

June 2018

West Virginia 2

ENVIRONMENTAL  
ASSESSMENT  
APPENDICES

Prepared for:



**CDM  
Smith**

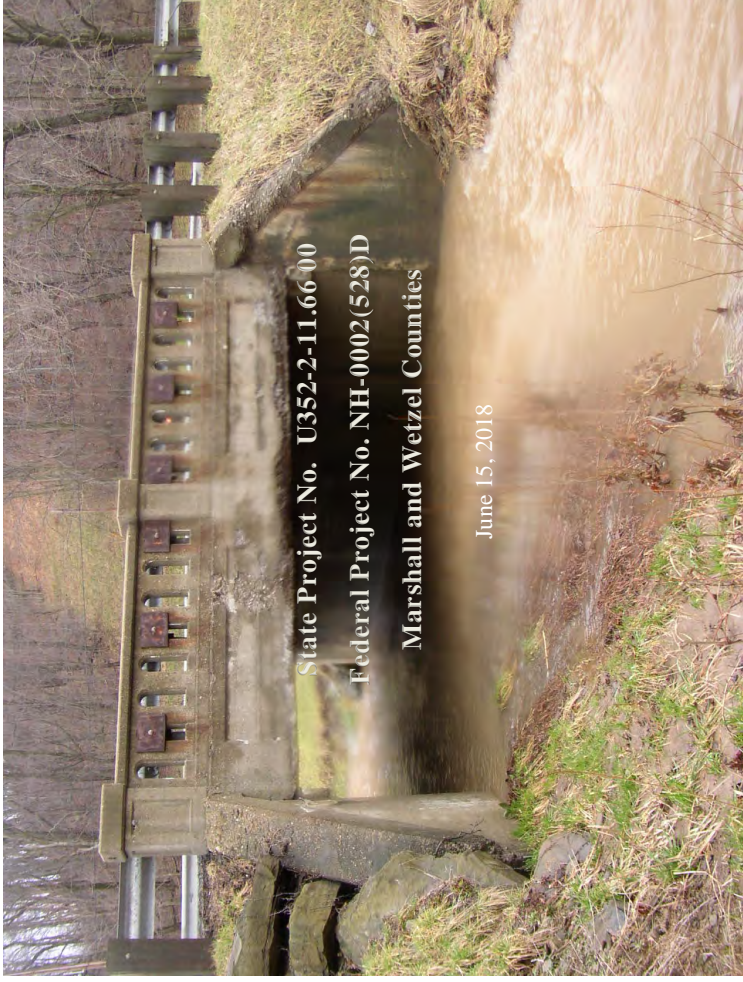
# APPENDIX A – DESIGN REPORT

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# WV-2 PROCTOR TO KENT

## Design Report



PREPARED BY:  
**CDM  
Smith**



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

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## 1 SUMMARY

The WV-2 Design Report presents the background and rationale for developing feasible alternatives for a four-lane rural arterial facility from the existing four-lane at Proctor to the proposed four-lane north of Kent. WV-2 has a functional classification of rural arterial and is part of the National Highway System. The route links Huntington to Chester and is the primary route along the Ohio Valley in West Virginia. This project includes providing an Environmental Assessment and a Design Report. There are four alternative alignments being considered for this project. The first alternative was developed to be generally located at the foot of the hills along the project. The second alternative pushed the alignment further into the hillside, to maximize developable property. The third was developed to eliminate impacts to the Bayer Credit Union and reduce impacts to the recently constructed shale gas infrastructure. The preferred alternate (Alternate 1A) is a combination of Alternate 1, which is located at the foot of the hill through the southern half of the project and a modified Alternate 3, which is located on a higher grade and at the side of the hill on the northern half. These alternatives are compared based upon a cost and impact basis.

## 2 PROJECT DESCRIPTION

WV-2 is a rural two-lane arterial that will be upgraded to a four-lane divided highway from Proctor to Kent. This project is one of many on WV-2 that will provide a safe, convenient highway with increased traffic capacity from I-77 in Parkersburg to Hancock County in the Northern Panhandle.

The project begins at the existing four-lane segment just north of the intersection of WV-89 in Proctor and ends at the proposed four-lane located just north of Kent. The project is approximately 5 miles long.

There are two chemical plants located within the project, which have a major impact on the proposed WV-2 improvements, Covestro LLC (formerly, Bayer Material Science LLC) and Westlake Chemical Corp's (formerly Axiall) Natrium Plant. These plants each have approximately 600 employees and have a major economic and traffic impact in this area of the Upper Ohio Valley. Both plants have extensive infrastructure located along and crossing WV-2. Personnel from these plants have expressed their concerns about the current location of WV-2 being in close proximity to their facilities. Their recommendation is to relocate the alignment of WV-2 to the east of between the plant facilities and the hillside. This location would allow the construction of a single access point, which would be easier to control from a security standpoint. It would also provide some separation from the roadway, which currently severs their facilities.

A natural gas processing and fractionation plant owned by Blue Racer Midstream Company north of the Westlake Chemical Natrium Plant on approximately 95 acres. This plant currently consists of two recently constructed cyrogenic natural gas processing plants, each of which has 200 MMcf/d of processing capacity. (Natrium I) became fully operational in May 2013. (Natrium II) became fully operational in April 2014. Most of the complex plant is located west of existing WV-2. A truck load-out facility is located east of the existing roadway and located in such proximity to the proposed roadway alignment. The presence of Marcellus and Utica shale formations in the vicinity of WV-2 continues to have a major impact on the traffic volume and composition. There are several gas wells, which have been drilled on the river ridge located above WV-2. CR 212, which in the past was a seldom used

gravel roadway has now been paved to access at least one of the gas wells. The area between Proctor and Kent has been considered for several new gas processing facilities including fractionation plants and ethane crackers. Shell Corporation originally considered the project area, but selected a site in Pennsylvania for its Ethane Cracker. This area could be a candidate for other companies to consider.

Proctor and Kent are the two primary residential areas located within the project limits. Both of these communities are relatively small. The only non-plant related business is a Waste Trucking Company (Solid Waste Services of WV, Inc.) located just south of the project limits in Proctor.

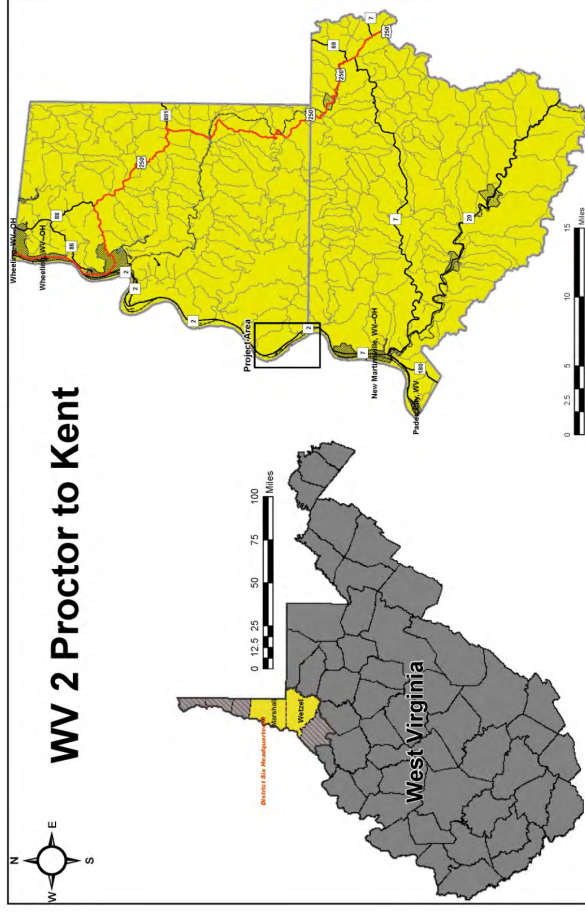
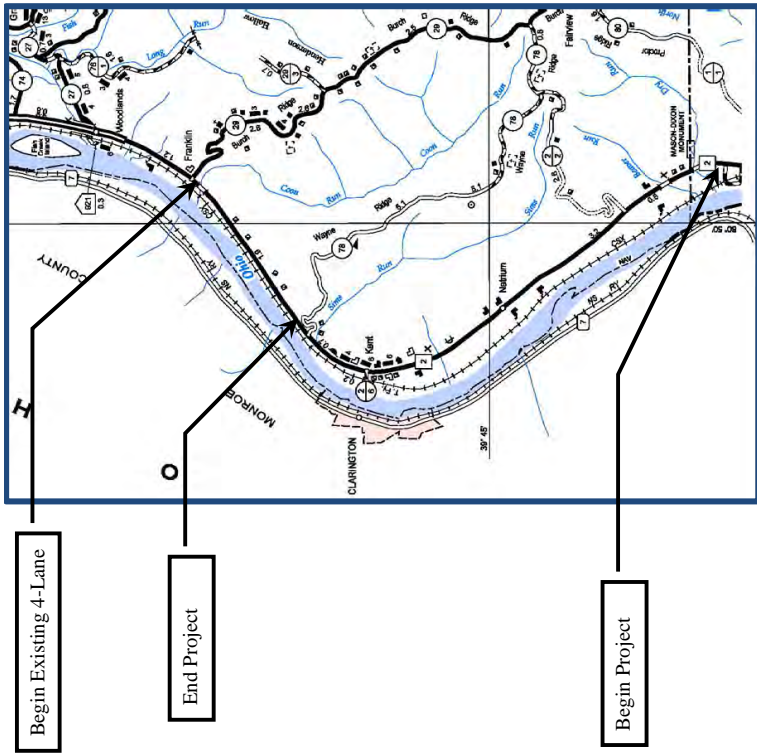


Figure 2-1  
Vicinity Map

## 3 TYPICAL SECTION

### 3.1 Existing Typical Section

WV-2 is a two lane highway with 12-foot lanes and variable width shoulders through the limits of this project. Immediately to the south there is a four-lane bridge and a short section of four-lane highway, a new bridge design is under construction. Several miles to the north of this project WV-2 has a continuous four lane typical section from Franklin to Wheeling. The next project to be constructed is the Kent to Franklin section. This project will complete the continuous four-lane to Wheeling.

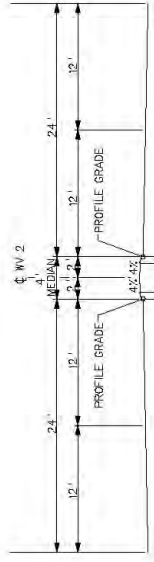


**Figure 3-1**  
Project Location Map

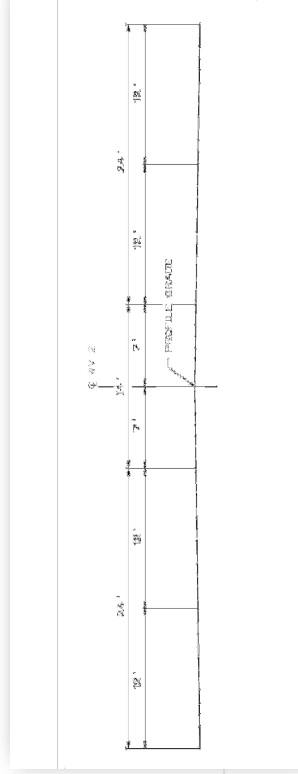
3.2 Proposed Typical Sections

WV-2 will be constructed as a four-lane divided highway. The design requirements include 12-foot wide lanes, and 10-foot wide shoulders with 8 feet paved. The clear zone has a minimum width of 30 feet. Additional design criteria are contained in Appendix A. The median configuration varies through the project to meet the differing conditions of the project. The project will connect to a 4-foot wide median section at Proctor, and a 10-foot wide median to match the Kent to Franklin typical section. These typical sections apply generally to both alternative alignments and are located similarly along the alignment.

This project will have a 14-foot wide continuous center turn-lane. This configuration minimizes the footprint of the proposed construction, while meeting design requirements. At the south end of the project the median width transitions to match the existing 4-foot width. The typical section on the newly reconstructed bridge at Proctor has a 14-foot wide median. Because of the nature of the adjacent industrial complexes, this section of WV-2 is not expected to support any future retail or residential development, which means access can be limited to those points, which serve the plants and access existing county roads.

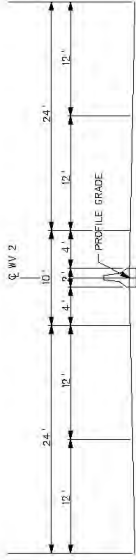


**Figure 3-2**  
Existing Four-Lane Typical Section at Proctor



**Figure 3-3**  
Proposed Four-Lane Section

Towards the end of the project the median transitions back to a 10-foot wide median with median barrier to match the Kent to Franklin typical section.



**Figure 3-4**  
**10-Foot Wide Median Typical Section**

#### 4 ALIGNMENT ALTERNATIVES

Four alignment alternatives were considered for this project, the preferred one has been developed taking in consideration the impact of the existing facilities and minimizing the construction cost. The four alternatives were developed along the hillside away from the existing WV-2 route to serve the main goals of the project. These goals included maximizing the developable land available to the plants, which will help boost economic development within the project limits, to enhance plant security by limiting the access to their property, and enhancing safety, by consolidating the plant entrances to reduce access along WV-2. Accordingly, widening existing WV-2 was not an option because it does not meet these requirements.

The basic alignment for Alternate 1 is at the foot of the hill. Alternate 2 is located further into the hill. Alternate 3 was located further into the hill and on a higher vertical alignment. Alternate 1A is a refinement of Alternate 1 on the south end of the project, and Alternate 3 at the north end.

##### 4.1 Alternate 1

Alternate 1 was developed based upon input from the management at Covestro LLC and Westlake Chemical. A version of this alignment through the Covestro LLC property was developed by their personnel. The basic alignment runs along the foot of the hill. This alternative allows existing WV-2 to remain as a frontage or plant access road, which will allow the plant accesses to be consolidated to a single intersection. Covestro LLC and Westlake Chemical promoted this alignment, because it will enhance the security of each of their plants.

Alternative 1 begins at the southern end of the project limits at the existing four-lane in Proctor, just south of the Marshall County line. A curve to the west is introduced to move the alignment away from the steep hillside located to the east. The tangent alignment continues to Dry Run where a curve to the east places the alignment along the foot of the hillside, the alignment in this area is located between residences at Dry Run and the Mason Dixon Monument. This curve continues through the Covestro LLC property past the Bayer Credit Union up to CR2/2. A short section of tangent roadway follows, which is parallel to the existing roadway. A new curve to the east and a reverse curve to the west align the roadway behind the PPG facilities. Finally, a long curve to the east aligns the roadway

with the project to the north. This Alternative meets the purpose and need of the project but was not preferable because this Alignment Alternative impacts some of the existing facilities.

The vertical alignment was developed based upon a 60 mph design speed utilizing minimum k values of 136 for sag curves and 151 for crest.

**Table 1:**  
**Alignment 1 Curve Summary**

Curve No.	Radius (ft)	Spiral Length (ft)	Superelevation Rate emax = 8%
1	6000	108	2.7
2	6000	108	2.7
3	6000	108	2.7
4	8000	84	2.1
5	7000	108	2.7
6	5500	120	3.0

##### 4.2 Alternate 2

Alternate 2 was developed to maximize the amount of land available for development and increase the separation between the chemical facilities and WV-2. The basic curve configuration is similar to Alternate 1. The radii of the curves were decreased, and the tangents extended to move the alignment to the east.

The vertical alignment was developed based upon a 60 mph design speed utilizing minimum k values of 136 for sag curves and 151 for crest.

**Table 2:**  
**Alignment 2 Curve Summary**

Curve No.	Radius (ft)	Spiral Length (ft)	Superelevation Rate emax = 8%
1	5850	115	2.8
2	2320	250	6.0
3	2320	250	6.0
4	2320	250	6.0
5	6350	105	2.6
6	6350	105	2.6
7	2320	250	6.0
8	5420	120	3.0

4.3 Alternate 3

Alternate 3 was developed to avoid properties such as the Bayer Heritage Federal Credit Union and the Dominion Gas (now Blue Racer Mid-Stream) processing area and Natural gas lines. The alignment was pushed east, which is further into the hillside. The profile grade was also raised even higher to mitigate the elevated grade. The overall alignment is similar to Alternatives 1 and 2. This alignment impacts the Dry Run Residences, and the brine well access located at CR 2/2. Alternative 3 meets the purpose and need by increasing the roadway capacity of WV 2 and improving safety by reducing the number of driveways and access points to the mainline highway. The wider paved shoulders and additional roadside clear area will also improve safety.

