches, noise levels, weather data, traffic information, and other data pertinent to the noise measurement process; and
- Calibration certificates for each SLM and field-calibrator used to conduct field measurements.



Photograph 1

Date: 3/18/19

Comments:

LT-01

2445 1st Street E



Photograph 2

Date: 3/19/19

Comments:

ST-01

165 Meadow Drive



Photograph 3

Date: 3/19/19

Comments:

ST-02

2443 Benedict Road



Photograph 4

Date: 3/19/19

Comments:

ST-03

2306 County Road
60/78



Photograph 5

Date: 3/19/19

Comments:

ST-04

2270 1st Street



Photograph 6

Date: 3/19/19

Comments:

ST-05

2416 Benedict Road



Photograph 7

Date: 3/19/19

Comments:

ST-06

283 Virginia Avenue



Photograph 8

Date: 3/19/19

Comments:

ST-07

#4 Whites Trailer Park



Photograph 9

Date: 3/19/19

Comments:

ST-08

2350 State Street



Photograph 10

Date: 3/19/19

Comments:

ST-09

88 County Road 60/21

Noise Monitoring Field Datasheets

**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULLEN INTERCHANGE Project #: _____ Date: 3/18/19 Page _____ of _____
 Measurement Location: LT-01 2445 1ST ST E (NEXT DOOR) Analyst: JDD

Sound Level Meter Model #: <u>LD 28T</u> Serial #: <u>4925</u> Weighting: <u>A</u> C / Flat Response: <u>Slow</u> / Fast / Impl Windscreen: <u>Yes</u> / No (explain)	Field Calibration Model #: <u>CAL 200</u> Serial #: <u>5789</u> Calibration Level (dB): <u>94.114</u> Pre-Test: <u>-0.13</u> dBA Post-Test: <u>-0.13</u> dBA	Meteorological Data Model #: <u>K3500</u> Time Obs/Meas: <u>15:30</u> Serial #: <u>1703474</u> Precipitation: Yes (explain) / <u>No</u> Wind: Steady / <u>Gusty</u> / Calm <u>> 10 MPH E</u> Avg Wind Speed/Direction: <u>4 MPH E</u> m/s / (MPH) Temp (°F): <u>47°</u> RH (%): <u>45%</u> Bar Psr (Hg): <u>30.33</u> Cloud Cover (%): <u>70%</u>
Topo: Flat / <u>Hilly</u> Terrain: Hard / Soft / <u>Mixed</u> / Agg / Snow		GPS Coordinates (at SLM location) [#] <u>38.425999 -82.054525</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀	
	<u>15:56</u>	<u>3/18/19</u>							<u>BEGAN LT SITE</u>
	<u>08:28</u>	<u>3/19/19</u>							<u>CHECKED / REPLACED BATTERIES</u> <u>WIND CALM 2 MPH</u> <u>25° RH 97%</u> <u>PRESS 30.45 Clouds 0%</u>
	<u>17:02</u>	<u>3/19/19</u>							<u>STOPPED LT SITE</u>
									<u>FILES 002</u> <u>FILES 003</u>

Roadway Name/Dir. Speed (post/obs*) Number of Lanes Width (pave/row) 1- or 2- way Grade Bus Stops Stoplights Motorcycles Automobiles Medium Trucks Heavy Trucks Buses Count duration	Site Diagram:
---	-------------------

- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation
 Additional Notes/Comments: _____ Photos Taken? Yes / No
13
 Noise Sources (circle all that apply): distant aircraft / roadway traffic / rail ops / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing / insects / mechanical
 Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULLODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page ____ of ____
 Measurement Location: ST-01 165 MEADOWS DR Analyst: JOD

Sound Level Meter Model #: <u>LD LXT</u> Serial #: <u>4926</u> Weighting: <u>A</u> / C / Flat Response: <u>Slow</u> / Fast / Impl Windscreen: <u>Yes</u> / No (explain)	Field Calibration Model #: <u>CAL 200</u> Serial #: <u>5789</u> Calibration Level (dB): <u>94</u> / 114 Pre-Test: <u>-0.12</u> dBA Post-Test: <u>-0.23</u> dBA	Meteorological Data Model #: <u>1K3500</u> Time Obs/Meas: <u>10:30</u> Serial #: <u>1703474</u> Precipitation: Yes (explain) <u>No</u> Wind: <u>Steady</u> / Gusty / Calm Avg Wind Speed/Direction: <u>2-3 MPH NE</u> m/s / MPH Temp (°F): <u>37°</u> RH (%): <u>71%</u> Bar Psr (Hg): <u>30.46</u> Cloud Cover (%): <u>0%</u>
Top: <u>Flat</u> / Hilly Terrain: Hard / Soft / <u>Mixed</u> / Agg / Snow		GPS Coordinates (at SLM location)* <u>38.425941 -82.050624</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	10:40	10:45								
	10:45	10:50								
	10:50	10:55							FILE 004	
	10:55	11:00								

Roadway Name/Dir.	<u>I-64 EB</u>	<u>I-64 WB</u>	<u>compass</u>	Site Diagram:
Speed (post/obs*)	<u>70</u>	<u>70</u>		
Number of Lanes	<u>2</u>	<u>2</u>		
Width (pave/row)	<u>N/A</u>	<u>N/A</u>		
1- or 2- way	<u>1</u>	<u>1</u>		
Grade	<u>FLAT</u>	<u>FLAT</u>		
Bus Stops	<u>N/A</u>	<u>N/A</u>		
Stoplights	<u>N/A</u>	<u>N/A</u>		
Motorcycles	<u>0</u>	<u>0</u>		
Automobiles	<u>185</u>	<u>174</u>		
Medium Trucks	<u>8</u>	<u>9</u>		
Heavy Trucks	<u>34</u>	<u>38</u>		
Buses	<u>0</u>	<u>0</u>		
Count duration	<u>15 MIN</u>	<u>15 MIN</u>		

- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation

Additional Notes/Comments: _____

Photos Taken? Yes / No
11

Noise Sources (circle all that apply): distant aircraft / roadway traffic / rail ops / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing / insects / mechanical

Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULLODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-02 2443 BENEDICT (60/21) RD Analyst: JD

Sound Level Meter	Field Calibration	Meteorological Data
Model #: <u>LDLKT</u>	Model #: <u>CAL 200</u>	Model #: <u>K3500</u> Time Obs/Meas: <u>9:45</u>
Serial #: <u>4926</u>	Serial #: <u>5789</u>	Serial #: <u>1703474</u>
Weighting: <u>A</u> / C / Flat	Calibration Level (dB): <u>94 / 114</u>	Precipitation: Yes (explain) / <u>No</u>
Response: <u>Slow</u> / Fast / Impl	Pre-Test <u>-0.12</u> dBA	Wind: Steady / Gusty / <u>Calm</u>
Windscreen: <u>Yes</u> / No (explain)	Post-Test <u>-0.23</u> dBA	Avg Wind Speed/Direction: <u>0</u> m/s / <u>MPH</u>
Topo: Flat / <u>Hilly</u>	GPS Coordinates (at SLM location) [#] <u>38.426763 -82.054612</u>	Temp (°F): <u>34°</u> RH (%): <u>75%</u>
Terrain: Hard / <u>Soft</u> / Mixed / Agg / Snow		Bar Psr (Hg): <u>30.46</u> Cloud Cover (%): <u>0%</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	<u>9:55</u>	<u>10:00</u>								
	<u>10:00</u>	<u>10:05</u>								
	<u>10:05</u>	<u>10:10</u>							<u>FILE 003</u>	