**Table 3:  
Alignment 2 Curve Summary**

Curve No.	Radius (ft)	Spiral Length (ft)	Superelevation Rate emax = 8%
1	6000	108	2.8
2	11500	0	2.0
3	2960	345	5.0
4	2960	345	5.0
5	3890	275	2.6
6	8000	84	2.6
7	6000	108	2.6
8	5420	210	3.0
9	5040	220	3.0

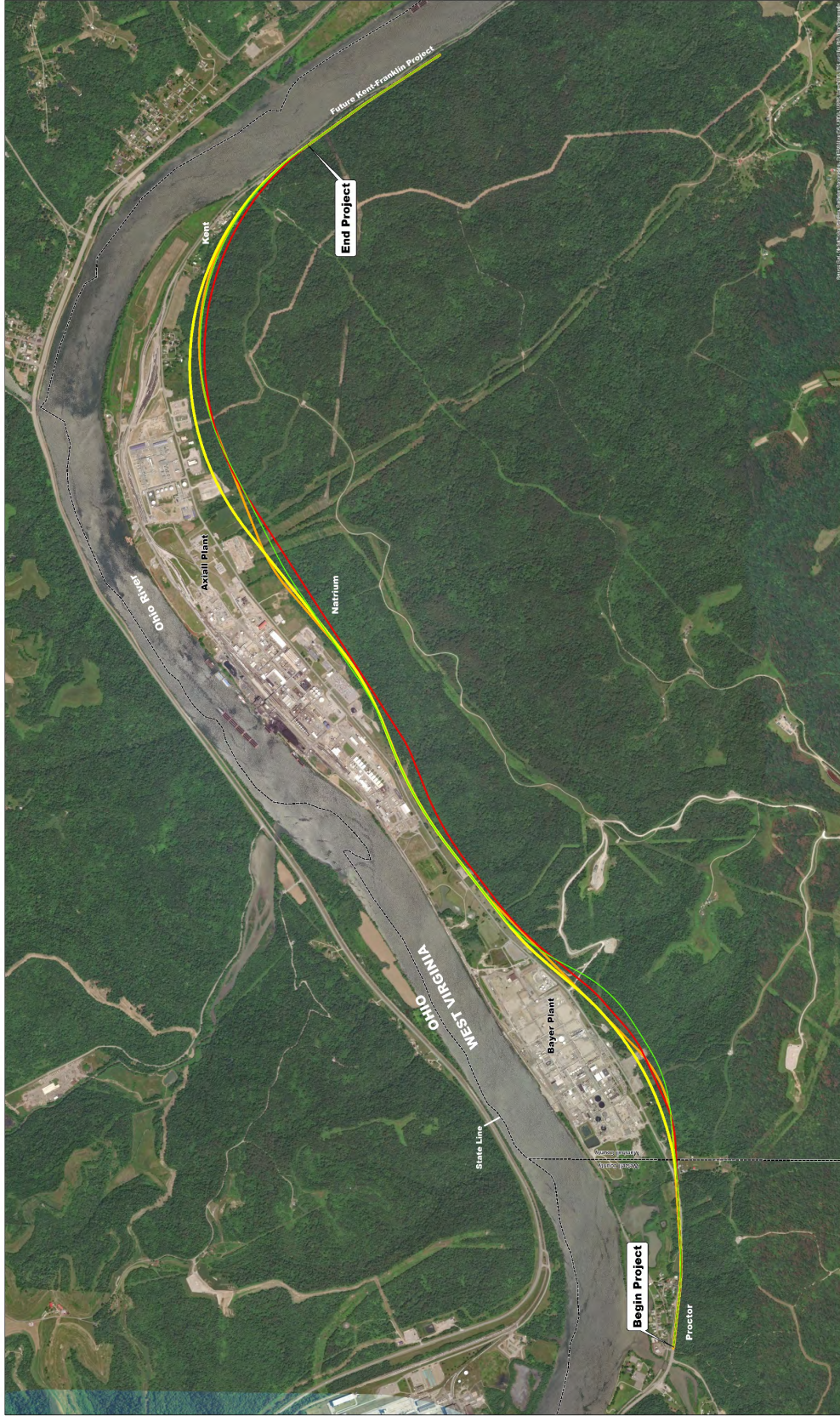
4.4 Alternate 1A (PREFERRED)

Alternate 1A was developed to primarily maintain the features of Alternative 1 but has been shifted to avoid and minimize impacts to the green barn historic boundary and other existing facilities and for the encroachment on the pipelines and valve complex near the Blue Racer Plant. The horizontal curves and vertical profile for Alternative 1A have been adjusted near these features to minimize the overall impacts. This alignment would relocate the Bayer Heritage Credit Union and a portion of the brine piping infrastructure at the Westlake Plant. Alternative 1A has the least amount of costs and overall impacts. The Preferred Alternative, Alternative 1A meets the purpose and need by increasing the roadway capacity of WV 2 and improving safety by reducing the number of driveways and access points to the mainline highway. The wider paved shoulders and additional roadside clear area will also improve safety.

**Table 4:  
Alignment 1A Curve Summary**

Curve No.	Radius (ft)	Spiral Length (ft)	Superelevation Rate emax = 8%
1	4500	234	3.4
2	2650	372	5.4
3	6000	180	2.6
4	8000	176	2.2
5	6000	180	2.6
6	3500	290	4.2
7	4950	221	3.2





**Legend**  
**WV 2 Design Study Alternates**  
 Alignment  
 Alt 1 Corridor  
 Alt 1A Corridor  
 Alt 2 Corridor  
 Alt 3 Corridor

**Notes:**  
 WV 2 Alignments  
 Alt 1, Alt 2 and Alt 3

0 1,000 2,000 3,000 4,000 Feet

**WV 2 Design Study Alignments**

**CDM Smith**

## 5 ACCESS POINTS

- 5.1 Proctor Access
- Proctor has 2 existing access points, one at WV-89, and the other at Charles Street, which is located approximately ¼ mile north. The improvements to WV-2, which include wider shoulders and a wider median, cause Charles Street to exceed grade criterion. The longitudinal slope exceeds 20%. Additionally there is a sight distance issue caused by the steep grade. To remedy this standard geometry, an alternate access is recommended. This access will tie into Charles Street at the existing Wells Street intersection. The Proctor Access will be constructed with geometry that meets AASHTO requirements for maximum grade and sight distance. Because of the narrow median width, the intersection with WV-2 will be a right-in and right-out. There is left turn access from the south located at the WV-89 intersection.
- 5.2 Covestro LLC Access
- The Covestro LLC access will be configured to provide a connection from the new roadway over to existing WV-2. This intersection and access will be designed to handle a WB-50 truck. Left turn access will be provided at this location.
- 5.3 CR 22 Access
- This county road has recently been upgraded with paving to access Marcellus Gas Wells located on the ridge tops east of this project. This roadway also accesses brine wells, which feed to the Westlake Chemical Plant. For the proposed WV 2 alignment Alternative 1A, an overpass will be built over CR 22 access, no proposed access from Alternative 1A to CR 22 access.
- 5.4 Blue Racer Access
- The Blue Racer access will be configured to provide a connection from the proposed roadway over to existing WV-2. This intersection and access will be designed to handle a WB-50 truck. Left turn access will be provided at this location.
- 5.5 Kent Access
- The Kent access will be configured to provide a connection from the new roadway over to existing WV-2. This intersection and access will be designed to handle a WB-50 truck. Left turn access will be provided at this location.

## 5.6 CR 78

This county road is seldom used. It does provide access to gas line infrastructure located in the general Sims Run area. This intersection will be designed as a right-in right-out, because the median width will be narrowing in this area, and a low anticipated traffic volume.

## 6 Temporary Traffic Control

The temporary traffic control for either of the alternates will consist of maintaining two-lane two-way traffic on the existing roadway while the majority of the project is being constructed. Traffic will then be routed on the newly completed roadway and completing the connections to each end of the project.

## 7 Utilities

The location of the alternative alignments along the hill eliminates most of the utility impacts that would be experienced when compared to widening existing WV-2. Figure 10-1 shows the extensive overhead utilities shown along the roadway. At the south end of the project some electric poles will need to be relocated. There is a transformer station near the Bayer Plant, which will not be directly impacted, but the property will be affected by fill. In the vicinity of CR 2/2 there is brine well piping owned by PPG, which will need to be relocated, because of the cut slope. In the vicinity of the northern end of the PPG plant the alignments are located next to a transformer station. Alternate 1 misses the towers that feed the station; whereas Alternate 2 will cause them to be relocated. The Dominion Gas Plant area is being fed with several gas lines which were recently constructed or are under construction. These lines have not been located, because they were under construction. Nevertheless, plans were provided to the gas company to show the roadway alignment. These lines will have to be located during the design phase. There will be some electrical lines impacted at the north end of the project, which will likely need to be relocated. CSX Railroad is located parallel to the project, but well outside any construction limits except at the very northern end of the project. In this area, the construction limits are located adjacent to the Railroad Right-of-Way.

## 8 Right-of-Way

The right-of-way acquisition areas for each alternate are shown in Appendix D. Other than the residential areas at Proctor, Dry Run and Kent, most of the property is owned by either by Covestro LLC or and Westlake Chemical. Separate documentation for Environmental Assessment has been submitted to address environmental concerns.

## 9 Alternate Recommendation

The recommended Alternate for this project is Alternate 1A has the least overall impacts and construction costs. It carries a much cheaper cost, \$58.5 million versus \$60.1 million for Alternate 1, \$77.9 million for Alternate 2, and \$9.3 million for Alternate 3. Alternate 1A is the shortest Alternate 5.3 miles, and Alternative 1A has the least overall impacts.



**Figure 9-1:**  
Looking South at Existing WV-2

# APPENDIX A

## DESIGN CRITERIA



Looking North near the Beginning of the Project

**1 WV 2 Upgrade**

Functional Classification – Rural Arterial (AASHTO pg. 7-1)

Design Level of Service - 'B' Reasonably Free Flow (AASHTO pg. 2-66, Table 2-4 and pg. 2-67, Table 2-5)

Design Speed Minimum Design Speed 60 mph - Rolling Terrain (AASHTO pg. 7-2)

No Design Exceptions Identified

**2 Horizontal Geometry**

Minimum Radius of Curvature = 1200' (AASHTO pg. 3-47, Table 3-10b)

Minimum Radius w/o Superelevation = 1,500' (AASHTO pg. 3-47, Table 3-10b)

**3 Vertical Geometry**

Stopping Sight Distance for Crest Vertical Curves = 570' (AASHTO pg. 3-155, Table 3-34 & pg. 7-3, Table 7-1)

Minimum 'K' Vertical Crest = 151 (AASHTO pg. pg. 3-155, Table 3-34)

Minimum 'K' Vertical Sag = 136 (AASHTO pg. 3-161, Table 3-36)

Minimum Grade = 0.30% (Absolute) (AASHTO pg. 3-119)

Minimum Grade = 0.50% (Desirable)

Maximum Grade = 4% (AASHTO pg. 7-4, Table 7-2)

Minimum Vertical Clearance to Structures = 16 feet w/ 6" allowance for Overlay (AASHTO pgs. 7-6 thru 7-7, WVDOT DD-601)

Minimum Vertical Clearance to Pedestrian Overpass = 17' (AASHTO pg. 7-7, WVDOT DD-601)

**4 Typical Section**

Lane Widths (DHV>400) = 12 feet (AASHTO pg. 7-5, Table 7-3, WVDOT DD-601)

Continuous Left Turn Lane Width = 12 feet (AASHTO pg. 7-30 thru 7-34)

Median (Type V) = 2 feet with 4' Inside Paved Shoulders (AASHTO pg. 8-8)

Usable (Paved) Outside Shoulders = 8 feet (AASHTO pg. 7-5, Table 7-3 and pg. 7-13, WVDOT DD-601)

Shoulder Total Width w/o Guardrail = 10 feet (AASHTO pg. 7-5, Table 7-3, WVDOT DD-601)

Shoulder Total Width w/ Guardrail = 12.3 feet (WVDOT DD-601)

Raised Median Width including Left Turn Lane = 18' [12' Left Turn Lane] and [6' Medial Separator] (AASHTO pg. 4-35 & 7-30 thru 7-31)

Travel Lane Cross-Slope = 2% (AASHTO pg. 7-13, WVDOT DD-601)

Shoulder Cross Slope = 4% (WVDOT DD-601)

Maximum Allowable Breakover (Outside Shoulder) = 3% (High-Side Superelevation) (WVDOT DD-601)

Maximum Allowable Breakover (Inside Shoulder) = 6% (WVDOT DD-601)

Clear Zone Distance (DHV>1500) = 30' (AASHTO Roadside Design Guide 2011, Chapter 3, pg. 3-3; Table 3-1)

Roadside (Foreslope) = 1V:6H (AASHTO Roadside Design Guide 2011, Chapter 3, pg. 3-6; Figure 3-2)  
 Roadside (Ditch) Width = 4' Flat Bottom

Roadside (Backslope) = 1V:3H (AASHTO Roadside Design Guide 2011, Chapter 3, pg. 3-10; Figure 3-7)  
 Horizontal Clearance to Obstacles = 10 feet (AASHTO Roadside Design Guide 2011, Chapter 4)

**5 Intersection Sight Distance (60 mph Design Speed)**

Passenger Car = 665 feet (AASHTO pg. 9-38 Table 9-6)

SU = 840 (AASHTO pg. 9-39 Figure 9-17)

Combination = 1040 (AASHTO pg. 9-39 Figure 9-17) Recommended for Bayer and PPG access roadways.

**6 Superelevation**

Maximum Superelevation Rate = 8.0% (AASHTO pg. 3-47, Table 3-10b)

Maximum Relative Gradient = 0.45% x 1.5 (4-Lane) = 0.60% (AASHTO pg. 3-61, Table 3-15, and pg. 3-62 Table 3-16)

**7 Design Vehicles**

From Arterial to Local Road = SU [Case C2] ([WV DOT DD-621](#))

From Arterial to Industrial Plants = WB-50 [Case B] ([WV DOT DD-621](#))

**8 Control Access**

Left Turn Access at Bayer, PPG, and Kent

Right in – Right Out at Proctor Access, CR 2/2 and CR 78.