Roadway Name/Dir.	<u>I-64 EB</u>	<u>I-64 WB</u>	<u>compass</u>	Site Diagram:
Speed (post/obs*)	<u>70</u>	<u>70</u>	<u>→</u>	
Number of Lanes	<u>2</u>	<u>2</u>		
Width (pave/row)	<u>N/A</u>	<u>N/A</u>		
1- or 2- way	<u>1</u>	<u>1</u>		
Grade	<u>FLAT</u>	<u>FLAT</u>		
Bus Stops	<u>N/A</u>	<u>N/A</u>		
Stoptlights	<u>N/A</u>	<u>N/A</u>		
Motorcycles	<u>0</u>	<u>0</u>		
Automobiles	<u>145</u>	<u>172</u>		
Medium Trucks	<u>10</u>	<u>10</u>		
Heavy Trucks	<u>19</u>	<u>33</u>		
Buses	<u>0</u>	<u>1</u>		
Count duration	<u>15 MIN</u>	<u>15 MIN</u>		

- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation
 Additional Notes/Comments: _____ Photos Taken? Yes No
 16

Noise Sources (circle all that apply): distant aircraft/roadway traffic/rail ops/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects/mechanical
 Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

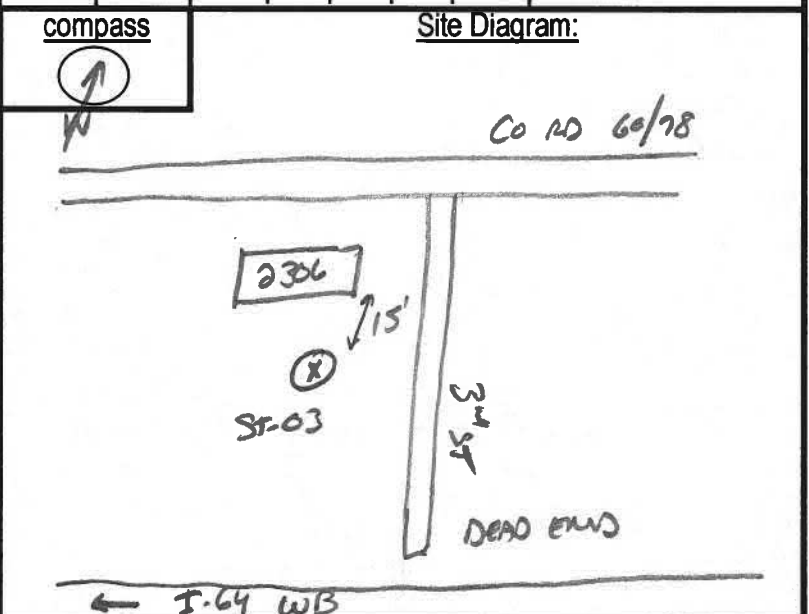
**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULIODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-03 2306 CO RD 60/78 Analyst: JDD

Sound Level Meter Model #: <u>LD L&T</u> Serial #: <u>4926</u> Weighting: <u>A</u> / C / Flat Response: <u>Slow</u> / Fast / Impl Windscreen: <u>Yes</u> / No (explain)	Field Calibration Model #: <u>CAL 200</u> Serial #: <u>5789</u> Calibration Level (dB): <u>94 / 114</u> Pre-Test <u>-0.12</u> dBA Post-Test <u>-0.23</u> dBA	Meteorological Data Model #: <u>K5500</u> Time Obs/Meas: <u>09:10</u> Serial #: <u>1703174</u> Precipitation: Yes (explain) / <u>No</u> Wind: Steady / Gusty / <u>Calm</u> Avg Wind Speed/Direction: <u>0</u> m/s <u>MPH</u> Temp (°F): <u>27°</u> RH (%): <u>85%</u> Bar Psr (Hg): <u>30.46</u> Cloud Cover (%): <u>0%</u>
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard / Soft / Mixed / Agg / Snow</u>	GPS Coordinates (at SLM location)* <u>38.424463 -82.060081</u>	

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	<u>9:15</u>	<u>9:20</u>								
	<u>9:20</u>	<u>9:25</u>								
	<u>9:25</u>	<u>9:30</u>							<u>FILE 002</u>	

Roadway Name/Dir.	<u>I-64 EB</u>	<u>I-64 WB</u>
Speed (post/obs*)	<u>70</u>	<u>70</u>
Number of Lanes	<u>2</u>	<u>2</u>
Width (pave/row)	<u>N/A</u>	<u>N/A</u>
1- or 2- way	<u>1</u>	<u>1</u>
Grade	<u>FLAT</u>	<u>FLAT</u>
Bus Stops	<u>N/A</u>	<u>N/A</u>
Stoplights	<u>N/A</u>	<u>N/A</u>
Motorcycles	<u>0</u>	<u>0</u>
Automobiles	<u>178</u>	<u>188</u>
Medium Trucks	<u>11</u>	<u>11</u>
Heavy Trucks	<u>24</u>	<u>27</u>
Buses	<u>0</u>	<u>0</u>
Count duration	<u>15 MIN</u>	<u>15 MIN</u>



- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation
 Additional Notes/Comments: _____
 Photos Taken? Yes / No 11
 Noise Sources (circle all that apply): distant aircraft/roadway traffic/rail ops/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects/mechanical
 Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULODENS INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-04 2270 1st ST Analyst: JDD

Sound Level Meter Model #: <u>LD 6XT</u> Serial #: <u>4926</u> Weighting: <input checked="" type="radio"/> C / Flat Response: <input checked="" type="radio"/> Slow / Fast / Impl Windscreen: <input checked="" type="radio"/> Yes / No (explain)	Field Calibration Model #: <u>CAL 200</u> Serial #: <u>5789</u> Calibration Level (dB): <u>94 / 114</u> Pre-Test <u>-0.12</u> dBA Post-Test <u>-0.23</u> dBA	Meteorological Data Model #: <u>K3500</u> Time Obs/Meas: <u>11:20</u> Serial #: <u>1703474</u> Precipitation: Yes (explain) / <input checked="" type="radio"/> No Wind: <input checked="" type="radio"/> Steady / Gusty / Calm Avg Wind Speed/Direction: <u>5MM NE</u> m/s / <u>MPH</u> Temp (°F): <u>43°</u> RH (%): <u>40%</u> Bar Psr (Hg): <u>30.48</u> Cloud Cover (%): <u>0%</u>
Topo: Flat / Hilly Terrain: Hard / Soft / <input checked="" type="radio"/> Mixed / Agg / Snow		GPS Coordinates (at SLM location)* <u>38.423783 - 82.057244</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	<u>11:30</u>	<u>11:35</u>								
	<u>11:35</u>	<u>11:40</u>								
	<u>11:40</u>	<u>11:45</u>							<u>FILE 005</u>	
	<u>11:45</u>	<u>11:50</u>								

Roadway Name/Dir.	<u>I-64 EB</u>	<u>I-64 WB</u>	<u>compass</u>	Site Diagram:
Speed (post/obs*)	<u>70</u>	<u>70</u>	<u>↑</u>	
Number of Lanes	<u>2</u>	<u>2</u>	<u>↙</u>	
Width (pave/row)	<u>N/A</u>	<u>N/A</u>		
1- or 2- way	<u>1</u>	<u>1</u>		
Grade	<u>FLAT</u>	<u>FLAT</u>		
Bus Stops	<u>N/A</u>	<u>N/A</u>		
Stoptlights	<u>N/A</u>	<u>N/A</u>		
Motorcycles	<u>0</u>	<u>0</u>		
Automobiles	<u>188</u>	<u>189</u>		
Medium Trucks	<u>5</u>	<u>5</u>		
Heavy Trucks	<u>30</u>	<u>39</u>		
Buses	<u>0</u>	<u>0</u>		
Count duration	<u>15 MIN</u>	<u>15 MIN</u>		

- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation
 Additional Notes/Comments: _____ Photos Taken? Yes / No
 10

Noise Sources (circle all that apply): distant aircraft / roadway traffic / rail ops / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing / insects / mechanical
 Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULLODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-05 2416 BENEDICT (60/20) RD Analyst: JDD

Sound Level Meter	Field Calibration	Meteorological Data
Model #: <u>LD 12T</u>	Model #: <u>CAL 200</u>	Model #: <u>K3500</u> Time Obs/Meas: _____
Serial #: <u>4926</u>	Serial #: <u>5789</u>	Serial #: <u>1703474</u> <u>12:10</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dB): <u>94 / 114</u>	Precipitation: Yes (explain) / No <u>(No)</u>
Response: <u>Slow / Fast / Impl</u>	Pre-Test <u>-0.12</u> dBA	Wind: <u>Steady / Gusty / Calm</u>
Windscreen: <u>Yes / No (explain)</u>	Post-Test <u>-0.23</u> dBA	Avg Wind Speed/Direction: <u>5 MPH NE</u> m/s / MPH <u>(5)</u>
Topo: <u>Flat / Hilly</u>	GPS Coordinates (at SLM location)* <u>38.423031 -82.052277</u>	Temp (°F): <u>44°</u> RH (%): <u>39%</u>
Terrain: <u>Hard / Soft / Mixed / Agg / Snow</u>		Bar Prs (Hg): <u>30.47</u> Cloud Cover (%): <u>30%</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	<u>12:15</u>	<u>12:20</u>								
	<u>12:20</u>	<u>12:25</u>								
	<u>12:25</u>	<u>12:30</u>								<u>FILE 006</u>

Roadway Name/Dir.	<u>BENEDICT</u>	<u>VIRGINIA</u>	<u>compass</u>	Site Diagram: <u>I-64 (DISTANT)</u>
Speed (post/obs*)	<u>45</u>	<u>45</u>	<u>7</u>	
Number of Lanes	<u>2</u>	<u>2</u>	<u>10</u>	
Width (pave/row)	<u>24'</u>	<u>24'</u>		
1- or 2- way	<u>2</u>	<u>2</u>		
Grade	<u>FLAT</u>	<u>FLAT</u>		
Bus Stops	<u>STOP SIGN</u>	<u>N/A</u>		
Stoptlights	<u>N/A</u>	<u>N/A</u>		
Motorcycles	<u>0</u>	<u>0</u>		
Automobiles	<u>16</u>	<u>46</u>		
Medium Trucks	<u>1</u>	<u>1</u>		
Heavy Trucks	<u>0</u>	<u>5</u>		
Buses	<u>0</u>	<u>0</u>		
Count duration	<u>15 MIN</u>	<u>15 MIN</u>		

- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation
 Additional Notes/Comments: _____ Photos Taken? Yes / No
 Noise Sources (circle all that apply): distant aircraft roadway traffic rail ops landscaping rustling leaves children playing dogs barking birds vocalizing insects mechanical
 Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

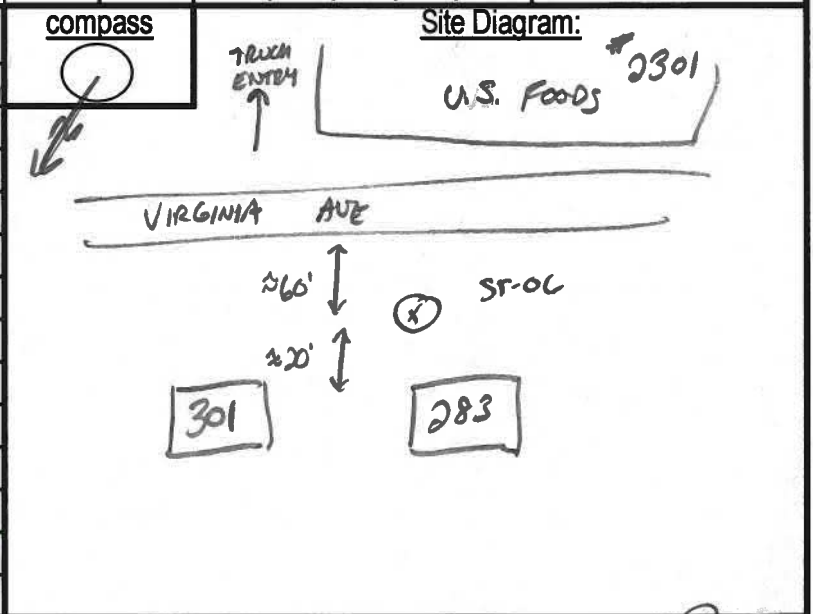
**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULLODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-06 283 VIRGINIA AVE Analyst: JDD

Sound Level Meter Model #: <u>WLD LXT</u> Serial #: <u>4926</u> Weighting: <u>A</u> / C / Flat Response: <u>Slow</u> / Fast / Impl Windscreen: <u>Yes</u> / No (explain)	Field Calibration Model #: <u>CAL 200</u> Serial #: <u>5789</u> Calibration Level (dB): <u>94 / 114</u> Pre-Test: <u>-0.13</u> dBA Post-Test: <u>-0.23</u> dBA	Meteorological Data Model #: <u>K3500</u> Time Obs/Meas: <u>13:10</u> Serial #: <u>1703474</u> Precipitation: Yes (explain) <u>NO</u> Wind: <u>Steady</u> / Gusty / Calm Avg Wind Speed/Direction: <u>5 MPH W</u> m/s / (MPH) Temp (°F): <u>47°</u> RH (%): <u>36%</u> Bar Pr (Hg): <u>30.46</u> Cloud Cover (%): <u>30%</u>
Topo: <u>Flat</u> / Hilly Terrain: <u>Hard</u> / Soft / <u>Mixed</u> / Agg / Snow	GPS Coordinates (at SLM location)* <u>38.422978 -82.050948</u>	

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	13:20	13:25								
	13:25	13:30								
	13:30	13:35							FILE 007	
	13:35	13:40								

Roadway Name/Dir.	<u>VIRGINIA</u>
Speed (post/obs*)	<u>45</u> - POSTED 35
Number of Lanes	<u>2</u>
Width (pave/row)	<u>24'</u>
1- or 2- way	<u>2</u>
Grade	<u>FLAT</u>
Bus Stops	<u>N/A</u>
Stoptlights	<u>N/A</u>
Motorcycles	<u>0</u>
Automobiles	<u>43</u>
Medium Trucks	<u>1</u>
Heavy Trucks	<u>3</u>
Buses	<u>0</u>
Count duration	<u>15 MIN</u>



- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation
 Additional Notes/Comments: _____ Photos Taken? Yes / No
 12
 Noise Sources (circle all that apply): distant aircraft, roadway traffic, rail ops/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects/mechanical
 Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

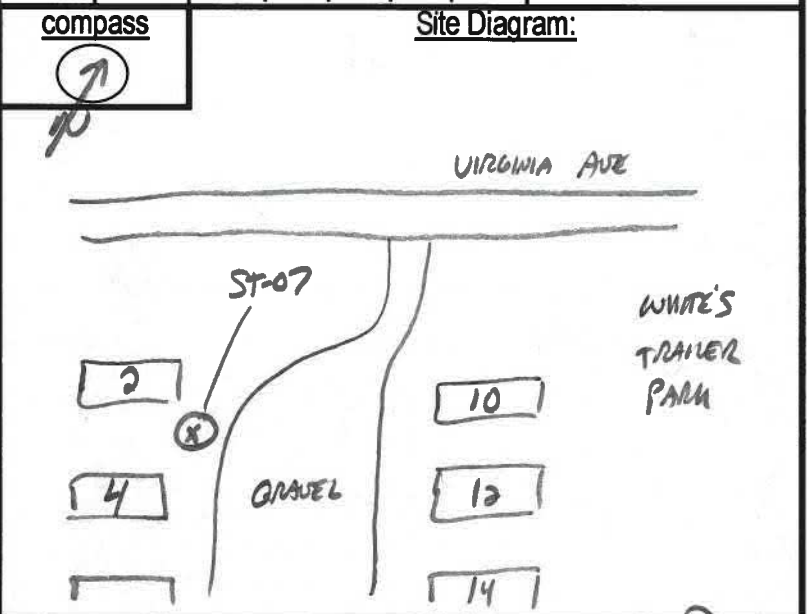
**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULLODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-07 4 WHITE'S TRAILER PARK Analyst: JDD