**9 Structures**

Full Width for Approach Roadway ([AASHTO pg. 7-6 & WV DOT DD-604](#))

**10 Bridge Design Loading**

HL93 using AASHTO LRFD Bridge Design Specifications ([WV DOT DD-601](#))

## APPENDIX B

### Alternative Analysis Matrix



Looking South Towards Bayer

**West Virginia Department of Transportation**

Division of Highways  
 WV 2 Improvement Project  
 Proctor to Kent  
 State Project No. U352-2-1.166.00  
 Federal Project No. NH-0002(628)D  
 Date: October 2013



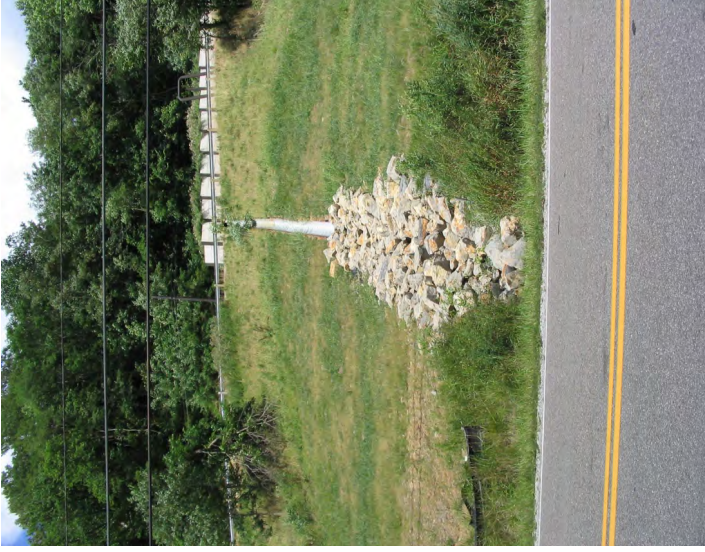
**WV-2 Alignment Alternative Evaluation/Cost Matrix From Proctor to Kent**

Impact Category	Study Alignment 1	Study Alignment 2	Study Alignment 3	Study Alignment 1A
Engineering				
	Prelim. Length of WV-2 Improvements	30,430 5.76	31,210 5.91	27,964 5.30
Right-of-Way Configuration (Refer to Attached Drawings)	4 (12' Lanes) - 14' Flush Median - 4' Inside Shoulders - 8' Outside Paved Shoulders	4 (12' Lanes) - 14' Flush Median - 4' Inside Shoulders - 8' Outside Paved Shoulders	4 (12' Lanes) - 14' Flush Median - 4' Inside Shoulders - 8' Outside Paved Shoulders	4 (12' Lanes) - 14' Flush Median - 4' Inside Shoulders - 8' Outside Paved Shoulders
Horizontal Geometry (Minimum Radius Used)	5500	2320	2980	2650
Financial / Costs				
Estimated Construction Costs (Refer to Attached Sheets)	\$60,100,000	\$72,119,311	\$62,701,836	\$58,464,312
Traffic Operations				
Number of Local Roadways Severed	None	None	None	None
Safety Constraints / Impacts	Improves safety, and eliminates multiple access points from industrial plants. Provides efficient means of controlling flow potential loss.	Improves safety, and eliminates multiple access points from industrial plants. Provides efficient means of controlling flow potential loss.	Improves safety, and eliminates multiple access points from industrial plants. Provides efficient means of controlling flow potential loss.	Improves safety, and eliminates multiple access points from industrial plants. Provides efficient means of controlling flow potential loss.
Human Environment				
Historic Resource Impacts	Mason Dixon Line Monument is in close proximity to road right-of-way. Protective measures may be required. This alignment impacts a portion of a historic property boundary.	Mason Dixon Line Monument is in close proximity to road right-of-way. Protective measures may be required.	Mason Dixon Line Monument is in close proximity to road right-of-way. Protective measures may be required.	Mason Dixon Line Monument is in close proximity to road right-of-way. Protective measures may be required.
Cemetery Impacts	None (A retaining wall may be required during the final design and subsurface investigation phase)	None	None	None
Industrial Facilities Impacts (e.g. Chemical Plant)	Impacts to Bayer Corp. - PPG and the Natural Gas Processing Facility and gas lines to the facility.	Impacts to Bayer Corp. - PPG Gas Processing Facility.	Impacts to Bayer Corp. and PPG.	Portion of the brine piping infrastructure at the Axial plant
Commercial Facilities Impacts (e.g. Businesses)	Impacts to Credit Union. A retaining wall may reduce the impacts to the Credit Union.	Takes Credit Union Building	None	Takes Credit Union Building
Residential Displacement (# houses)	9 Residences	5 Residences	9 Residences	5 Residences
Physical Impacts				
Potential Hazard Waste Site(s)	No impact to known Hazard Waste Site	No impact to known Hazard Waste Site	No impact to known Hazard Waste Site	No impact to known Hazard Waste Site
Major (Public) Utility Conflicts / Impacts	Gas pipelines feeding the Blue Racer Fractionation Plant	Gas pipelines feeding the Blue Racer Fractionation Plant	Potential impacts to electrical tower	None
Major (Private) Utility Conflicts / Impacts	Requires Relocation of PPG Brine Well Infrastructure	Requires Relocation of PPG Brine Well Infrastructure	Requires Relocation of PPG Brine Well Infrastructure	Requires Relocation of PPG Brine Well Infrastructure



# APPENDIX C

## Alternative Cost Estimates



Looking East from existing WW-2 towards Brine Pipeline

WV-2 STUDY ALTERNATE 1

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
204001-000	CLEARING AND GRUBBING (APPROX 175 ACRES)	1	LS	\$ 676,000	\$ 676,000
204001-000	MOBILIZATION	1	LS	\$ 300,000	\$ 300,000
207001-001	UNCLASSIFIED EXCAVATION	2,813.249	CY	\$ 6.00	\$ 16,879.494
207002-000	SUBGRADE	44,379	CY	\$ 35	\$ 1,552,265
311002-001	OPEN GRADED FREE DRAINING BASE COURSE	22,189	CY	\$ 102	\$ 2,263,278
600029-001	FREE DRAINING BASE TRENCH	61,448	LF	\$ 16	\$ 983,168
401 ITEMS	SUPERPAVE 1MA (12" THICKNESS)	175,741	TON	\$ 105	\$ 18,452,805
<b>MAJOR DRAINAGE (PIPES &gt; 24")</b>					
601002-001	CLASS B CONCRETE (PIPE WALLS)	100	CY	\$ 600	\$ 60,000
604 ITEMS	96 INCH PIPE	460	FT	\$ 891	\$ 409,860
604 ITEMS	72 INCH PIPE	360	FT	\$ 300	\$ 108,000
604 ITEMS	60 INCH PIPE	1,134	FT	\$ 250	\$ 283,500
604 ITEMS	48 INCH PIPE	318	FT	\$ 250	\$ 79,500
604 ITEMS	36 AND 30 INCH PIPE	405	FT	\$ 250	\$ 101,250
N/A	6"X6" RIBC	78	FT	\$ 1,000	\$ 78,000
N/A	12"X6" RIBC (SMA ROW)	162	FT	\$ 2,000	\$ 324,000
<b>MINOR DRAINAGE (PIPES &lt; 24")</b>					
604 ITEMS	MINOR DRAINAGE PIPES	1	LS	\$ 70,000	\$ 70,000
605 ITEMS	DRAINAGE INLETS	70	EA	\$ 1,500	\$ 105,000
606 ITEMS	UNDERDRAIN & PIPE INSTALLATION	1,000	FT	\$ 15	\$ 15,000
607001-001	TYPE 1 GUARDRAIL - CLASS I	31,150	FT	\$ 12	\$ 373,800
607005-001	FLARED END TERMINAL	62	EA	\$ 750	\$ 46,500
608002-001	RIGHT OF WAY FENCE - FARM FIELD TYPE	61,448	FT	\$ 4	\$ 245,792
610 ITEMS	MEDIAN TYPE V	2,400	LF	\$ 60	\$ 144,000
636 ITEMS	MAINTENANCE OF TRAFFIC	1	LS	\$ 200,000	\$ 200,000
637 ITEMS	WATER FOR DUST PALLIATIVE	610	MGA	\$ 8	\$ 4,880
638 ITEMS	PROJECT RIGHT-OF-WAY SURVEY MARKERS	1	LS	\$ 20,000	\$ 20,000
639 ITEMS	CONSTRUCTION LAYOUT STAKES	1	LS	\$ 100,000	\$ 100,000
640 ITEMS	FIELD OFFICE AND STORAGE BUILDING	1	LS	\$ 45,000	\$ 45,000
642 ITEMS	TEMPORARY PROJECT WATER POLLUTION CONTROL	1	LS	\$ 500,000	\$ 500,000
642 ITEMS	SEEDING AND MULCHING (APPROX. 120 ACRES)	1	LS	\$ 120,000	\$ 120,000
655 ITEMS	MATTING	1	LS	\$ 20,000	\$ 20,000
660 ITEMS	TRAFFIC SIGNALS	1	LS	\$ 100,000	\$ 100,000
<b>SIGNING &amp; PAVEMENT MARKINGS</b>					
667 ITEMS	ROADSIDE MOUNTED SIGN SUPPORTS	1	LS	\$ 50,000	\$ 50,000
668 ITEMS	TRAFFIC SIGNS AND DELINEATORS	1	LS	\$ 75,000	\$ 75,000
669 ITEMS	MISCELLANEOUS PAVEMENT MARKINGS	.35	M	\$ 300	\$ 105.00
<b>STRUCTURES</b>					
670 ITEMS	VEHICULAR UNDERPASS	98	LF	\$ 2,000	\$ 196,000
671 ITEMS	RETAINING WALL	1,000	SF	\$ 60	\$ 60,000
<b>UTILITIES AND PROPERTY ACQUISITION</b>					
PROJECT (TO BE PROVIDED BY THE VDOT/AT A LATER DATE)					
SUB TOTAL					\$ 46,428,354
20% E&C					\$ 9,285,671
TOTAL					\$ 55,714,025

WV-2 STUDY ALTERNATE 2

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
204001-000	CLEARING AND GRUBBING (APPROX 228 ACRES)	1	LS	\$ 1,140,000	\$ 1,140,000
204001-000	MOBILIZATION	1	LS	\$ 300,000	\$ 300,000
207001-001	UNCLASSIFIED EXCAVATION	4,695.848	CY	\$ 6.00	\$ 28,175.088
207002-000	SUBGRADE	43,947	CY	\$ 35	\$ 1,538,145
311002-001	OPEN GRADED FREE DRAINING BASE COURSE	21,974	CY	\$ 100	\$ 2,197,400
600029-001	FREE DRAINING BASE TRENCH	60,850	LF	\$ 16	\$ 973,600
401 ITEMS	SUPERPAVE 1MA (12" THICKNESS)	174,031	TON	\$ 105	\$ 18,273,255
<b>MAJOR DRAINAGE (PIPES &gt; 24")</b>					
601002-001	CLASS B CONCRETE (PIPE WALLS)	100	CY	\$ 600	\$ 60,000
604 ITEMS	96 INCH PIPE	890	FT	\$ 850	\$ 756,500
604 ITEMS	72 INCH PIPE	550	FT	\$ 300	\$ 165,000
604 ITEMS	60 INCH PIPE	1,478	FT	\$ 250	\$ 369,500
604 ITEMS	48 INCH PIPE	344	FT	\$ 250	\$ 86,000
604 ITEMS	36 and 30 INCH PIPE	600	FT	\$ 250	\$ 150,000
N/A	6"X6" RIBC	78	FT	\$ 1,000	\$ 78,000
N/A	12"X6" RIBC (SMA ROW)	318	FT	\$ 2,000	\$ 636,000
<b>MINOR DRAINAGE (PIPES &lt; 24")</b>					
604 ITEMS	MINOR DRAINAGE PIPES	1	LS	\$ 300,000	\$ 300,000
605 ITEMS	DRAINAGE INLETS	70	EA	\$ 1,500	\$ 105,000
606 ITEMS	UNDERDRAIN & PIPE INSTALLATION	1,000	FT	\$ 15	\$ 15,000
607001-001	TYPE 1 GUARDRAIL - CLASS I	32,900	FT	\$ 12	\$ 394,800
607005-001	FLARED END TERMINAL	62	EA	\$ 1,050	\$ 65,100
608002-001	RIGHT OF WAY FENCE - FARM FIELD TYPE	60,850	FT	\$ 4	\$ 243,400
610 ITEMS	MEDIAN TYPE V	2,400	LF	\$ 60	\$ 144,000
636 ITEMS	DUMPED ROCK BUTTER (INCLUDES PIPE OUTLETS)	1	LS	\$ 200,000	\$ 200,000
637 ITEMS	MAINTENANCE OF TRAFFIC	1	LS	\$ 200,000	\$ 200,000
638 ITEMS	PROJECT RIGHT-OF-WAY SURVEY MARKERS	1,300	MGA	\$ 10	\$ 13,000
639 ITEMS	CONSTRUCTION LAYOUT STAKES	1	LS	\$ 100,000	\$ 100,000
640 ITEMS	FIELD OFFICE AND STORAGE BUILDING	1	LS	\$ 100,000	\$ 100,000
642 ITEMS	TEMPORARY PROJECT WATER POLLUTION CONTROL	1	LS	\$ 500,000	\$ 500,000
652 ITEMS	SEEDING AND MULCHING (APPROX. 174 ACRES)	1	LS	\$ 174,000	\$ 174,000
655 ITEMS	MATTING	1	LS	\$ 40,000	\$ 40,000
<b>SIGNING &amp; PAVEMENT MARKINGS</b>					
667 ITEMS	ROADSIDE MOUNTED SIGN SUPPORTS	1	LS	\$ 100,000	\$ 100,000
668 ITEMS	TRAFFIC SIGNS AND DELINEATORS	1	LS	\$ 150,000	\$ 150,000
669 ITEMS	MISCELLANEOUS PAVEMENT MARKINGS	.35	M	\$ 300	\$ 105.00
660 ITEMS	TRAFFIC SIGNALS	1	LS	\$ 100,000	\$ 100,000
<b>STRUCTURES</b>					
670 ITEMS	VEHICULAR UNDERPASS	464	LF	\$ 3,000	\$ 1,392,000
671 ITEMS	RETAINING WALL	1,000	SF	\$ 80	\$ 80,000.00
<b>UTILITIES AND PROPERTY ACQUISITION</b>					
PROJECT (TO BE PROVIDED BY THE VDOT/AT A LATER DATE)					
SUB TOTAL					\$ 60,089,426
20% E&C					\$ 12,019,895
TOTAL					\$ 72,109,321

WW-2 STUDY ALTERNATE 1A

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
26007-000	CLEANING AND GRUBBING	1	LS	\$ 815,000	\$ 815,000
26008-000	MOBILIZATION	1	LS	\$ 300,000	\$ 300,000
26009-000	UNCLASSIFIED EXCAVATION	3,200.00	CY	\$ 6.10	\$ 19,520.00
26010-000	SUBGRADE	44,379	CY	\$ 36	\$ 1,595,244
31006-001	OPEN GRADED FREE DRAINAGE BASE COURSE	22,189	CY	\$ 10	\$ 221,890
60226-001	FREE DRAINAGE BASE TRENCH	61,486	LF	\$ 16	\$ 983,776
401-ITEMS	SUPERPAVE 1.5" (2" THICKNESS)	175,741	TON	\$ 15	\$ 2,636,115
<b>MAJOR DRAINAGE (PIPES &gt; 24")</b>					
60102-001	CLASS 1 CONCRETE (PIPE WING WALLS)	100	CY	\$ 600	\$ 60,000
604-ITEMS	6" INCH PIPE	360	FT	\$ 915	\$ 329,400
604-ITEMS	8" INCH PIPE	360	FT	\$ 300	\$ 108,000
604-ITEMS	10" INCH PIPE	360	FT	\$ 230	\$ 82,800
604-ITEMS	12" INCH PIPE	368	FT	\$ 230	\$ 84,640
604-ITEMS	15" INCH PIPE	410	FT	\$ 290	\$ 118,900
604-ITEMS	18" INCH PIPE	76	FT	\$ 380	\$ 28,680
604-ITEMS	24" INCH PIPE	138	FT	\$ 450	\$ 62,100
N/A	24" X 8' RCJC (Dy. Rn)	138	FT	\$ 4,000	\$ 552,000
N/A	24" X 8' RCJC (Srm Rn)	162	FT	\$ 2,000	\$ 324,000
<b>MINOR DRAINAGE (PIPES &lt; 24")</b>					
604-ITEMS	MINOR DRAINAGE PIPES	1	LS	\$ 20,000	\$ 20,000
602-ITEMS	DRAINAGE INLETS	70	EA	\$ 1,500	\$ 105,000
603-ITEMS	UNDERDRAIN & PIPE INSTALLATION	1,000	FT	\$ 15	\$ 15,000
60701-001	TYPE 1 GRANULAR - CLASS 1	31,150	FT	\$ 12	\$ 373,800
60706-001	FLARED END TERMINAL	62	EA	\$ 750	\$ 46,500
60802-001	RIGHT OF WAY FENCE, FARM/FIELD TYPE	61,486	FT	\$ 4	\$ 245,944
610-ITEMS	MEDIAN TYPE V	2,400	LF	\$ 60	\$ 144,000
610-ITEMS	DUMPED ROCK GUTTER (INCLUDES PIPE OUTLETS)	1	LS	\$ 200,000	\$ 200,000
630-ITEMS	MAINTENANCE OF TRAFFIC	1	LS	\$ 200,000	\$ 200,000
637-ITEMS	WATER FORDUST PALLIATIVE	610	MGAL	\$ 8	\$ 4,880
638-ITEMS	PROJECT, RIGHT-OF-WAY SURVEY MARKERS	1	LS	\$ 25,000	\$ 25,000
640-ITEMS	CONSTRUCTION LAYOUT STAKES	1	LS	\$ 100,000	\$ 100,000
642-ITEMS	FIELD OFFICE AND STORAGE BUILDING	1	LS	\$ 45,000	\$ 45,000
642-ITEMS	TEMPORARY PROJECT WATER POLLUTION CONTROL	1	LS	\$ 500,000	\$ 500,000
652-ITEMS	SEEDING AND MULCHING (APPROX. 120 ACRES)	1	LS	\$ 120,000	\$ 120,000
652-ITEMS	SEEDING AND MULCHING (APPROX. 120 ACRES)	1	LS	\$ 20,000	\$ 20,000
655-ITEMS	MATINGS	1	LS	\$ 100,000	\$ 100,000
<b>SIGNING &amp; PAVEMENT MARKINGS</b>					
667-ITEMS	ROADSIDE MOUNTED SIGN SUPPORTS	1	LS	\$ 50,000	\$ 50,000
661-ITEMS	TRAFFIC SIGNS AND DELINEATORS	1	LS	\$ 75,000	\$ 75,000
663-ITEMS	MISCELLANEOUS PAVEMENT MARKINGS	35	MI	\$ 300	\$ 10,500
662-ITEMS	TRAFFIC SIGNALS	1	LS	\$ 100,000	\$ 100,000
<b>STRUCTURES</b>					
669-ITEMS	VEHICULAR UNDERPASS	287	LF	\$ 3,000	\$ 861,000
669-ITEMS	RETAINING WALL	1,000	SF	\$ 60	\$ 60,000.00
<b>UTILITIES AND PROPERTY ACQUISITION</b>					
PROJECT (TO BE PROVIDED BY THE WOODHATA LATER DATE)					
SUBTOTAL					\$ 66,915,107
20% F&C					\$ 13,383,021.40
TOTAL					\$ 80,298,128.40