Sound Level Meter	Field Calibration	Meteorological Data	
Model #: <u>LD LXT</u>	Model #: <u>CAL 200</u>	Model #: <u>K3500</u>	Time Obs/Meas: _____
Serial #: <u>4926</u>	Serial #: <u>5789</u>	Serial #: <u>1703474</u>	<u>13:45</u>
Weighting: <u>A</u> C / Flat	Calibration Level (dB): <u>94 / 114</u>	Precipitation: Yes (explain) <u>No</u>	
Response: <u>Slow</u> / Fast / Impl	Pre-Test <u>-0.12</u> dBA	Wind: <u>Steady</u> / Gusty / Calm	<u>> 6MPH W</u>
Windscreen: <u>Yes</u> / No (explain)	Post-Test <u>-0.23</u> dBA	Avg Wind Speed/Direction: <u>3MPH W</u>	m/s / MPH <u>10</u>
Topo: <u>Flat</u> / Hilly	GPS Coordinates (at SLM location) [#] <u>38.420801 - 82.052691</u>	Temp (°F): <u>49°</u>	RH (%): <u>33%</u>
Terrain: <u>Hard</u> / Soft / Mixed / Agg / Snow		Bar Prs (Hg): <u>30.45</u>	Cloud Cover (%): <u>10%</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	<u>14:05</u>	<u>14:10</u>								
	<u>14:10</u>	<u>14:15</u>								
	<u>14:15</u>	<u>14:20</u>							<u>FILE 008</u>	

Roadway Name/Dir.	<u>VIRGINIA</u>	<u>US 60</u>
Speed (post/obs*)	<u>45</u>	<u>45</u>
Number of Lanes	<u>2</u>	<u>2</u>
Width (pave/row)	<u>24'</u>	<u>24'</u>
1- or 2- way	<u>2</u>	<u>2</u>
Grade	<u>FLAT</u>	<u>RISE OVER 1/2</u>
Bus Stops	<u>N/A</u>	<u>N/A</u>
Stoptlights	<u>N/A</u>	<u>4/A</u>
Motorcycles	<u>0</u>	<u>0</u>
Automobiles	<u>37</u>	<u>100</u>
Medium Trucks	<u>0</u>	<u>10</u>
Heavy Trucks	<u>1</u>	<u>10</u>
Buses	<u>0</u>	<u>0</u>
Count duration	<u>15 MIN</u>	<u>15 MIN</u>



- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation

Additional Notes/Comments: _____ Photos Taken? Yes / No 10

Noise Sources (circle all that apply): distant aircraft, roadway traffic, trucks, dogs barking, birds vocalizing, insects/mechanical


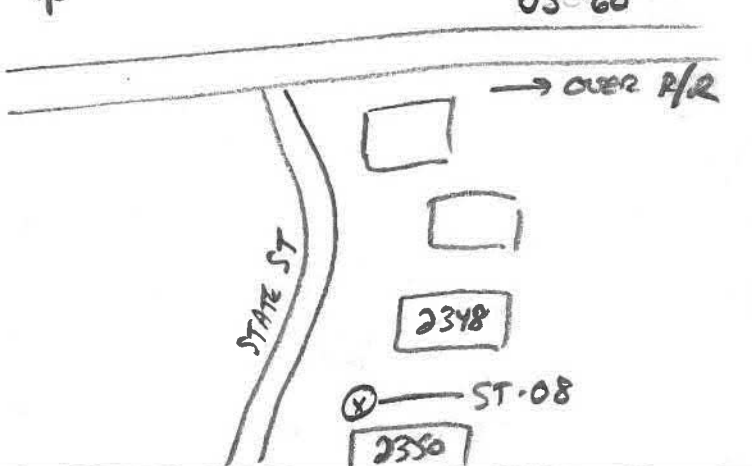
Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

**AECOM Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: CULLODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-08 2350 STATE ST Analyst: JDD

Sound Level Meter Model #: <u>LD 6XT</u> Serial #: <u>4926</u> Weighting: <u>A</u> / C / Flat Response: Slow / Fast / Impl Windscreen: Yes / No (explain)	Field Calibration Model #: <u>CAL 200</u> Serial #: <u>5789</u> Calibration Level (dB): 94 / <u>114</u> Pre-Test: <u>-0.12</u> dBA Post-Test: <u>-0.23</u> dBA	Meteorological Data Model #: <u>13500</u> Time Obs/Meas: <u>14:40</u> Serial #: <u>1703474</u> Precipitation: Yes (explain) / <u>No</u> Wind: <u>Steady</u> / Gusty / Calm Avg Wind Speed/Direction: <u>4 MPH NE</u> m/s / MPH Temp (°F): <u>49°</u> RH (%): <u>34%</u> Bar Psr (Hg): <u>30.41</u> Cloud Cover (%): <u>0%</u>
Topo: <u>Flat</u> / Hilly Terrain: Hard / Soft / <u>Mixed</u> / Agg / Snow		GPS Coordinates (at SLM location)* <u>38.419273 - 82.053128</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	<u>14:45</u>	<u>14:50</u>								
	<u>14:50</u>	<u>14:55</u>								
	<u>14:55</u>	<u>15:00</u>			<u>TRAIN</u>				<u>FILE 009</u>	
	<u>15:00</u>	<u>15:05</u>			<u>TRAIN</u>					
	<u>15:05</u>	<u>15:10</u>								

Roadway Name/Dir.	<u>US 60</u>	<u>compass</u>	<u>Site Diagram:</u>
Speed (post/obs*)	<u>45</u>		
Number of Lanes	<u>2</u>		
Width (pave/row)	<u>24'</u>		
1- or 2- way	<u>2</u>		
Grade	<u>RISE OVER 1/2</u>		
Bus Stops	<u>N/A</u>		
Stoptlights	<u>N/A</u>		
Motorcycles	<u>0</u>		
Automobiles	<u>116</u>		
Medium Trucks	<u>5</u>		
Heavy Trucks	<u>11</u>		
Buses	<u>1</u>		
Count duration	<u>15 MIN</u>		

- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation
 Additional Notes/Comments: _____ Photos Taken? Yes / No
14

Noise Sources (circle all that apply): distant aircraft / roadway traffic / rail ops / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing / insects / mechanical
 Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

AECOM Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Project Name: CULLODEN INTERCHANGE Project #: _____ Date: 3/19/19 Page _____ of _____
 Measurement Location: ST-09 88 CO RTE 60/21 Analyst: 300

Sound Level Meter	Field Calibration	Meteorological Data
Model #: <u>LD LXT</u>	Model #: <u>CAL 200</u>	Model #: <u>K3500</u> Time Obs/Meas: <u>15:20</u>
Serial #: <u>4926</u>	Serial #: <u>5789</u>	Serial #: <u>1703474</u>
Weighting: <u>A</u> / C / Flat	Calibration Level (dB): <u>94 / 114</u>	Precipitation: Yes (explain) / <u>No</u>
Response: <u>Slow</u> / Fast / Impl	Pre-Test: <u>-0.12</u> dBA	Wind: <u>Steady</u> / Gusty / Calm
Windscreen: Yes / No (explain)	Post-Test: <u>-0.23</u> dBA	Avg Wind Speed/Direction: <u>4 MPH NNE</u> m/s / MPH
Topo: <u>Flat</u> / Hilly	GPS Coordinates (at SLM location)* <u>38.470557 -82.049458</u>	Temp (°F): <u>52°</u> RH (%): <u>79%</u>
Terrain: Hard / Soft / <u>Mixed</u> / Agg / Snow		Bar Psr (Hg): <u>30.39</u> Cloud Cover (%): <u>0%</u>