WW-2 STUDY ALTERNATE 3

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
26007-000	CLEANING AND GRUBBING (APPROX. 232 ACRES)	1	LS	\$ 1,960,000	\$ 1,960,000
26008-000	MOBILIZATION	1	LS	\$ 300,000	\$ 300,000
26009-000	UNCLASSIFIED EXCAVATION	6,163,657	CY	\$ 37.403,142	\$ 230,562,442
26010-000	SUBGRADE	45,078	CY	\$ 35	\$ 1,577,230
31006-001	OPEN GRADED FREE DRAINAGE BASE COURSE	22,539	CY	\$ 100	\$ 2,253,900
60226-001	FREE DRAINAGE BASE TRENCH	62,416	LF	\$ 16	\$ 998,656
401-ITEMS	SUPERPAVE 1.5" (2" THICKNESS)	178,510	TON	\$ 105	\$ 18,743,550
<b>MAJOR DRAINAGE (PIPES &gt; 24")</b>					
60102-001	CLASS 1 CONCRETE (PIPE WING WALLS)	100	CY	\$ 600	\$ 60,000
604-ITEMS	6" INCH PIPE	478	FT	\$ 850	\$ 406,300
604-ITEMS	8" INCH PIPE	304	FT	\$ 300	\$ 91,200
604-ITEMS	10" INCH PIPE	304	FT	\$ 250	\$ 76,000
604-ITEMS	12" INCH PIPE	1,519	FT	\$ 250	\$ 379,750
604-ITEMS	15" INCH PIPE	414	FT	\$ 250	\$ 103,500
604-ITEMS	18" INCH PIPE	182	FT	\$ 350	\$ 63,700
604-ITEMS	24" INCH PIPE	76	FT	\$ 450	\$ 34,200
N/A	24" X 8' RCJC (Dy. Rn)	182	FT	\$ 1,000	\$ 182,000
N/A	24" X 8' RCJC (Srm Rn)	185	FT	\$ 2,000	\$ 370,000
<b>MINOR DRAINAGE (PIPES &lt; 24")</b>					
604-ITEMS	MINOR DRAINAGE PIPES	1	LS	\$ 300,000	\$ 300,000
602-ITEMS	DRAINAGE INLETS	70	EA	\$ 1,500	\$ 105,000
603-ITEMS	UNDERDRAIN & PIPE INSTALLATION	1,000	FT	\$ 15	\$ 15,000
60701-001	TYPE 1 GRANULAR - CLASS 1	37,300	FT	\$ 12	\$ 447,600
60706-001	FLARED END TERMINAL	64	EA	\$ 1,000	\$ 64,000
60802-001	RIGHT OF WAY FENCE, FARM/FIELD TYPE	62,416	FT	\$ 4	\$ 249,664
610-ITEMS	MEDIAN TYPE V	2,400	LF	\$ 60	\$ 144,000
610-ITEMS	DUMPED ROCK GUTTER (INCLUDES PIPE OUTLETS)	1	LS	\$ 200,000	\$ 200,000
630-ITEMS	MAINTENANCE OF TRAFFIC	1	LS	\$ 200,000	\$ 200,000
637-ITEMS	WATER FORDUST PALLIATIVE	1,300	MGAL	\$ 10	\$ 13,000
638-ITEMS	PROJECT, RIGHT-OF-WAY SURVEY MARKERS	1	LS	\$ 50,000	\$ 50,000
640-ITEMS	CONSTRUCTION LAYOUT STAKES	1	LS	\$ 100,000	\$ 100,000
642-ITEMS	FIELD OFFICE AND STORAGE BUILDING	1	LS	\$ 100,000	\$ 100,000
642-ITEMS	TEMPORARY PROJECT WATER POLLUTION CONTROL	1	LS	\$ 500,000	\$ 500,000
652-ITEMS	SEEDING AND MULCHING (APPROX. 177 ACRES)	1	LS	\$ 177,000	\$ 177,000
655-ITEMS	MATINGS	1	LS	\$ 40,000	\$ 40,000
<b>SIGNING &amp; PAVEMENT MARKINGS</b>					
667-ITEMS	ROADSIDE MOUNTED SIGN SUPPORTS	1	LS	\$ 100,000	\$ 100,000
661-ITEMS	TRAFFIC SIGNS AND DELINEATORS	1	LS	\$ 150,000	\$ 150,000
663-ITEMS	MISCELLANEOUS PAVEMENT MARKINGS	35	MI	\$ 300	\$ 10,500
662-ITEMS	TRAFFIC SIGNALS	1	LS	\$ 100,000	\$ 100,000
<b>STRUCTURES</b>					
669-ITEMS	VEHICULAR UNDERPASS	287	LF	\$ 3,000	\$ 861,000
669-ITEMS	RETAINING WALL	1,000	SF	\$ 60	\$ 60,000.00
<b>UTILITIES AND PROPERTY ACQUISITION</b>					
PROJECT (TO BE PROVIDED BY THE WOODHATA LATER DATE)					
SUBTOTAL					\$ 66,915,107
20% F&C					\$ 13,383,021.40
TOTAL					\$ 80,298,128.40

## APPENDIX D

### Right-of-Way Acquisition Tables



**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS		ALT 1 (R/W and PDE)		ALT 1 (TCE)		ALT 1 (TSRE)	
	AREA	AREA	SF	AC	SF	AC	SF	AC
	SF	AC	SF	AC	SF	AC	SF	AC
1	4,709	0.11	0	0.00				
2	4,743	0.11	0	0.00				
3	1,435	0.03	0	0.00				
4	13,082	0.30	425	0.01				
5	5,498,770	126.23	171,878	3.95				
6	3,404	0.07	0	0.00				
7	4,732	0.04	0	0.00				
8	9,493	0.22	2,184	0.05				
9	4,463	0.10	1,616	0.04				
10	5,649	0.13	3,279	0.08				
11	6,945	0.16	1,785	0.04				
12	2,769	0.06	2,769	0.06				
13	12,992	0.30	12,992	0.30				
14	6,129	0.14	5,391	0.12				
15	5,774	0.13	5,774	0.13				
16	6,426	0.15	6,426	0.15				
17	8,545	0.20	6,759	0.16				
18	9,309	0.21	6,712	0.15				
19	9,511	0.22	7,507	0.17				
20	10,113	0.23	10,113	0.23				

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY  
STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS		ALT 1 (RW and PDE)		ALT 1 (TCE)		ALT 1 (TSRE)	
	AREA SF	AREA AC	SF	AC	SF	AC	SF	AC
21	10,146	0.23	9,465	0.22				
22	10,123	0.23	6,855	0.16				
23	10,089	0.23	4,120	0.09				
24	10,054	0.23	2,477	0.06				
25	20,653	0.47	3,192	0.07				
26	97,866	2.25	0	0.00	0	0.00	0	0.00
27	71,939	1.65	7,682	0.18	0	0.00	0	0.00
28	387,226	8.89	40,145	0.92				
29	1,843,354	42.32	245,195	5.63				
30	39,112	0.90	905	0.02				
31	138,887	3.19	16,367	0.38	32,938	0.76		
32	161,700	3.71	4,756	0.11	0	0.00		
33	5,113,843	117.40	139,410	3.20	9,157	0.21		
34	6,002	0.14	6,002	0.14				
35	1,500,694	34.45	194,264	4.46	31,827	0.73		
36	81,221	1.86	42,024	0.96				
37	916,448	21.04	324,204	7.44	35,743	0.82		
38	40,131	0.92	15,318	0.35				
39	1,336,773	30.69	81,351	1.87	7,968	0.18		
40	2,644,267	60.70	399,993	9.18	858	0.02		

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY  
STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS		ALT 1 (RW and PDE)		ALT 1 (TCE)		ALT 1 (TSRE)	
	AREA SF	AREA AC	SF	AC	SF	AC	SF	AC
41	2,481,889	56.98	452,879	10.40				
42	3,429,086	78.72	293,787	6.74				
43	66,035	1.52	55,874	1.28				
44	20,216	0.46	18,719	0.43				
45	8,838	0.20	8,391	0.19				
46	2,291,016	52.59	130,566	3.00				
47	924,806	21.23	184,435	4.23				
48	52,136	1.20	37,166	0.85				
49	2,095,470	48.11	143,306	3.29				
50	2,938,006	67.45	111,847	2.57				
51	135,564	3.11	23,666	0.54				
52	184,985	4.25	22,564	0.52				
53	944,413	21.68	117,813	2.70				
54	10,398,684	238.72	938,253	21.54	21,961	0.50		
55	8,542,531	196.11	323,120	7.42	49,340	1.13		
56	556,987	12.79	48,960	1.12	3,520	0.08		
57	1,036,919	23.80	115,644	2.65	6,452	0.15		
58	780,968	17.93	77,480	1.78	6,246	0.14		
59	543,174	12.47	59,213	1.36				
60	1,599,113	36.71	157,327	3.61	24,767	0.57		

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY  
STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS		ALT 1 (RW and PDE)		ALT 1 (TCE)		ALT 1 (TSRE)	
	AREA SF	AREA AC	SF	AC	SF	AC	SF	AC
61	1,532,888	35.19	132,799	3.05				
62	1,976,887	45.38	132,432	3.04	28,940	0.66		
63	63,861	1.47	9,748	0.22				
64	60,475	1.39	6,739	0.15				
65	128,379	2.95	21,595	0.50				
66	260,801	5.99	165,383	3.80				
67	141,883	3.26	54,180	1.24				
68	176,345	4.05	112,679	2.59	34,624	0.79		
69	5,407,808	124.15	346,065	7.94				
70	19,426	0.45	10,662	0.24				
71	4,702	0.11	1,989	0.05				
72	9,454	0.22	3,843	0.09				
73	9,702	0.22	3,727	0.09				
74	9,430	0.22	3,459	0.08				
75	14,690	0.34	4,732	0.11				
76	14,581	0.33	1,728	0.04				
77	9,756	0.22	0	0.00				
78	52,714	1.21	52,714	1.21				
79	29,558	0.68	29,558	0.68				
80	363,364	8.34	153,451	3.52				



ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)												
PARCEL NUMBER	PARCEL TOTALS		ALT 1 (R/W and PDE)			ALT 1 (TCE)		ALT 1 (TSRE)				
	AREA SF	AREA AC	SF	AC		SF	AC	SF	AC	SF	AC	
81	824,249	18.92	91,539	2.10		9,360	0.21					
82	1,014,140	23.28	143,266	3.29		11,197	0.26					
83	1,146,201	26.31	200,026	4.59								
84	42,449	0.97	23,328	0.54								
85	69,061	1.59	49,458	1.14								
86	28,862	0.66	28,862	0.66								
87	16,528	0.38	2,933	0.07								
88	108,338	2.49	59,436	1.36		8,089	0.19					
89	971,619	22.31	109,788	2.52								
90	228,503	5.25	105,408	2.42								
91	75,939	1.74	75,939	1.74								
92	91,844	2.11	91,844	2.11								
93	30,062	0.69	30,062	0.69								
94	18,578	0.43	18,578	0.43								
95	1,680,923	38.59	708,987	16.28								
96	1,403,388	32.22	1,027,638	23.59								
97	0		0									
98	23,582	0.54	23,582	0.54								
99	28,830	0.66	28,830	0.66								
100												
101												
102	18,618	0.43	0	0.00		1,284	0.03					
103	11,710	0.27	0	0.00		0	0.00					0.00
TOTAL	77,217,181	1,773	9,177,329	211		324,270	7					0

ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)											
NEW PARCEL NUMBER	PARCEL TOTALS				ALT 2 (RW and PDE)		ALT 2 (TCE)		ALT 2 (TSRE)		
	AREA		AREA		SF	AC	SF	AC	SF	AC	
	SF	AC	SF	AC							
1	4,709	0.11	0	0.00							
2	4,562	0.10	0	0.00							
3	1,435	0.03	0	0.00							
4	12,907	0.30	425	0.01							
5	1,533,818	35.21	218,233	5.01							
6	7,755	0.18	0	0.00							
7	6,743	0.15	0	0.00							
8	9,493	0.22	2,518	0.06							
9	4,463	0.10	1,707	0.04							
10	5,851	0.13	3,327	0.08							
11	6,954	0.16	1,621	0.04							
15	5,765	0.13	5,115	0.12							
16	6,426	0.15	4,387	0.10							
17	8,539	0.20	3,659	0.08							
18	9,309	0.21	2,931	0.07							
19	10,718	0.25	5,659	0.13							
20	10,113	0.23	10,113	0.23							

ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)										
NEW PARCEL NUMBER	PARCEL TOTALS		ALT 2 (RW and PDE)		ALT 2 (TCE)		ALT 2 (TSRE)			
	AREA	AREA	SF	AC	SF	AC	SF	AC	SF	AC
	SF	AC								
21	10,155	0.23	5,033	0.12						
22	10,116	0.23	2,576	0.06						
23	10,089	0.23	649	0.01						
26	23,705	0.54	3,651	0.08	7,454	0.17				
27	72,174	1.66	18,888	0.43	0	0.00	8,580	0.20		
28	387,704	8.90	73,013	1.68						
29	1,854,160	42.57	345,357	7.93	1,960	0.04				
31	169,965	3.90	2,224	0.05	8,883	0.20				
33	5,117,506	117.48	270,064	6.20	24,959	0.57				
34	6,116	0.14	2,971	0.07	225	0.01				
35	1,501,450	34.47	328,361	7.54	38,616	0.89				
37	925,264	21.24	461,584	10.60						
39	1,365,742	31.35	173,125	3.97	7,231	0.17				
40	2,735,980	62.81	525,597	12.07						

ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)										
NEW PARCEL NUMBER	PARCEL TOTALS		ALT 2 (RW and PDE)			ALT 2 (TCE)		ALT 2 (TSRE)		
	AREA	AREA	SF	AC	SF	AC	SF	AC		
	SF	AC								
41	2,495,184	57.28	615,245	14.12	21,493	0.49				
42	2,500,530	57.40	580,269	13.32	20,243	0.46				
43	65,979	1.51	32,206	0.74						
44	20,170	0.46	10,067	0.23						
45	8,814	0.20	4,498	0.10						
46	1,872,329	42.98	299,951	6.89	9,380	0.22				
47	503,790	11.57	334,830	7.69	22,343	0.51				
48	52,136	1.20	25,572	0.59						
49	1,650,155	37.88	275,326	6.32						
50	2,494,639	57.27	225,636	5.18						
51	135,563	3.11	61,587	1.41						
52	184,840	4.24	56,562	1.30						
53	361,396	8.30	185,919	4.27	14,523	0.33				
54	8,505,813	195.27	1,256,024	28.83						
55	6,854,470	157.36	363,517	8.35	7,936	0.18				
56	558,344	12.82	63,355	1.45	5,991	0.14				
57	1,037,983	23.83	122,596	2.81						
58	778,017	17.86	72,822	1.67						
59	545,942	12.53	57,902	1.33						
60	1,600,939	36.75	173,424	3.98						

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND  
TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)**

NEW PARCEL NUMBER	PARCEL TOTALS		ALT 2 (RW and PDE)		ALT 2 (TCE)		ALT 2 (TSRE)	
	AREA	AREA	SF	AC	SF	AC	SF	AC
	SF	AC	SF	AC	SF	AC	SF	AC
61	1,545,912	35.49	235,926	5.42	18,250	0.42		
62	1,205,988	27.69	156,163	3.58	4,954	0.11		
67	141,883	3.26	3,197	0.07				
68	176,345	4.05	29,853	0.69	15,550	0.36		
69	5,407,790	124.15	1,759,971	40.40				
78	31,108	0.71	31,108	0.71				
80	363,758	8.35	141,050	3.24				
81	824,399	18.93	152,998	3.51				
82	1,013,765	23.27	323,582	7.43	11,709	0.27		
83	1,146,201	26.31	478,194	10.98				
85	69,061	1.59	47,514	1.09				
86	28,862	0.66	2,424	0.06				
88	108,338	2.49	16,478	0.38	32,397	0.74		
89	971,619	22.31	233,462	5.36				
90	228,503	5.25	206,929	4.75	846	0.02		
91	75,689	1.74	75,689	1.74				
92	91,844	2.11	46,588	1.07				
93	30,062	0.69	27,602	0.63				
94	18,578	0.43	18,578	0.43				
95	1,659,828	38.10	699,593	16.06				
96	1,403,389	32.22	671,536	15.42				
98	23,582	0.54	23,582	0.54				
99	28,830	0.66	28,830	0.66				
102	18,618	0.43	0	0.00	1,838	0.04		
103	11,710	0.27	0	0.00	0	0.00		
<b>TOTAL</b>	64,692,350	1,485	12,700,943	292	276,781	6	8,580	0

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND  
TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)**

NEW PARCEL NUMBER	PARCEL TOTALS		ALT 3 (RW and PDE)		ALT 3 (TCE)		ALT 3 (TSRE)	
	AREA		AREA		SF	AC	SF	AC
	SF	AC	SF	AC				
1	4,709	0.11	0	0.00				
2	4,562	0.10	0	0.00				
3	1,435	0.03	0	0.00				
4	12,907	0.30	424	0.01				
5	1,533,818	35.21	185,015	4.25				
6	7,766	0.18	0	0.00				
7	6,713	0.15	0	0.00				
8	9,493	0.22	2,518	0.06				
9	4,463	0.10	1,707	0.04				
10	5,851	0.13	3,326	0.08				
11	6,954	0.16	2,009	0.05				
15	5,765	0.13	5,765	0.13				
16	6,426	0.15	6,426	0.15				
17	8,539	0.20	5,888	0.14				
18	9,309	0.21	1,874	0.04				
19	10,718	0.25	10,718	0.25				
20	10,113	0.23	10,113	0.23				

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND  
TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)**

NEW PARCEL NUMBER	PARCEL TOTALS		ALT 3 (RW and PDE)		ALT 3 (TCE)		ALT 3 (TSRE)	
	AREA		SF	AC	SF	AC	SF	AC
	SF	AC						
21	10,155	0.23	10,155	0.23				
22	10,116	0.23	7,540	0.17				
23	10,089	0.23	855	0.02				
26	23,705	0.54	1,698	0.04	0	0.00		
27	72,174	1.66	16,519	0.38	0	0.00	0	0.00
28	387,704	8.90	62,728	1.44				
29	1,854,160	42.57	336,652	7.73	1,959	0.04		
31	169,965	3.90	0	0.00	8,883	0.20		
33	5,117,506	117.48	311,695	7.16	21,623	0.50		
34	6,116	0.14	0	0.00	0	0.00		
35	1,501,450	34.47	330,116	7.58	32,563	0.75		
37	925,264	21.24	491,167	11.28				
39	1,365,742	31.35	237,107	5.44	0	0.00		
40	2,735,980	62.81	501,715	11.52	7,971	0.18		

ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)										
NEW PARCEL NUMBER	PARCEL TOTALS		ALT 3 (RW and PDE)		ALT 3 (TCE)		ALT 3 (TSRE)			
	AREA SF	AREA AC	SF	AC	SF	AC	SF	AC	SF	AC
41	2,495,184	57.28	494,298	11.35	5,297	0.12				
42	2,500,530	57.40	249,693	5.73	8,506	0.20				
43	65,979	1.51	59,002	1.35						
44	20,170	0.46	19,472	0.45						
45	8,814	0.20	8,629	0.20						
46	1,872,329	42.98	135,102	3.10	0	0.00				
47	503,790	11.57	161,642	3.71	0	0.00				
48	52,136	1.20	30,768	0.71						
49	1,650,155	37.88	130,201	2.99						
50	2,494,639	57.27	108,487	2.49						
51	135,563	3.11	27,920	0.64						
52	184,840	4.24	28,201	0.65						
53	361,396	8.30	117,033	2.69	0	0.00				
54	8,505,813	195.27	940,092	21.58						
55	6,854,470	157.36	447,665	10.28	0	0.00				
56	558,344	12.82	82,747	1.90	0	0.00				
57	1,037,983	23.83	170,880	3.92						
58	778,017	17.86	99,211	2.28						
59	545,942	12.53	72,898	1.67						
60	1,600,939	36.75	206,041	4.73						



**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND  
TEMPORARY STRUCTURE REMOVAL EASEMENTS (TSRE)**

NEW PARCEL NUMBER	PARCEL TOTALS		ALT 3 (RW and PDE)		ALT 3 (TCE)		ALT 3 (TSRE)	
	AREA		SF	AC	SF	AC	SF	AC
	SF	AC						
61	1,545,912	35.49	376,790	8.65	2,965	0.07		
62	1,205,988	27.69	194,495	4.46	3,842	0.09		
67	141,883	3.26	0	0.00				
68	176,345	4.05	0	0.00	0	0.00		
69	5,407,790	124.15	1,518,408	34.86	12,344			
78	31,108	0.71	0	0.00				
80	363,758	8.35	145,525	3.34				
81	824,399	18.93	110,708	2.54				
82	1,013,765	23.27	236,368	5.43	8,864	0.20		
83	1,146,201	26.31	323,245	7.42				
85	69,061	1.59	69,061	1.59				
86	28,862	0.66	28,862	0.66				
88	108,338	2.49	410,400	9.42	17,716	0.41		
89	971,619	22.31	211,275	4.85				
90	228,503	5.25	211,535	4.86	0	0.00		
91	75,689	1.74	0	0.00				
92	91,844	2.11	91,844	2.11				
93	30,062	0.69	30,062	0.69				
94	18,578	0.43	18,578	0.43				
95	1,659,828	38.10	837,024	19.22				
96	1,403,389	32.22	1,094,206	25.12				
98	23,582	0.54	23,582	0.54				
99	28,830	0.66	28,830	0.66				
102	18,618	0.43	0	0.00	0	0.00		
103	11,710	0.27	0	0.00	0	0.00		
<b>TOTAL</b>	<b>64,692,350</b>	<b>1,485</b>	<b>12,094,510</b>	<b>278</b>	<b>132,533</b>	<b>3</b>	<b>0</b>	<b>0</b>

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY  
STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS									
	AREA		AREA		ALT 1A (RW and PDE)		ALT 1A (TCE)		ALT 1 (TSRE)	
	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC
<b>1</b>	4,709	0.11	0.00	0.00	0.00					
<b>2</b>	4,743	0.11	0.00	0.00	0.00					
<b>3</b>	1,435	0.03	0.00	0.00	0.00					
<b>4</b>	13,082	0.30	425	0.01	0.01					
<b>5</b>	5,498,770	126.23	152.7	3.50	3.50					
<b>6</b>	<del>3,101</del>	<del>0.07</del>	0.00	0.00	0.00					
<b>7</b>	<del>1,732</del>	<del>0.04</del>	0.00	0.00	0.00					
<b>8</b>	9,493	0.22	4,143	0.10	0.10					
<b>9</b>	4,463	0.10	2,184	0.05	0.05					
<b>10</b>	5,649	0.13	3,636	0.08	0.08					
<b>11</b>	6,945	0.16	2,239	0.05	0.05					
<b>12</b>	2,769	0.06	607	0.01	0.01					
<b>13</b>	12,992	0.30	5001	0.11	0.11					
<b>14</b>	6,129	0.14	5,461	0.13	0.13					
<b>15</b>	5,774	0.13	5,774	0.13	0.13					
<b>16</b>	6,426	0.15	6,426	0.15	0.15					
<b>17</b>	8,545	0.20	5,681	0.13	0.13					
<b>18</b>	9,309	0.21	5,205	0.11	0.11					
<b>19</b>	9,511	0.22	4,553	0.10	0.10					
<b>20</b>	10,113	0.23	5,994	0.14	0.14					
	<b>5,625,690</b>	<b>129.14</b>	<b>210,119</b>	<b>4.8</b>	<b>4.8</b>					

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY  
STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS						ALT 1A (R/W and PDE)			ALT 1A (TCE)		ALT 1A (TSRE)	
	AREA		AREA		AC		SF	AC	SF	AC	SF	AC	
	SF	AC	SF	AC	SF	AC							
<b>21</b>	10,146	0.23	4,776	0.11									
<b>22</b>	10,123	0.23	3,512	0.08									
<b>23</b>	10,089	0.23	53	0.00									
<b>24</b>	40,064	0.23	0.00	0.00									
<b>25</b>	20,653	0.47	0.00	0.00									
<b>26</b>	97,866	2.25	0.00	0.00									
<b>27</b>	71,939	1.65	10,527	0.24									
<b>28</b>	387,226	8.89	53,745	1.23									
<b>29</b>	1,843,354	42.32	364,715	8.37									
<b>30</b>	39,442	0.90	0.00	0.00									
<b>31</b>	138,887	3.19	425	0.01									
<b>32</b>	161,700	3.74	0.00	0.00									
<b>33</b>	5,113,843	117.40	251,402	5.80									
<b>34</b>	6,002	0.14	1,561	0.04									
<b>35</b>	1,500,694	34.45	210,284	4.83									
<b>36</b>	81,221	1.86	11,518	0.26									
<b>37</b>	916,448	21.04	263,041	6.04									
<b>38</b>	40,131	0.92	9,523	0.22									
<b>39</b>	1,336,773	30.69	60,536	1.39									
<b>40</b>	2,644,267	60.70	424,546	9.75									
	<b>14,440,528</b>	<b>331.5</b>	<b>1,670,164</b>	<b>38.3</b>									

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY  
STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS		ALT 1A (R/W and PDE)						ALT 1A (TCE)		ALT 1A (TSRE)	
	AREA	AREA	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC
	SF	AC										
<b>41</b>	2,481,889	56.98			440,250	10.11						
<b>42</b>	3,429,086	78.72			193,200	4.44						
<b>43</b>	66,035	1.52			51,557	1.18						
<b>44</b>	20,216	0.46			20,215	0.46						
<b>45</b>	8,838	0.20			8,837	0.20						
<b>46</b>	2,291,016	52.59			114,691	2.63						
<b>47</b>	924,806	21.23			149,098	3.43						
<b>48</b>	52,136	1.20			30,700	0.71						
<b>49</b>	2,095,470	48.11			141,463	3.25						
<b>50</b>	2,938,006	67.45			122,550	2.81						
<b>51</b>	135,564	3.11			27,775	0.64						
<b>52</b>	184,985	4.25			28,842	0.66						
<b>53</b>	944,413	21.68			107,713	2.47						
<b>54</b>	10,398,684	238.72			749,233	17.20						
<b>55</b>	8,542,531	196.11			278,286	6.34						
<b>56</b>	556,987	12.79			39,314	0.90						
<b>57</b>	1,036,919	23.80			93,818	2.15						
<b>58</b>	780,968	17.93			66,186	1.52						
<b>59</b>	543,174	12.47			53,075	1.22						
<b>60</b>	1,599,113	36.71			154,458	3.54						
	<b>39,030,836</b>	<b>896.03</b>			<b>2,871,261</b>	<b>65.86</b>						

PARCEL NUMBER	PARCEL TOTALS									
	AREA		AREA		ALT 1A (RW and PDE)		ALT 1A (TCE)		ALT 1A (TSRE)	
	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC
61	1,532,888	35.19	144,938	3.28						
62	1,976,887	45.38	150,715	3.46						
63	63,864	1.47	0.00	0.00						
64	60,475	1.39	0.00	0.00						
65	428,379	2.95	0.00	0.00						
66	260,804	5.99	0.00	0.00						
67	441,883	3.26	0.00	0.00						
68	176,345	4.05	0.00	0.00						
69	5,407,808	124.15	1,323,23	30.404						
70	49,426	0.45	0.00	0.00						
71	4,702	0.11	0.00	0.00						
72	9,454	0.22	0.00	0.00						
73	9,702	0.22	0.00	0.00						
74	9,430	0.22	0.00	0.00						
75	44,690	0.34	0.00	0.00						
76	44,584	0.33	0.00	0.00						
77	9,756	0.22	0.00	0.00						
78	52,714	4.24	0.00	0.00						
79	29,558	0.68	0.00	0.00						
80	363,364	8.34	137,608	3.16						
	10,286,704	236.17	1,756,492	51.39						

**ACQUISITION TABLE - INCLUDES TEMPORARY CONSTRUCTION EASEMENTS (TCE) AND TEMPORARY  
STRUCTURE REMOVAL EASEMENTS (TSRE)**

PARCEL NUMBER	PARCEL TOTALS						ALT 1A (RW and PDE)			ALT 1A (TCE)		ALT 1A (TSRE)	
	AREA	AREA	AREA	SF	AC	AC	SF	AC	SF	AC	SF	AC	
	S												
<b>81</b>	824,249	18.92		75,211	1.73								
<b>82</b>	1,014,140	23.28		157,853	3.60								
<b>83</b>	1,146,201	26.31		225,504	5.18								
<b>84</b>	42,449	0.97		1,289	0.03								
<b>85</b>	69,061	1.59		68,931	1.58								
<b>86</b>	28,862	0.66		18,091	0.42								
<b>87</b>	46,528	0.38		0.00	0.00								
<b>88</b>	108,338	2.49		30,243	0.7								
<b>89</b>	971,619	22.31		97,125	2.23								
<b>90</b>	228,503	5.25		149,530	3.43								
<b>91</b>	75,939	1.74		74,789	1.72								
<b>92</b>	91,844	2.11		10,933	0.25								
<b>93</b>	30,062	0.69		24,883	0.57								
<b>94</b>	18,578	0.43		18,421	0.42								
<b>95</b>	4,680,923	38.59		0.00	0.00								
<b>96</b>	1,403,388	32.22		230,372	5.29								
<b>97</b>	0			0.00									
<b>98</b>	23,582	0.54		0.00	0.00								
<b>99</b>	28,830	0.66		0.00	0.00								
<b>100</b>													
<b>101</b>													
<b>102</b>	48,648	0.43		0.00	0.00								
<b>103</b>	44,740	0.27		0.00	0.00								
<b>TOTAL</b>	<b>77,217,181</b>	<b>1,773</b>		<b>7,691,211</b>	<b>177</b>								

# APPENDIX B – PUBLIC INVOLVEMENT SUMMARY

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# Welcome!

## WV 2 Proctor to Kent Informational Workshop Public Meeting State Project: U352-2-11.66 00 Federal Project: NH-0002(528)D



***Thursday, November 2, 2017 / 4:00PM to 7:00PM  
New Martinsville Elementary School,  
20 East Benjamin Drive, New Martinsville, WV 26155***

The West Virginia Division of Highways (WVDOH) is conducting an Informational Public Workshop for the WV 2 Proctor to Kent project. The purpose of this meeting is to answer questions and listen to ideas or concern about the proposed project. This meeting also complies with the public involvement requirements of the *National Environmental Policy Act (NEPA)* and Section 106 of the *National Historic Preservation Act*.