Loc. ID	Start Time (hh:mm)	Stop Time (hh:mm)	Metrics			Statistics			Classification Count	Notes/Events
			L _{eq}	L _{min}	L _{max}	L ₁₀	L ₅₀	L ₉₀		
	<u>15:25</u>	<u>15:30</u>								
	<u>15:30</u>	<u>15:35</u>								
	<u>15:35</u>	<u>15:40</u>							<u>FIVE 010</u>	

Roadway Name/Dir.	<u>US60</u>	compass 	Site Diagram:
Speed (post/obs*)	<u>45</u>		
Number of Lanes	<u>2</u>		
Width (pave/row)	<u>24'</u>		
1- or 2- way	<u>2</u>		
Grade	<u>RISE OVER 1/2</u>		
Bus Stops	<u>N/A</u>		
Stoptlights	<u>N/A</u>		
Motorcycles	<u>1</u>		
Automobiles	<u>179</u>		
Medium Trucks	<u>6</u>		
Heavy Trucks	<u>5</u>		
Buses	<u>0</u>		
Count duration	<u>15 MIN</u>		

- note coordinate system if other than NAD84 * - Speed estimated by Radar / Driving / Observation

Additional Notes/Comments: _____

Photos Taken? Yes / No
13

Noise Sources (circle all that apply): distant aircraft / roadway traffic / rail ops / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing / insects / mechanical

Additional Notes and Sketches on Reverse or Indicated Separate Sheet(s)

Equipment Factory-Calibration Certificates

Calibration Certificate

Certificate Number 2018011656

Customer:

AECOM
4 North Park Drive
Hunt Valley, MD 21030, United States

Model Number	LxT1	Procedure Number	D0001.8384
Serial Number	0004925	Technician	Ron Harris
Test Results	Pass	Calibration Date	16 Nov 2018
Initial Condition	AS RECEIVED same as shipped	Calibration Due	16 Nov 2019
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.302	Temperature	23.25 °C ± 0.25 °C
		Humidity	50 %RH ± 2.0 %RH
		Static Pressure	86.32 kPa ± 0.13 kPa

Evaluation Method **Tested with:** **Data reported in dB re 20 µPa.**

Larson Davis PRMLxT1L. S/N 042679
PCB 377C20. S/N 151645
Larson Davis CAL200. S/N 9079
Larson Davis CAL291. S/N 0108

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005.

Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the organization issuing this report.

Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



Calibration Certificate

Certificate Number 2018011654

Customer:

AECOM
4 North Park Drive
Hunt Valley, MD 21030, United States

Model Number	LxT1	Procedure Number	D0001.8384
Serial Number	0004926	Technician	Ron Harris
Test Results	Pass	Calibration Date	16 Nov 2018
Initial Condition	AS RECEIVED same as shipped	Calibration Due	16 Nov 2019
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.302	Temperature	23.23 °C ± 0.25 °C
		Humidity	50.1 %RH ± 2.0 %RH
		Static Pressure	86.34 kPa ± 0.13 kPa

Evaluation Method **Tested with:** **Data reported in dB re 20 µPa.**

Larson Davis PRMLxT1L. S/N 042680
PCB 377C20. S/N 151721
Larson Davis CAL200. S/N 9079
Larson Davis CAL291. S/N 0108

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005.

Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



Calibration Certificate

Certificate Number 2018011644

Customer:

AECOM

4 North Park Drive

Hunt Valley, MD 21030, United States

Model Number	LxT1	Procedure Number	D0001.8378
Serial Number	0004925	Technician	Ron Harris
Test Results	Pass	Calibration Date	16 Nov 2018
Initial Condition	AS RECEIVED same as shipped	Calibration Due	16 Nov 2019
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.302	Temperature	23.38 °C ± 0.25 °C
		Humidity	49.7 %RH ± 2.0 %RH
		Static Pressure	86.34 kPa ± 0.13 kPa

Evaluation Method Tested electrically using Larson Davis PRMLxT1L S/N 042679 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

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1681 West 820 North
Provo, UT 84601, United States
716-684-0001



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Calibration Certificate

Certificate Number 2018011649

Customer:

AECOM

4 North Park Drive

Hunt Valley, MD 21030, United States

Model Number	LxT1	Procedure Number	D0001.8378
Serial Number	0004926	Technician	Ron Harris
Test Results	Pass	Calibration Date	16 Nov 2018
Initial Condition	AS RECEIVED same as shipped	Calibration Due	16 Nov 2019
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.302	Temperature	23.2 °C ± 0.25 °C
		Humidity	49.2 %RH ± 2.0 %RH
		Static Pressure	86.47 kPa ± 0.13 kPa

Evaluation Method Tested electrically using Larson Davis PRMLxT1L S/N 042680 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 23.6 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



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Calibration Certificate

Certificate Number 2018011646

Customer:

AECOM
4 North Park Drive
Hunt Valley, MD 21030, United States

Model Number	PRMLxT1L	Procedure Number	D0001.8383
Serial Number	042679	Technician	Ron Harris
Test Results	Pass	Calibration Date	16 Nov 2018
Initial Condition	AS RECEIVED same as shipped	Calibration Due	16 Nov 2019
Description	Larson Davis 1/2" Preamplifier for LxT Class 1 -1 dB	Temperature	23.15 °C ± 0.01 °C
		Humidity	50.4 %RH ± 0.5 %RH
		Static Pressure	86.48 kPa ± 0.03 kPa

Evaluation Method Tested electrically using a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 50.0 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used

Description	Cal Date	Cal Due	Cal Standard
Larson Davis Model 2900 Real Time Analyzer	03/07/2018	03/07/2019	003003
Hart Scientific 2626-H Temperature Probe	02/02/2018	02/02/2019	006767
Agilent 34401A DMM	06/29/2018	06/29/2019	007165
SRS DS360 Ultra Low Distortion Generator	10/04/2018	10/04/2019	007167

Calibration Certificate

Certificate Number 2018011641

Customer:

AECOM
4 North Park Drive
Hunt Valley, MD 21030, United States

Model Number	PRMLxT1L	Procedure Number	D0001.8383
Serial Number	042680	Technician	Ron Harris
Test Results	Pass	Calibration Date	16 Nov 2018
Initial Condition	AS RECEIVED same as shipped	Calibration Due	16 Nov 2019
Description	Larson Davis 1/2" Preamplifier for LxT Class 1 -1 dB	Temperature	23.27 °C ± 0.01 °C
		Humidity	50.1 %RH ± 0.5 %RH
		Static Pressure	86.5 kPa ± 0.03 kPa

Evaluation Method Tested electrically using a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 50.0 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used

Description	Cal Date	Cal Due	Cal Standard
Larson Davis Model 2900 Real Time Analyzer	03/07/2018	03/07/2019	003003
Hart Scientific 2626-H Temperature Probe	02/02/2018	02/02/2019	006767
Agilent 34401A DMM	06/29/2018	06/29/2019	007165
SRS DS360 Ultra Low Distortion Generator	10/04/2018	10/04/2019	007167

Calibration Certificate

Certificate Number 2018011720

Customer:

AECOM

4 North Park Drive

Hunt Valley, MD 21030, United States

Model Number CAL200

Serial Number 5789

Test Results Pass

Initial Condition Adjusted

Description Larson Davis CAL200 Acoustic Calibrator

Procedure Number D0001.8386

Technician Scott Montgomery

Calibration Date 19 Nov 2018

Calibration Due 19 Nov 2019

Temperature 24 °C ± 0.3 °C

Humidity 32 %RH ± 3 %RH

Static Pressure 101.2 kPa ± 1 kPa

Evaluation Method The data is acquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2017 ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used

Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	09/06/2018	09/06/2019	001021
Larson Davis Model 2900 Real Time Analyzer	04/10/2018	04/10/2019	001051
Microphone Calibration System	03/07/2018	03/07/2019	005446
1/2" Preamplifier	09/20/2018	09/20/2019	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/07/2018	08/07/2019	006507
1/2 inch Microphone - RI - 200V	05/10/2018	05/10/2019	006510
Pressure Transducer	07/18/2018	07/18/2019	007368

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Appendix C
Traffic Data Used in Noise Analysis



Figure 3: Existing Conditions AM (PM) Peak Hour Balanced Volumes

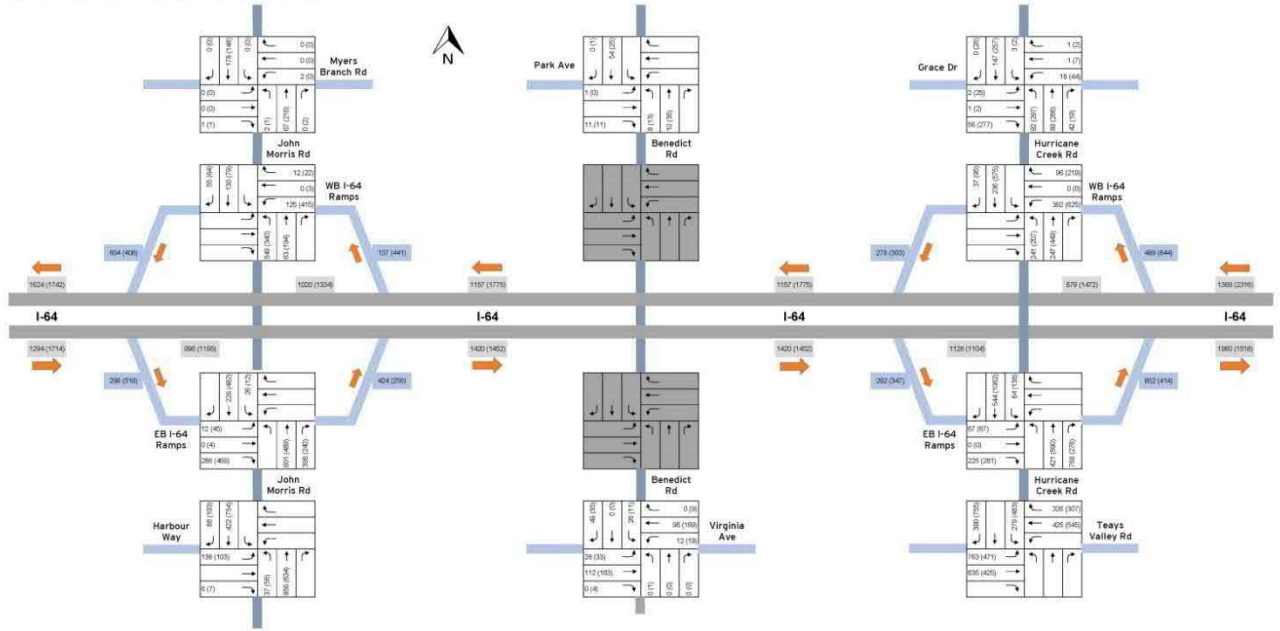
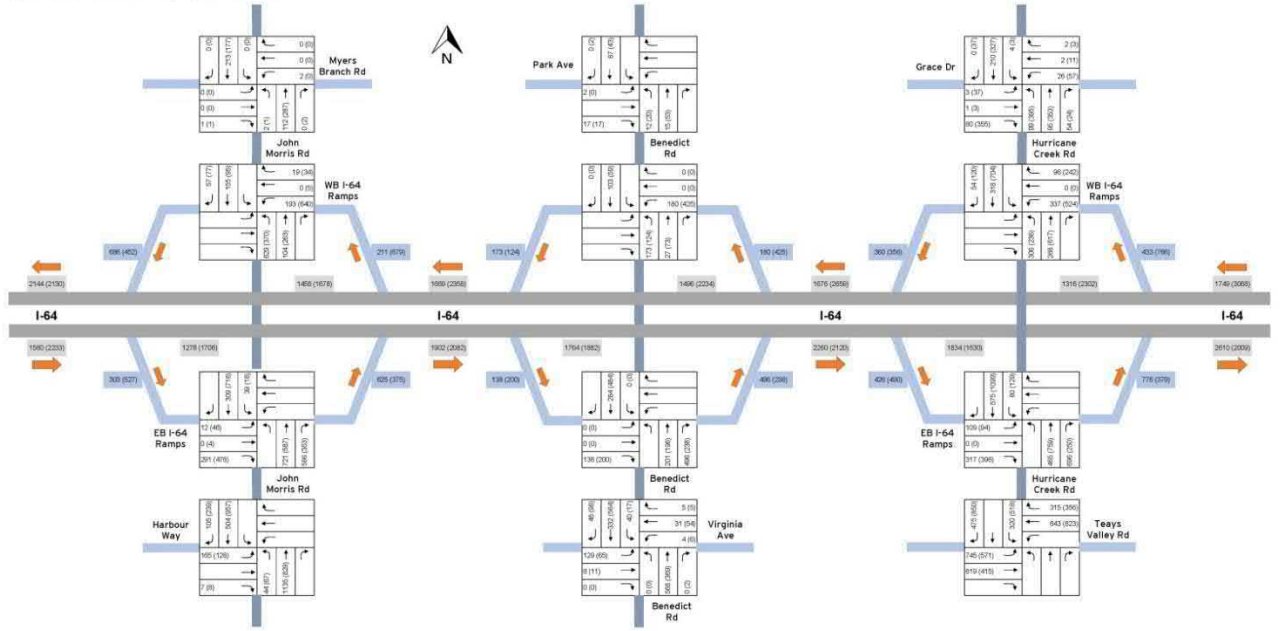