WV-2 Alignment Alternative Evaluation/Cost Matrix From Proctor to Kent

Impact Category	Study Alignment 1			Study Alignment 2			Study Alignment 3		
Engineering									
Prelim. Length of WV-2 Improvements	Miles	5.8	4 (12' Lanes) - 14' Flush Median - 4' Inside Shoulders - 8' Outside Paved Shoulders	5.8	4 (12' Lanes) - 14' Flush Median - 4' Inside Shoulders - 8' Outside Paved Shoulders	5.9	4 (12' Lanes) - 14' Flush Median - 4' Inside Shoulders - 8' Outside Paved Shoulders		
Roadway Configuration (Refer to Attached Drawings)									
Estimated earthwork excavation	cubic yards	2,813,849		4,605,846		6,183,857			
Traffic Operations									
Description of Alternatives		Alternative 1 runs along the foot of the hill. This alternative allows existing WV 2 to remain as a frontage or plant access road, which will allow the plant accesses to be consolidated into a single intersection.		Alternative 2 was developed to maximize the amount of land available for development. The basic configuration is similar to Alternative 1, with adjustments to move the alignment to the east.		Alternative 3 was developed to avoid key properties and gas lines. Alternative 3 includes a higher vertical alignment on the hillside, to the east of Alternatives 1 and 2.			
Human Environment									
Estimated Areas of Impact (total forested)	acres	152.21		273.34		221.57			
Historic Resource Impacts		Mason-Dixon Line Monument is in close proximity to roadway disturb limits. Protective measures may be required.		Mason-Dixon Line Monument is in close proximity to roadway disturb limits. Protective measures may be required.		Mason-Dixon Line Monument is in close proximity to roadway disturb limits. Protective measures may be required.			
Cemetery Impacts		None (A retaining wall may be required during the final design and subsurface investigation phase)		None		None			
Industrial Facilities Impacts (e.g. Chemical Plant)		Impacts to Bayer Corp., PPG and the Natural Gas Processing Facility and gas lines to the facility.		Impacts to Bayer Corp., PPG gas lines to the Natural Gas Processing Facility.		Impacts to Bayer Corp. and PPG.			
Commercial Facilities Impacts (e.g. Businesses)		Impacts to Credit Union. A retaining wall may reduce the impacts to the Credit Union.		Takes Credit Union Building		None			
Residential Displacement (# houses)		3 Residences		4 Residences		4 Residences			
Physical Impacts									
Potential Hazard Waste Site(s)		No impact to known Hazard Waste Site		No impact to known Hazard Waste Site		No impact to known Hazard Waste Site			
Major (Public) Utility Conflicts / Impacts		Impacts to gas pipelines		Impacts to gas pipelines		Potential impacts to electrical tower			
Major (Private) Utility Conflicts / Impacts		Requires Relocation of PPG Brine Well Infrastructure. The brine wells are used to retrieve brine water from the earth as a "raw material" which is then used in chemical production.		Requires Relocation of PPG Brine Well Infrastructure. The brine wells are used to retrieve brine water from the earth as a "raw material" which is then used in chemical production.		Requires Relocation of PPG Brine Well Infrastructure. The brine wells are used to retrieve brine water from the earth as a "raw material" which is then used in chemical production.			
Financial / Costs									
Estimated Construction Costs (Refer to Attached Sheets)		\$60,100,000		\$77,900,000		\$89,300,000			

## Purpose and Need

The WV 2 Proctor to Kent project has the following needs: (1) Improve traffic volume capacity. (2) Enhance safety by eliminating multiple at-grade access points and the traffic conflicts associated with multiple at-grade intersections. (3) Support continued growth and economic development in the project area. Thus, a relocated and widened WV 2 will alleviate traffic, improve regional accessibility and facilitate continued growth and economic development in the project area. Based on these transportation needs, WVDOH developed the following project purpose statement: The purpose of the proposed project is to increase system capacity and enhance safety and facilitate growth in accordance with regional and local land use planning.

## Alternatives

Besides a no-build alternative, WVDOH has developed three alternatives to improve traffic problems on WV 2. Based on these alternatives, WVDOH is currently developing an environmental assessment NEPA document to identify potential impacts of the project. Preliminary engineering studies have been completed and detailed design studies are underway. The alternatives currently developed are discussed briefly below. Differences for each alternative are provided in the previous Alternative/Cost Matrix.

**Alternative 1** runs along the foot of the hill. Alternative 1 allows the existing WV 2 to remain as a frontage or plant access road, which allows the plant accesses to be consolidated into a single intersection. Estimated construction cost is \$60.1 million (excluding utility relocation and right of way acquisition).

**Alternative 2** was developed to maximize the amount of land available for development. The configuration is similar to Alternative 1, with adjustments to move the alignment onto the hillside. Estimated construction cost is \$77.9 million (excluding utility relocation and right of way acquisition).

**Alternative 3** was developed to avoid key properties (e.g., Bayer Heritage Federal Credit Union) and a recently installed natural gas line serving the Sodium Extraction and Fractionation Processing Plant. The configuration includes a higher alignment on the hillside to the east of Alternatives 1 and 2. Estimated construction cost is \$89.3 million (excluding utility relocation and right of way acquisition).

## **Tentative Project Schedule**

<b>Informational Workshop Public Meeting</b>	<b>November 2, 2017</b>
<b>Comments Due</b>	<b>December 4, 2017</b>
<b>Environmental Assessment Approved by FHWA</b>	<b>January 2018</b>
<b>Informal Workshop/Public Hearing</b>	<b>February 2018</b>
<b>Comments Due</b>	<b>March 2018</b>
<b>Final Environmental Clearance</b>	<b>April 2018</b>
<b>GO Bond Construction</b>	<b>April 2020</b>

*Note: Above dates are tentative and subject to change.*

***Comments following tonight's meeting are due on  
December 4, 2017.***

*Comments Accepted via Regular mail by writing to:*

**Mr. RJ Scites, P.E.**

**Director, Engineering Division**

**West Virginia Department of Transportation**

**1334 Smith Street**

**Charleston, WV 25301**

***Thank you for attending our meeting! Your interest in the project is greatly appreciated.***

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

DATE:

**DATE:** Thursday, November 2, 2017  
**LOCATION:** New Martinsville Elementary School  
**SUBJECT:** INFORMATIONAL WORKSHOP PUBLIC MEETING  
**PROJECT:** WV 2 – Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

**COMMENTS DUE BY** Monday, December 4, 2017

Please consider the following comments:

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(Please print the following information)

NAME:

ADDRESS:

ORGANIZATION (IF ANY):

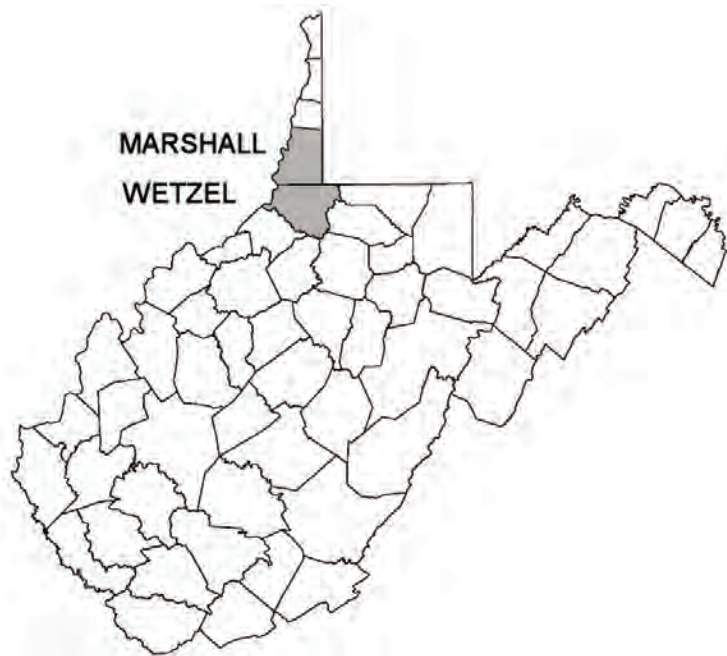
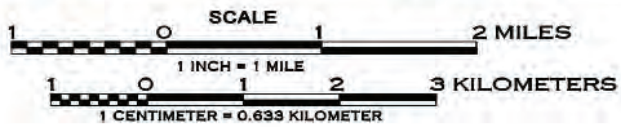
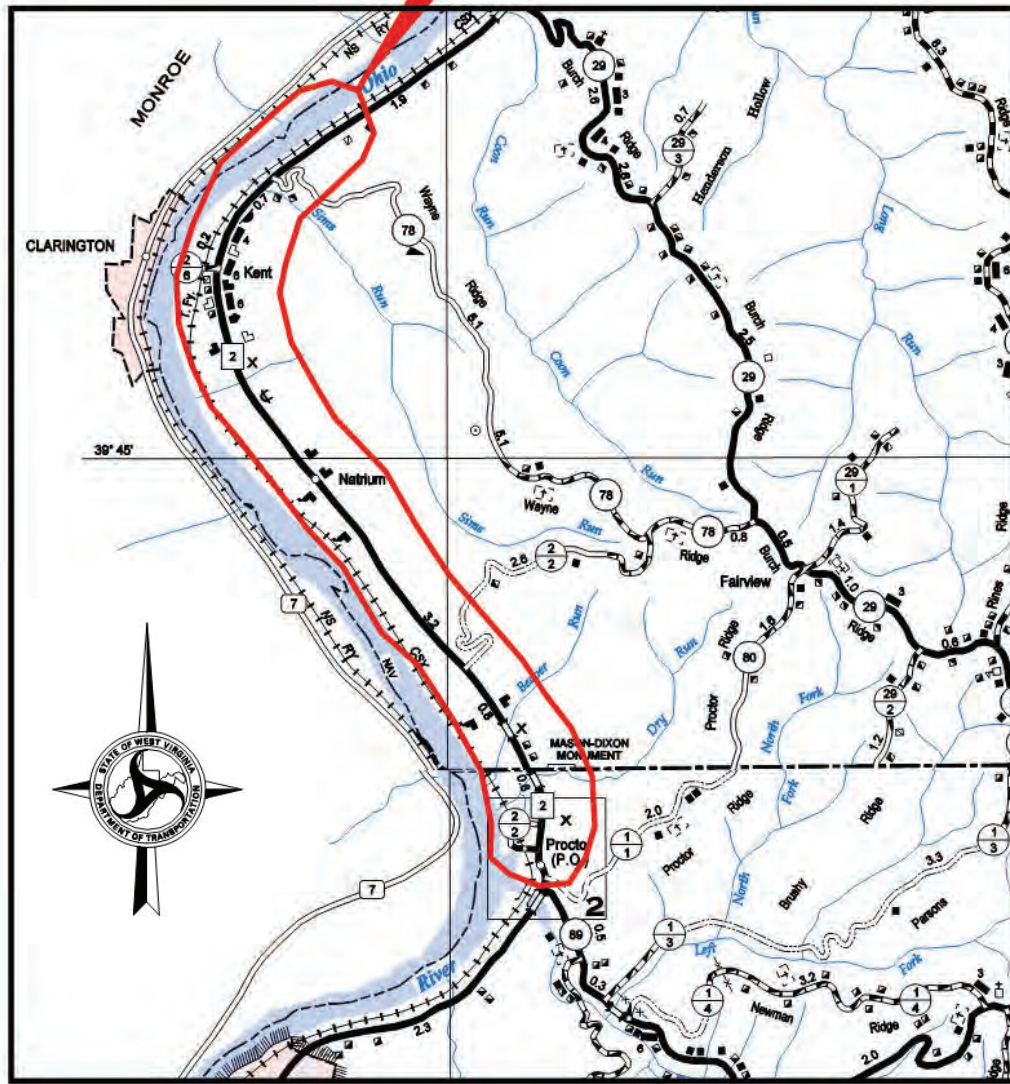
How did you hear about the Informational Workshop Public Meeting?

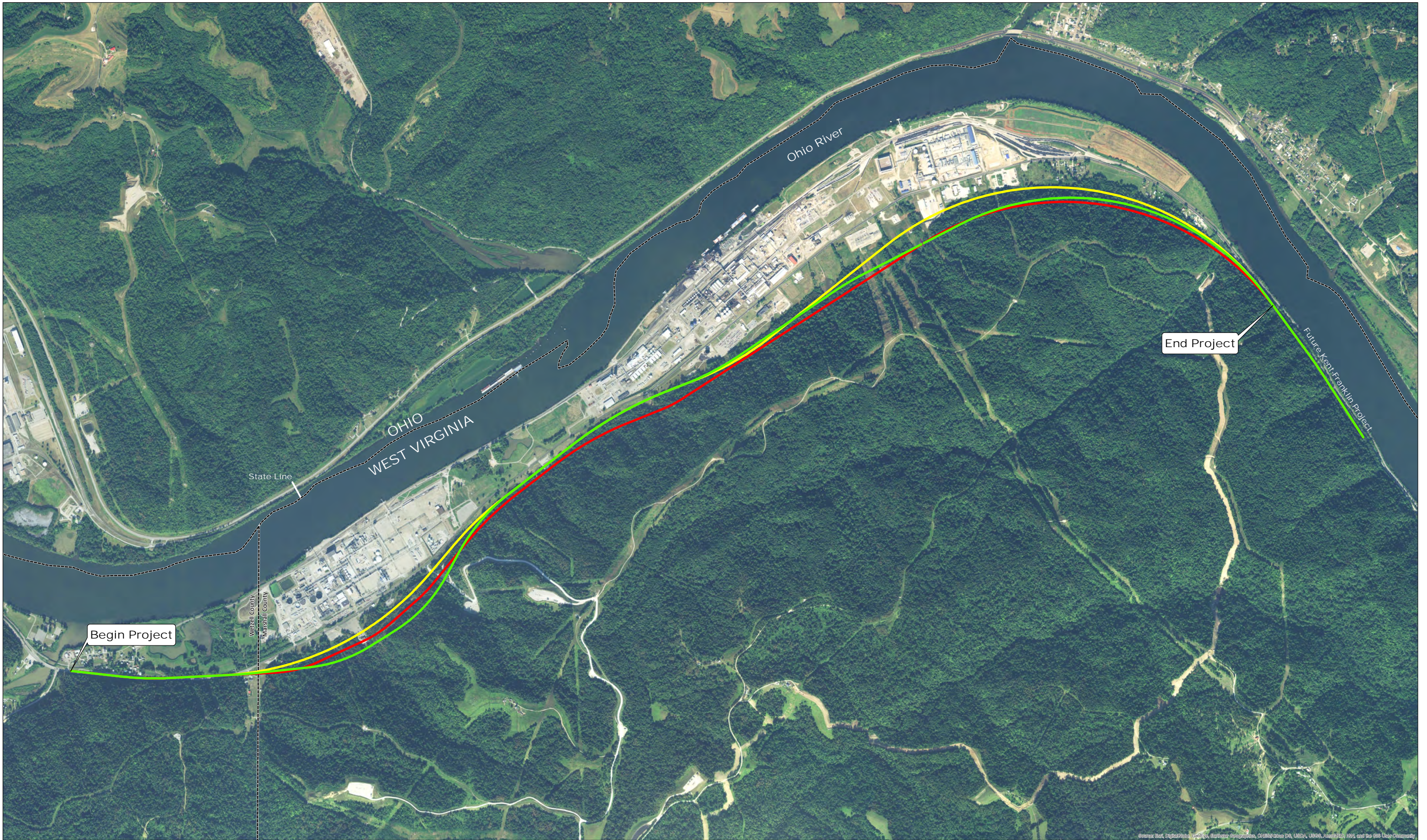
Project Information and Comment Sheets

Can be found online at our WVDOH Website at <http://go.wv.gov/dotcomment>.