Figure 8: 2045 Build Alternative AM (PM) Peak Hour Volumes



Appendix D
Traffic Noise Analysis Details

Receiver ID	Land Use	NAC Category	Dwelling Units	Existing	Future No-Build (2045)	Future Build Alt 3/1 (2045)	Future Build Alt 2 (2045)	Increase over Existing	Increase over Future No-Build	Future wMitigation (2045)	Reduction from Mitigation
R01-01	Residential	B	1	67	69	69	69	2	1	60	9
R01-02	Residential	B	1	66	67	68	68	2	1	59	8
R01-03	Residential	B	1	66	67	69	69	3	2	60	8
R01-04	Residential	B	1	65	66	67	67	3	2	59	9
R01-05	Residential	B	1	67	68	68	68	2	1	60	9
R01-06	Residential	B	1	64	66	66	66	2	1	59	8
R01-07	Residential	B	1	64	66	66	66	2	1	58	8
R01-08	Residential	B	1	62	63	64	64	2	1	56	8
R01-09	Residential	B	1	67	68	69	69	2	1	60	9
R01-10	Residential	B	1	65	66	67	67	2	1	59	8
R01-11	Residential	B	1	66	67	68	68	2	1	59	9
R01-12	Residential	B	1	67	68	69	69	2	1	60	9
R01-13	Residential	B	1	66	67	68	68	2	1	59	9
R01-14	Residential	B	2	63	64	66	66	3	2	59	8
R01-15	Residential	B	1	67	68	69	69	2	0	60	9
R01-16	Residential	B	1	64	65	66	66	3	2	57	9
R01-17	Residential	B	1	64	65	66	66	3	1	58	8
R01-18	Residential	B	1	68	69	69	69	2	0	59	10
R01-19	Residential	B	1	62	63	64	64	3	1	55	10
R01-20	Residential	B	1	64	65	66	66	2	1	57	8
R01-21	Residential	B	1	60	62	63	63	2	1	54	9
R01-22	Residential	B	2	64	65	67	67	3	2	61	6
R01-23	Residential	B	1	68	69	71	71	3	2	60	11
R01-24	Residential	B	1	66	67	68	68	3	1	60	8
R01-25	Residential	B	1	66	67	69	69	3	2	60	8
R01-26	Residential	B	1	65	66	66	66	2	0	59	7
R01-27	Residential	B	3	65	66	68	68	2	1	62	6
R01-28	Residential	B	1	64	65	67	67	3	1	61	6
R01-29	Residential	B	1	58	59	61	61	2	1	57	4
R01-30	Residential	B	1	59	60	61	61	2	1	57	4
R01-31	Residential	B	1	57	59	59	59	2	1	56	3
R01-32	Residential	B	1	58	60	60	60	2	1	57	3
R01-33	Residential	B	1	59	60	61	61	2	1	57	3
R01-34	Residential	B	1	61	62	63	63	2	1	60	3
R01-35	Residential	B	1	59	60	61	61	2	1	57	4
R01-36	Residential	B	1	57	59	61	61	3	2	57	4
R02-01	Residential	B	1	65	66	66	66	1	0	59	7
R02-02	Residential	B	1	63	64	64	64	2	0	59	6
R02-03	Residential	B	1	68	69	69	69	1	0	60	9
R02-04	Residential	B	1	65	66	67	67	1	0	59	7
R02-05	Residential	B	2	64	65	67	67	2	1	61	6
R02-06	Residential	B	1	71	72	71	71	1	0	62	10
R02-07	Residential	B	1	66	67	68	68	2	1	60	8
R02-08	Residential	B	1	65	66	67	67	2	1	61	6
R02-09	Residential	B	2	64	65	66	66	2	1	61	5
R02-10	Residential	B	1	70	71	72	72	2	1	62	11
R02-11	Residential	B	1	66	67	68	68	2	1	60	8
R02-12	Residential	B	1	63	64	66	66	2	1	60	6
R02-13	Residential	B	1	63	64	66	66	3	2	60	6
R02-14	Residential	B	1	64	65	65	65	1	0	59	6
R02-15	Residential	B	1	63	64	65	65	2	1	60	5
R02-16	Residential	B	1	66	67	67	67	1	0	59	8
R02-17	Residential	B	1	63	64	64	64	1	0	58	6
R02-18	Residential	B	1	61	62	63	63	1	0	56	6
R02-19	Residential	B	1	62	63	63	63	1	0	57	6
R02-20	Residential	B	2	60	62	62	62	2	1	57	6
R02-21	Residential	B	1	64	65	64	64	1	0	59	6
R02-22	Residential	B	1	63	64	63	63	0	-1	58	5
R02-23	Residential	B	1	62	63	63	63	1	0	59	4
R02-24	Residential	B	1	61	62	63	63	1	0	59	4
R02-25	Residential	B	2	60	61	61	61	1	0	58	3
R02-26	Residential	B	1	60	61	62	62	2	1	58	4
R02-27	Residential	B	1	64	65	65	65	1	0	62	3
R02-28	Residential	B	1	61	62	62	62	2	0	58	5
R02-29	Residential	B	1	62	63	63	63	2	1	61	3
R02-30	Residential	B	1	60	61	62	62	2	1	59	2
R02-31	Residential	B	1	64	65	65	65	2	1	64	1
R02-32	Residential	B	1	60	61	62	62	2	1	59	3
R02-33	Residential	B	1	64	65	66	66	2	1	66	1
R02-34	Residential	B	1	62	63	64	64	2	1	63	1
R02-35	Residential	B	1	63	64	65	65	3	1	64	1
R02-36	Residential	B	1	62	64	65	65	3	2	63	3
R02-37	Residential	B	1	62	63	65	65	3	2	63	3
R02-38	Residential	B	1	63	64	66	66	4	2	62	4
R03-01	Residential	B	1	65	67	68	68	3	2	62	5
R03-02	Residential	B	1	64	65	68	68	4	2	63	7
R03-03	Residential	B	1	63	64	67	67	4	3	67	0
R04-01	Residential	B	2	57	58	59	59	2	1	59	0
R04-02	Residential	B	2	58	60	61	61	2	1	60	1
R04-03	Residential	B	1	60	62	62	62	2	1	62	1
R04-04	Residential	B	1	63	64	64	64	2	1	63	2
R04-05	Residential	B	1	64	65	66	66	2	0	62	3
R04-06	Residential	B	1	63	65	65	65	2	0	62	3
R04-07	Residential	B	1	57	58	58	58	2	1	56	3
R04-08	Residential	B	3	55	57	57	57	2	0	54	3
R04-09	Residential	B	2	57	58	59	59	1	0	55	3
R04-10	Residential	B	1	59	60	60	60	1	0	57	3

R04-11	Residential	B	1	65	66	67	67	2	1	61	6
R04-12	Residential	B	1	66	67	67	67	2	0	61	7
R04-13	Residential	B	1	65	66	66	66	1	0	60	6
R04-14	Residential	B	1	53	54	54	54	1	0	52	3
R04-15	Residential	B	2	56	57	57	57	1	0	52	5
R04-16	Residential	B	1	54	55	55	55	1	0	50	5
R04-17	Residential	B	2	55	57	56	56	1	0	51	5
R04-18	Residential	B	1	56	57	57	57	1	0	52	5
R04-19	Residential	B	1	63	65	63	63	0	-1	58	5
R04-20	Residential	B	1	67	68	67	67	0	-1	60	7
R04-21	Residential	B	1	69	70	69	69	-1	-2	61	8
R04-22	Residential	B	1	69	70	69	69	0	-2	61	8
R04-23	Residential	B	1	67	69	68	68	1	0	61	8
R04-24	Residential	B	1	66	67	67	67	1	0	59	8
R04-25	Residential	B	1	61	62	62	62	2	1	56	7
R04-26	Residential	B	2	59	61	61	61	2	1	55	7
R04-27	Residential	B	1	59	61	61	61	1	0	55	6
R04-28	Residential	B	1	60	61	61	61	1	0	55	6
R04-29	Residential	B	2	59	60	60	60	2	0	54	6
R04-30	Residential	B	2	58	59	60	60	2	1	53	6
R04-31	Residential	B	3	57	58	58	58	1	0	52	6
R04-32	Residential	B	1	58	59	59	59	1	0	53	6
R04-33	Residential	B	1	61	62	62	62	1	0	55	7
R04-34	Residential	B	1	62	63	63	63	1	0	56	7
R04-35	Residential	B	1	68	69	69	69	1	0	60	9
R04-36	Residential	B	1	67	68	69	69	2	0	60	9
R04-37	Residential	B	1	63	64	65	65	2	1	56	9
R04-38	Residential	B	1	62	63	64	64	2	1	55	9
R04-39	Residential	B	3	60	62	62	62	2	1	55	7
R04-40	Residential	B	3	61	62	63	63	2	1	56	7
R04-41	Residential	B	1	62	63	64	64	2	1	56	8
R04-42	Residential	B	1	64	65	66	66	2	1	58	8
R04-43	Residential	B	1	65	66	67	67	2	1	59	8
R05-01	Residential	B	1	66	68	68	68	2	1	N/A	N/A
R05-02	Residential	B	1	59	60	61	61	2	1	N/A	N/A
R05-03	Residential	B	1	55	56	57	57	2	1	N/A	N/A
R05-04	Residential	B	1	55	56	57	57	2	1	N/A	N/A
R05-05	Residential	B	1	56	57	58	58	2	1	N/A	N/A
R05-06	Residential	B	1	56	57	57	57	1	0	N/A	N/A
R05-07	Residential	B	1	61	62	62	62	2	1	N/A	N/A
R05-08	Residential	B	1	54	55	56	56	2	1	N/A	N/A
R05-09	Residential	B	3	54	55	56	56	2	1	N/A	N/A
R05-10	Residential	B	1	55	56	57	57	3	1	N/A	N/A
R05-11	Residential	B	2	55	56	57	58	2	1	N/A	N/A
R05-12	Residential	B	1	57	58	58	58	1	0	N/A	N/A
R05-13	Residential	B	1	56	57	57	58	2	1	N/A	N/A
R05-14	Residential	B	1	66	67	65	65	-1	-2	N/A	N/A
R05-15	Residential	B	1	61	62	60	61	0	-1	N/A	N/A
R05-16	Residential	B	1	62	63	62	62	0	-1	N/A	N/A
R05-17	Residential	B	1	54	55	57	57	3	2	N/A	N/A
R05-18	Residential	B	1	54	55	56	57	3	2	N/A	N/A
R05-19	Residential	B	1	54	55	56	57	3	2	N/A	N/A
R05-20	Residential	B	2	54	55	56	56	2	1	N/A	N/A
R05-21	Residential	B	2	55	56	56	57	3	1	N/A	N/A
R05-22	Residential	B	1	54	55	56	57	3	2	N/A	N/A
R05-23	Residential	B	1	53	54	54	55	2	1	N/A	N/A
R05-24	Residential	B	1	56	57	57	57	2	1	N/A	N/A
R05-25	Residential	B	1	56	57	57	58	2	1	N/A	N/A
R06-01	Residential	B	1	62	64	67	67	4	3	61	5
R06-02	Residential	B	1	61	62	65	65	5	3	62	4
R06-03	Residential	B	1	61	62	65	65	5	3	62	4
R06-04	Residential	B	1	61	62	66	66	5	4	62	4
R06-05	Residential	B	1	58	59	61	61	4	3	60	2
R06-06	Residential	B	1	58	60	64	64	6	4	59	5
R06-07	Residential	B	2	60	61	65	65	5	4	59	6
R06-08	Residential	B	1	56	57	60	60	5	3	58	3
R06-09	Residential	B	1	59	60	65	65	6	5	58	7
R06-10	Residential	B	1	59	61	66	66	7	6	58	8
R06-11	Residential	B	1	58	59	65	65	8	6	59	7
R06-12	Residential	B	1	61	62	63	63	2	1	63	0
R06-13	Residential	B	1	60	61	62	62	2	1	62	0
R06-14	Residential	B	3	59	60	61	61	2	1	60	1
R06-15	Residential	B	3	56	57	59	59	3	2	58	1
R06-16	Residential	B	1	54	56	57	57	3	2	57	1
R06-17	Residential	B	1	55	56	58	58	3	2	57	1
R06-18	Residential	B	1	54	55	57	57	2	1	56	1
R06-19	Residential	B	1	54	55	58	58	4	2	56	2
R06-20	Residential	B	1	62	63	70	70	8	6	63	7
R06-21	Residential	B	1	57	58	65	65	8	7	61	5
R06-22	Residential	B	1	61	63	64	64	3	1	63	1
R06-23	Residential	B	1	60	62	62	62	2	1	62	0
R06-24	Residential	B	1	62	63	63	63	1	0	63	0
R06-25	Residential	B	1	54	55	55	55	1	0	55	0
R07-01	Residential	B	1	52	53	57	57	5	4	N/A	N/A
R07-02	Residential	B	1	59	60	59	59	0	-1	N/A	N/A
R07-03	Residential	B	1	56	57	55	55	-1	-2	N/A	N/A
R07-04	Residential	B	1	53	54	54	54	1	0	N/A	N/A

R07-05	Residential	B	1	52	53	54	53	2	1	N/A	N/A
R07-06	Residential	B	3	52	53	54	54	2	1	N/A	N/A
R07-07	Residential	B	1	59	60	56	56	-3	-4	N/A	N/A
R07-08	Residential	B	1	54	55	51	51	-2	-4	N/A	N/A
R07-09	Residential	B	2	52	53	51	51	-1	-2	N/A	N/A
R08-01	Residential	B	1	55	56	57	62	7	5	N/A	N/A
R08-02	Residential	B	1	56	57	58	63	7	6	N/A	N/A
R08-03	Residential	B	1	56	58	59	Taken	2	1	N/A	N/A
R08-04	Residential	B	1	53	55	56	Taken	2	1	N/A	N/A
R08-05	Residential	B	1	57	58	60	Taken	3	1	N/A	N/A
R08-06	Residential	B	1	56	57	59	Taken	3	1	N/A	N/A
R08-07	Residential	B	1	56	57	59	Taken	3	2	N/A	N/A
R08-08	Residential	B	1	56	57	58	Taken	3	1	N/A	N/A
R08-09	Residential	B	1	55	57	59	Taken	3	2	N/A	N/A
R08-10	Residential	B	1	57	59	61	62	5	4	N/A	N/A
R08-11	Residential	B	1	55	56	55	Taken	1	-1	N/A	N/A
R09-01	Residential	B	1	57	58	59	59	2	1	N/A	N/A
R09-02	Residential	B	1	57	58	59	59	2	1	N/A	N/A
R09-03	Residential	B	1	61	62	63	64	3	2	N/A	N/A
R09-04	Residential	B	1	66	67	67	69	4	2	N/A	N/A
R09-05	Residential	B	8	61	63	63	66	5	4	N/A	N/A
R09-06	Residential	B	1	68	69	69	72	4	3	N/A	N/A
R09-07	Residential	B	1	58	59	60	64	6	5	N/A	N/A
R09-08	Residential	B	1	67	68	69	71	4	3	N/A	N/A
R09-09	Residential	B	1	49	50	51	51	2	1	N/A	N/A
R09-10	Residential	B	1	50	51	52	53	3	1	N/A	N/A
R09-11	Residential	B	1	54	55	56	59	5	4	N/A	N/A
R09-12	Residential	B	1	52	53	54	56	3	2	N/A	N/A
R09-13	Residential	B	3	53	54	55	58	5	3	N/A	N/A
R09-14	Residential	B	1	53	54	55	57	4	3	N/A	N/A
R09-15	Residential	B	1	53	54	56	55	3	2	N/A	N/A
R09-16	Residential	B	1	58	59	60	60	2	1	N/A	N/A
R10-01	Residential	B	1	54	56	61	56	7	6	N/A	N/A
R10-02	Worship	C	1	71	72	73	72	3	2	N/A	N/A
R10-03	Residential	B	1	61	63	63	63	2	1	N/A	N/A
R10-04	Residential	B	1	57	58	60	58	3	2	N/A	N/A
R10-05	Residential	B	1	57	58	61	58	4	2	N/A	N/A
R10-06	Residential	B	1	57	58	60	58	4	2	N/A	N/A
R10-07	Residential	B	1	56	57	59	57	4	2	N/A	N/A
R10-08	Residential	B	1	55	56	58	56	4	2	N/A	N/A
R10-09	Residential	B	1	55	56	58	56	4	2	N/A	N/A
R10-10	Residential	B	1	64	65	66	66	2	1	N/A	N/A
R10-11	Residential	B	1	58	59	61	59	4	2	N/A	N/A
R10-12	Residential	B	1	55	57	58	57	3	1	N/A	N/A
R10-13	Residential	B	1	54	55	56	55	2	1	N/A	N/A
R10-14	Residential	B	1	54	55	56	55	2	1	N/A	N/A
R10-15	Residential	B	3	53	54	55	54	3	1	N/A	N/A
R10-16	Residential	B	1	65	67	67	67	2	0	N/A	N/A
R10-17	Residential	B	1	61	62	63	62	2	1	N/A	N/A
R10-18	Residential	B	1	53	54	56	54	3	2	N/A	N/A
R10-19	Residential	B	1	56	57	58	57	3	1	N/A	N/A
R11-01	Residential	B	1	59	61	63	60	3	2	N/A	N/A
R11-02	Residential	B	1	54	55	59	55	5	3	N/A	N/A
R11-03	Residential	B	1	62	63	64	63	2	1	N/A	N/A
R11-04	Residential	B	1	56	57	58	57	2	1	N/A	N/A
R11-05	Residential	B	2	53	54	55	54	3	2	N/A	N/A
R11-06	Residential	B	1	63	64	65	64	2	0	N/A	N/A
R11-07	Residential	B	1	55	56	57	56	2	1	N/A	N/A
R11-08	Residential	B	1	53	54	55	54	3	2	N/A	N/A
R11-09	Residential	B	2	52	53	55	53	3	2	N/A	N/A
R11-10	Residential	B	1	66	67	67	67	2	0	N/A	N/A
R11-11	Residential	B	1	56	58	58	58	2	0	N/A	N/A