Under Engineering Projects, Open, and then click WV 2 – Proctor to Kent

# PROJECT LOCATION



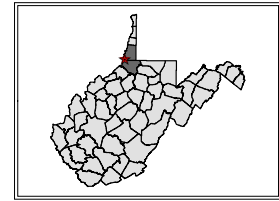
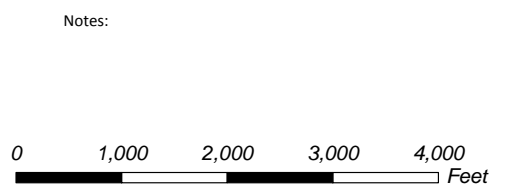


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



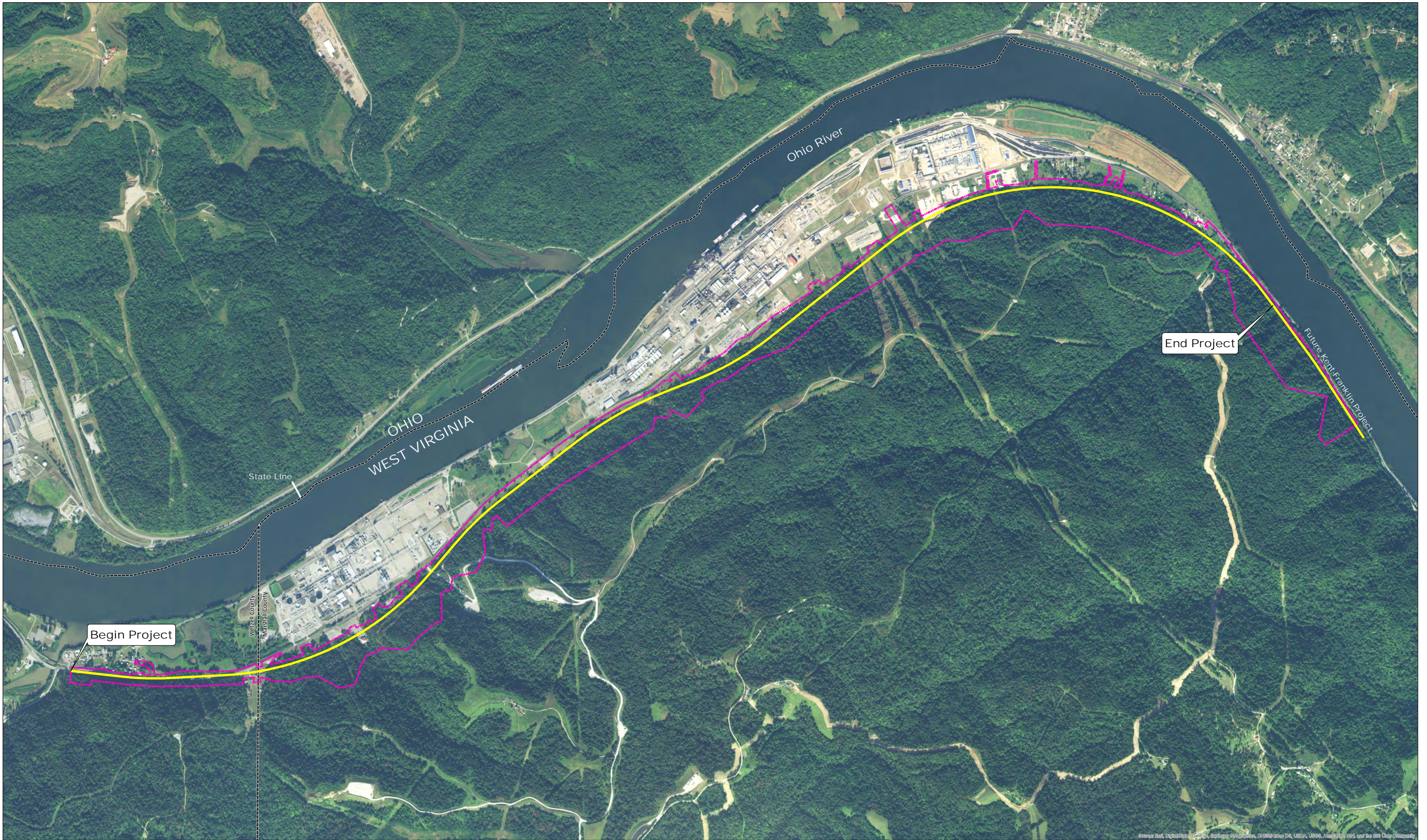
**Legend**  
**WV2 Alignment Alts**  
**Alignment**  
 1  
 2  
 3

**WV 2 Design Study Alignments**

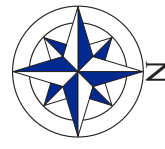


WV 2 Alignments  
 Alt 1, Alt 2 and Alt 3





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**Legend**

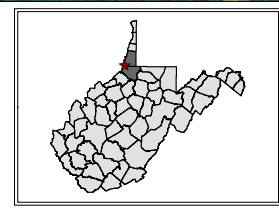
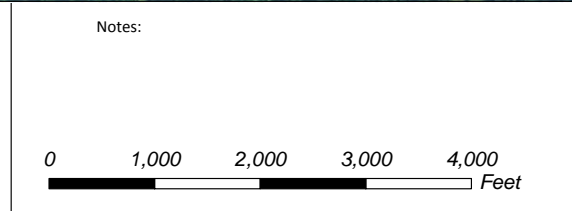
**WV2 Alignment Alts**

**Alignment**


— 1

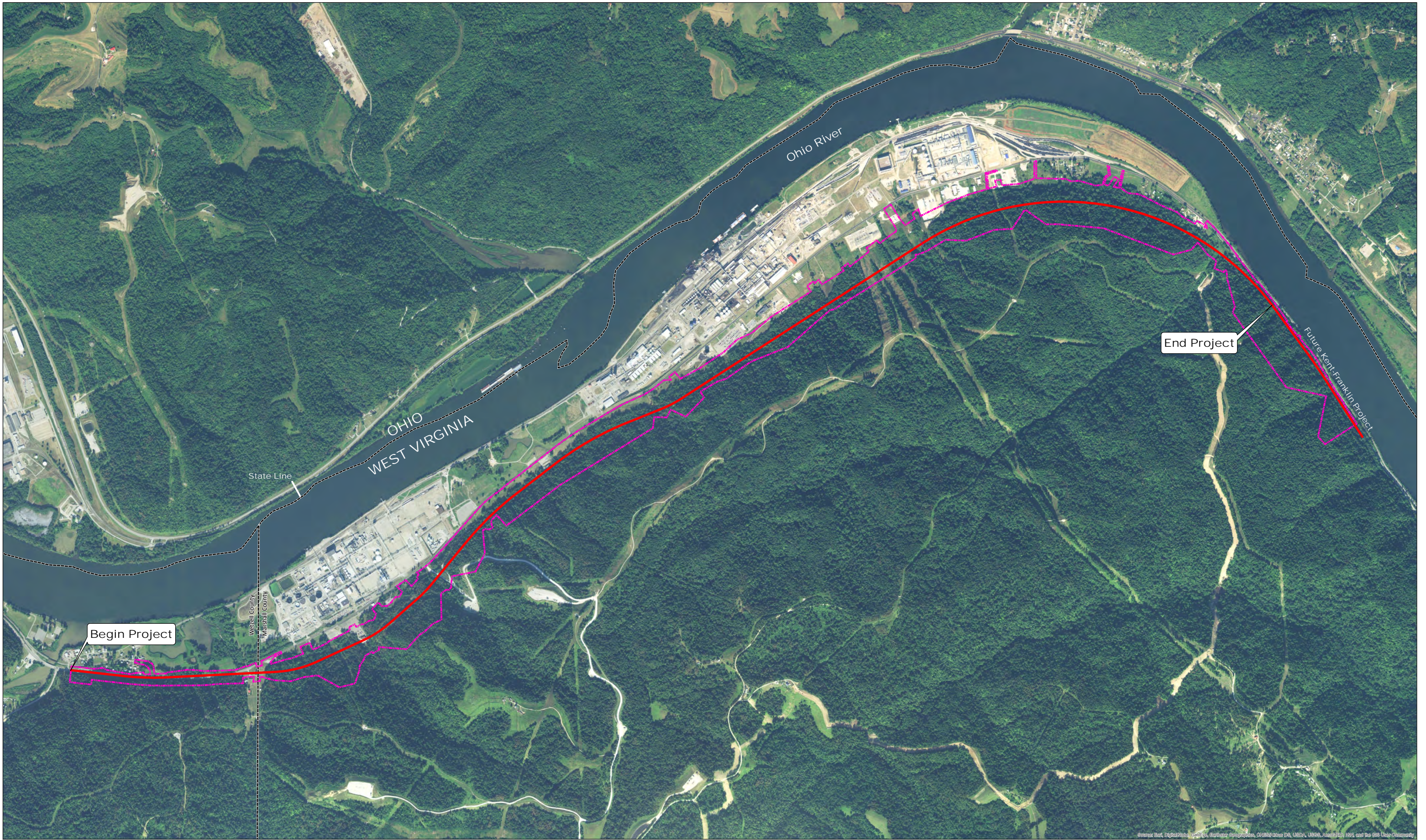
    Construction Area

## WV 2 Design Study Alignment 1



WV 2 Alignments  
Alt 1





Begin Project

State Line

OHIO  
WEST VIRGINIA

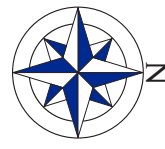
Wezell County  
Marshall County

Ohio River

End Project

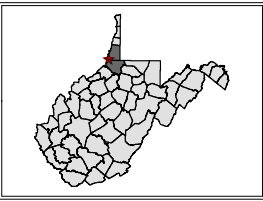
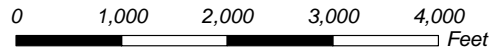
Future Kent-Franklin project

**Legend**  
**WV2 Alignment Alts**  
**Alignment**  
 2  
 Construction Area



**WV 2 Design Study  
 Alignment 2**

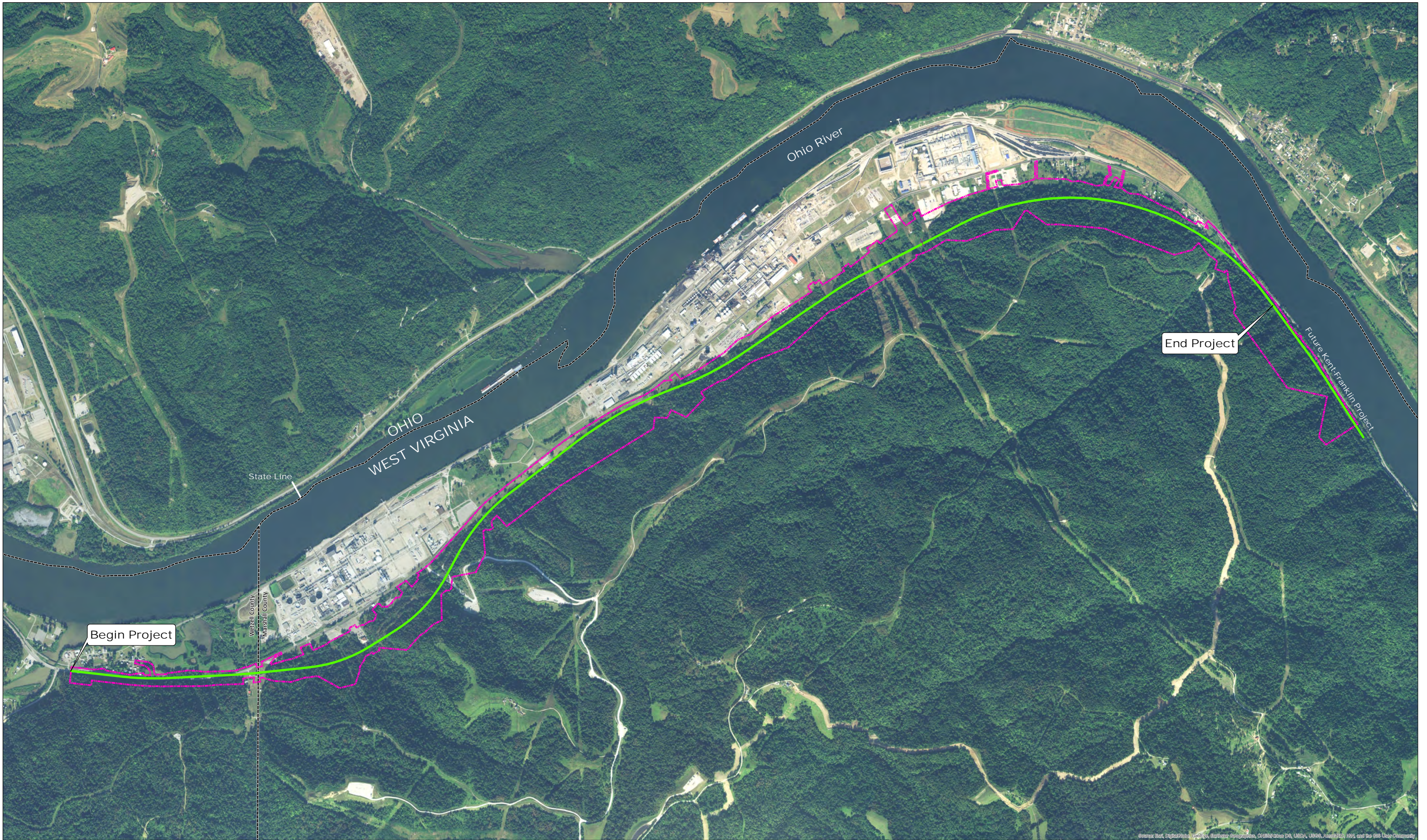
Notes:



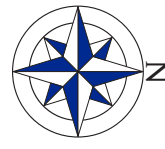
WV 2 Alignments  
 Alt 2





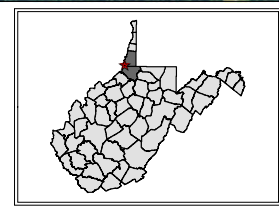
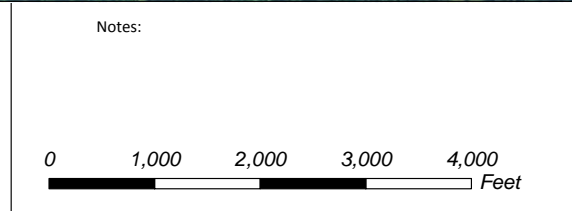


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**  
**WV2 Alignment Alts**  
**Alignment**  
 3  
**Construction Area**

### WV 2 Design Study Alignment 3



WV 2 Alignments  
Alt 3



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

INFORMATIONAL WORKSHOP PUBLIC MEETING  
ATTENDANCE SHEET

PROJECT: WV 2 – Proctor to Kent  
State Project: U352-2-11.66  
Federal Project: NH-0002(528)D

DATE: Thursday, November 2, 2017

LOCATION: New Martinsville Elementary School  
20 E. Benjamin Drive  
New Martinsville, WV  
Wetzel County

PLEASE PRINT

<u>NAME</u>	<u>ORGANIZATION/ADDRESS/EMAIL</u>
1. Lauren Matthews	Wetzel Chronicle
2. JOE WARD	
3. John Hopkins	huppy1937@gmail.com RT2/I68
4. MICHAEL ARICK	17954 Energy RD PROCTOR WV 26055
5. MARK WOODYEAR	WESTLAKE CHEMICAL
6. Don Morris	doglmorris@yahoo.com
7. CARL MACE	carlomace4444@yahoo.com
8. Don Shenefiel	RT2 & I68 Authority
9. Eric Peters	WV RT. 2 / I. 68 Authority
10. LOGAN HASSIE	
11. Ann Obilut	
12. Christy McDowell	451 Sun Lane, New Martinsville
13. FRED BRUNNER	RT2/I68 AUTHORITY
14. MIKE PRICE	McKinley Assoc

NAME

ORGANIZATION/ADDRESS/EMAIL

- 15. Christina Schessler      McKinley & Assoc.
- 16. CHARLES RACER      BAYER HFCU
- 17. Wayne Weber      " " " "
- 18. Chris West      Lochner
- 19. Steve Anton      Thistledeew Farm
- 20. Robert Burrow      Bayer HFCU
- 21. Ron Rush      BAYER HERITAGE CREDIT UNION
- 22. Iris R. Isaacs      6<sup>th</sup> Ward Council
- 23. James Isaacs      NewMan
- 24. Sonya D. Hollis      Wetzel County Schools
- 25. ~~Adam Roberts~~
- 26. EVIN R. MATHIAS
- 27. Paul S. Clements
- 28. Don Aeeick      @ dfarrick@yahoo.com
- 29. Jenni Rotlisberger
- 30. Rob Rotlisberger      robrotlisberger@yahoo.com
- 30. Bob & MDej (-304-242-3910)      bob.miller.jr@frontier.com
- 32. \_\_\_\_\_
- 33. \_\_\_\_\_
- 34. \_\_\_\_\_
- 35. \_\_\_\_\_
- 36. \_\_\_\_\_
- 37. \_\_\_\_\_
- 38. \_\_\_\_\_

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

DATE:

DATE: Thursday, November 2, 2017  
LOCATION: New Martinsville Elementary School  
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING  
PROJECT: WV 2 - Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

MR. RJ SCITES, P.E.)

THANK YOU FOR HAVING THIS INFORMATIONAL WORKSHOP THIS EVENING.

THE DIFFERENT AREAS OF THIS PROJECT INCLUDING WV DOT EMPLOYEES, MEMBERS OF THE DESIGN GROUP, etc. WERE VERY RECEPTIVE TO MY MANY QUESTIONS AND ANSWERS ALL TO MY COMPLETE SATISFACTION. PLEASE FEEL FREE

TO CONTACT ME (304-242-3910 HOME OFFICE / or at bob.miller.jr@frontier.com

IF I MAY BE OF ANY HELP MOVING THIS PROJECT TO COMPLETION.

BEST REGARDS  
Bob Miller Jr

11-2-2017

(Please print the following information)

NAME: BOB A. MILLER, JR.

ADDRESS: 207 MARWIN DRIVE / WHEELING, WV 26003-9623

ORGANIZATION (IF ANY): MARSHALL COUNTY COMMISSIONER [PRESIDENT]

How did you hear about the Informational Workshop Public Meeting?

WV DOT NOTIFIED THE MARSHALL COUNTY COMMISSIONER OFFICE THANK YOU

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 WV 2 - Proctor to Kent

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

DATE:

DATE: Thursday, November 2, 2017  
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PROJECT: WV 2 – Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

I AM IN FAVOR OF THIS PROJECT.

~~WV 2~~

would prefer Alt 1 or 2

(Please print the following information)

NAME: CHARLES RACER

ADDRESS: 121 WASHINGTON ST. PADERO CITY WV 26159

ORGANIZATION (IF ANY): BAYER HERITAGE FEDERAL CREDIT UNION

How did you hear about the Informational Workshop Public Meeting?

CHARLES CLEMENTS

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 WV 2 – Proctor to Kent

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

DATE:

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PROJECT: WV 2 - Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

Missing two houses on the maps

- Arrick house north of two story house (Don Bern) (Marshall County)
- Richmond house behind the Rothkisberger house  
(map shows a garage)
- Better advertisement of future meetings
- Drawings need updated missing items

(Please print the following information)

NAME: Don Arrick

ADDRESS: 62 Helen St. New Martinsville, WV 26155 - very close to Mason Dixon line

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

TV

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 WV 2 - Proctor to Kent

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

DATE:

DATE: Thursday, November 2, 2017  
LOCATION: New Martinsville Elementary School  
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PROJECT: WV 2 – Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

We would like as much  
notice as possible to plan  
our facility ~~at~~ "adjustment".  
Alternative ~~1~~<sup>1022</sup> would be our preference.

(Please print the following information)

NAME: Robert Surran, CEO Bayer HFCU  
ADDRESS: 17612 Energy Rd, Proctor, WV 26050  
ORGANIZATION (IF ANY): Bayer HFCU  
How did you hear about the Informational Workshop Public Meeting? Charles Clemens

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 WV 2 – Proctor to Kent

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

DATE:

DATE: Thursday, November 2, 2017  
LOCATION: New Martinsville Elementary School  
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING  
PROJECT: WV 2 – Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

I support the extension of the four lane from Proctor to Kent. This will help develop the plants and hopefully encourage expansions and possibly new plants. Even though I am older I am hopeful for improvement in jobs for my home town.

(Please print the following information)

NAME: IRIS R. ISAACS

ADDRESS: 1279 North State Rt 2, New Martinsville, WV 26155

ORGANIZATION (IF ANY): 6<sup>th</sup> Ward Council, New Martinsville

How did you hear about the Informational Workshop Public Meeting?

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 WV 2 – Proctor to Kent



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

DATE: 11-2-17

DATE: Thursday, November 2, 2017  
LOCATION: New Martinsville Elementary School  
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING  
PROJECT: WV 2 – Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

I SUPPORT ALTERNATIVE 1 OR 2

(Please print the following information)

NAME: Ron Rush

ADDRESS: 2163 Dry Run Rd  
Martinsville, WV 26175

ORGANIZATION (IF ANY): BAYER HERITAGE CREDITS Union

How did you hear about the Informational Workshop Public Meeting?

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 WV 2 – Proctor to Kent

_Title	
FirstName	Brian
LastName	Powell
Organization	
Email	<a href="mailto:bpowell@bitmapped.net">bpowell@bitmapped.net</a>
MailingAddress	3292 University Ave Apt 603
City	Morgantown
State	WV
ZipCode	26505
Comments	<p>I support Alignment 1. It's the lowest cost and has the least number of impacts. Aside from their highest initial cost, I'm concerned that the additional earthwork required for Alignments 2 and 3 may make them more likely to have issues with slippage which would require future additional work.</p> <p>DOH's job is to provide an efficient transportation network, not to produce developable land. I'd much rather see money saved on this project and used to pay for more improvements elsewhere than on producing more developable land that might some day benefit a private company.</p>
CommentType	Online

Created at 11/3/2017 11:54 AM by

Last modified at 11/3/2017 11:54 AM by

_Title	
FirstName	Bruce
LastName	Sivert
Organization	
Email	
MailingAddress	6 Holland Lane
City	New Martinsville
State	WV
ZipCode	26155
Comments	Wow, Wetzel County is going to get a 4 Lane from Proctor to the Marshall County line. A distance of about a 1000 feet, but you have to drive on a cow path to get to it. I voted against the stupid road bond, because I knew that Wetzel and Tyler Counties would get the shaft when it came to any road improvement projects. I guess we don't pay any taxes on fuel. This is why I buy in Ohio, and have done so for years. You get tired of calling the DOH in New Martinsville, and hear the same answer today as you heard years ago-we don't have any money. But, my taxes pay for a vehicle to drive back and forth to work everyday. Look at route 2 through New Martinsville and south to Friendly in Tyler County. Your 4 Lane will do absolutely no good for Wetzel or Tyler County. Drove Route 2 to the Mitchell Plant for almost 40 years. Since Wetzel and Tyler County never receive much highway funding, very little road maintenance is being done. My neighbor mowed the weeds on Dutch Run. It's sad. This is why I cross the bridge to route7 to go north or south. By the time a four Lane gets built through Wetzel and Tyler Counties-automobiles will be extinct.
CommentType	Online

Created at 11/8/2017 11:10 PM by  
Last modified at 11/8/2017 11:10 PM by

_Title	
FirstName	Robert
LastName	Rothlisberger
Organization	
Email	<a href="mailto:robrothlisberger@yahoo.com">robrothlisberger@yahoo.com</a>
MailingAddress	10 Neubauer Drive
City	New Martinsville
State	WV
ZipCode	26155
Comments	<p>I do not feel moving the southern segment (Dry Run/Mason Dixon line area) of the WV2-Proctor to Kent proposed road farther west by approximately 30 yds would cause any major engineering problems Or negatively impact industrial development in the area.</p> <p>If the plans of the proposed road segment were to be move west, the three houses at Dry Run would not be lost via imminent domain.</p> <p>Respectfully submitted, Rob Rothlisberger</p>
CommentType	Online

Created at 12/3/2017 1:12 PM by

Last modified at 12/3/2017 1:12 PM by

_Title	
FirstName	Steve
LastName	Conlon
Organization	Mtn Craft Shop Co.,Thistledew Farm Inc
Email	
MailingAddress	7901 Proctor Creek Rd
City	Proctor
State	WV
ZipCode	
Comments	<p>I have paid attention to the actions of the Rt2/68 committee since 1980                      i have been active in the road situation in Wetzel/Marshall since the gas guys arrived in 2007                      I talk to people continually about roads since everyone has an opinion.                      I ask locals and my customers, "do you have any trouble getting from Proctor to Kent?". As of today, no one has said "yes".                      I attended the meeting at New Martinsville where Gus Suwaid encouraged people to embrace the Proctor/Kent Project. I found it interesting that an engineer would get political. When an engineer looks at the ADT of around 6000/day and looks at that nice solid existing road and compares that to Alternatives1-3, i think he or she would conclude that spending \$60-80, having to use some eminent domain, perching the new road against or on the hillside and consuming 200 acres just doesn't make sense.                      We can very inexpensively improve this section of Rt2. Turning lanes, jersey barriers in center, light change indicators. This project appears to be a huge Christmas present for the corporations impacted. The case can't be made that this project increases areas for development when the project consumes 200 acres and is paid for by taxpayers who are borrowing money to do it. We end up with a road which will require more maintence than our existing roads. Wetzel County residents have many Rt2 concerns. Proctor to Kent ain't one of them.                      I haven't even touched on the carbon footprint of making this change.....                      Thank you.</p> <p>PS For the past five years i have begged my legislators to raise fuel taxes,fees etc so we could avoid the DOH situation we are in today.</p>
CommentType	Online

Created at 12/4/2017 10:55 AM by  
 Last modified at 12/4/2017 10:55 AM by

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

DATE: 11/20/17

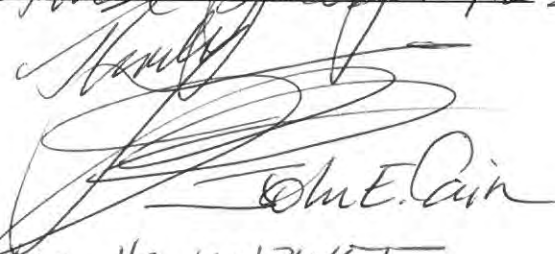
RECEIVED  
NOV 27 2017  
ENGINEERING  
DIVISION

DATE: Thursday, November 2, 2017  
LOCATION: New Martinsville Elementary School  
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING  
PROJECT: WV 2 - Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

Please re consider proposed road alignments of Proctor - Kent so as not to affect the residences at the Mustard - noted county line. It is possible to move proposed alignments west so as not to affect these properties.



(Please print the following information)

NAME: JOHN E. CAIN

ADDRESS: 220 E. Thistle Ct. New Martinsville, WV 26155

ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

- we did not, due to limited amount of homes affected,

Project Information and Comment Sheets

Can be found online at our WVDOH Website at <http://go.wv.gov/dotcomment>.

Residents should have been notified by personal contact, phone contact, or certified mail.  
JEC

John E. Cain  
PO Box 1220  
New Martinsville, WV 26155



Mr. R. J. Scites, P.E.  
Director, Engineering Division  
West Virginia Division of Highways  
1334 Smith St.  
Charleston, WV 25301

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

DATE: 11/25/17



DATE: Thursday, November 2, 2017  
LOCATION: New Martinsville Elementary School  
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING  
PROJECT: WV 2 - Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

I am writing in regards to section at Dry Run by Mason Dixon marker. We were not notified about first meeting. Should have been. We believe there is plenty of land West of our property to relocate a fence line with out us losing our property. I have lived here for 52 years of sixty years I been alive. My parents are 85 + sixty years back

(Please print the following information)

NAME: Don Cain  
ADDRESS: 27 Dry Run Road  
Proctor WV 26055  
ORGANIZATION (IF ANY):

How did you hear about the Informational Workshop Public Meeting?

Didn't hear about it. Someone should have contacted us about it. (Dist v contact PPG / Bajer Bajer credit Union)

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 WV 2 - Proctor to Kent



and have lived here since 1956. My  
Mom was born in the house 300 yards  
up the Run where there were several  
This property has been in her family  
for her entire life. The Mason/Dixon

Monument used to be located some 100  
to 150 yards from present day location  
(moved around 1934)

The only significance of this monument  
is it can be located on the line  
Mason/Dixon, stopped surveying near

Care wv. They were halted by Indians  
Told if they cross Dunkirk Creek in Monroeville  
County they would be killed. This is the only <sup>MA</sup> PA  
Monument that can't be moved. This monument (at Proctor)

can be located anywhere on that line. The  
Gas House that is located at Dry Run  
has 2" Regulator flat feeds Bayer a  
very small amount of gas. This can be  
moved to the West very easily and not  
much cost. In closing I would like  
to talk to you in person. You

should give the small # of families  
the same amount of gas as credits  
or Union  
Comparisons

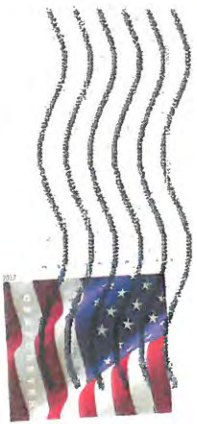
(Don Cain Page 2)  
11/25/17

Donald Cain  
27 Dry Run Road  
Proctor WV 26055

Mr. RT Scites PE  
West Virginia Division of Highways  
1334 Smith Street  
Charleston, West Virginia  
25301

PITTSBURGH PA 150

27 NOV 2017 PM 8 L



25301-143434



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

DATE:



DATE: Thursday, November 2, 2017  
LOCATION: New Martinsville Elementary School  
SUBJECT: INFORMATIONAL WORKSHOP PUBLIC MEETING  
PROJECT: WV 2 - Proctor to Kent  
State Project # U352-2-11.66 00  
Federal Project # NH-0002(528)D

COMMENTS DUE BY Monday, December 4, 2017

Please consider the following comments:

1. Please leave our 3 Houses alone here at Dry Run, go a little to the west, this will by pass us. Our son lives north of us - 29 years - We have been here 61 1/2 years on the south of our house, our nephew. When Paul & I built this house, he was 27 years of age, I was 23 years. Now he is 59 1/2 years & I am 85 years in 6 days - Dec. 2<sup>nd</sup> we are too old to start over, it is nice having family close by, safer today. Thank you

(Please print the following information)

NAME: PAUL AND DON'YA JO CHAIN MR. AND MRS. 61 1/2 years  
ADDRESS: 29 DRY RUN ROAD - PROCTOR, WV 26055  
ORGANIZATION (IF ANY): FAMILY

How did you hear about the Informational Workshop Public Meeting? - We didn't.

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 WV 2 - Proctor to Kent

P.S. We would like to meet with you all. Please let us know.

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

RECEIVED  
 NOV 29 2017  
 ENGINEERING  
 DIVISION

Nov. 26, 2017

### A Little History:

In the early 1930's, my Parents, Robert Ed. Sadie Bohren bought this property from Caroline's oil Company, they had a pump station here. They quit Ed sold it, I guess in the depression, to my parents.

We, Paul & I, were married in April 6<sup>th</sup> 1956. We bought a lot from my parents & built our house we live in now. We improved over the years, built a garage, sun room, and bought more ground as it became available & when we had the money.

We raised three sons now & our oldest son built his home in 1987, & has 3 children also, next door.

As I mentioned before, Paul is 89 & I am, we will be 85 in 6 days, God willing. We will appreciate all you can do for us.

Thank you

Mr. & Mrs. Paul Cain & Family  
 29 Gray Run Road  
 Proctor, WV 26055

Mr. & Mrs. Paul E. Cain  
29 Dry Run Rd.  
Proctor, WV 26055-4278

C

25501-143439

27 NOV 2017 PM 2:1



Mr. R. J. Scites, P. E.  
Director, Engineering Division  
West Virginia Division of Highways  
1334 South Street  
Charleston, West Virginia 25301

25501-143439

## APPENDIX C – NRCS FORM AD 10006

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**FARMLAND CONVERSION IMPACT RATING**

<b>PART I</b> (To be completed by Federal Agency)		Date Of Land Evaluation Request <b>March 29</b>				
Name of Project <b>WV 2 Improvements</b>		Federal Agency Involved <b>USDOT/WVDOH</b>				
Proposed Land Use <b>Transportation</b>		County and State <b>Marshall and Wetzel Counties, WV</b>				
<b>PART II</b> (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		
Major Crop(s)		Farmable Land In Govt. Jurisdiction Acres:            %		Average Farm Size		
Name of Land Evaluation System Used		Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS		
<b>PART III</b> (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>199</b>	<b>211</b>	<b>292</b>	<b>278</b>	
B. Total Acres To Be Converted Indirectly		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
C. Total Acres In Site						
<b>PART IV</b> (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						
<b>PART V</b> (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)						
<b>PART VI</b> (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>		<b>Maximum Points</b>	Site A	Site B	Site C	Site D
1. Area In Non-urban Use		(15)	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
2. Perimeter In Non-urban Use		(10)	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
3. Percent Of Site Being Farmed		(20)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
4. Protection Provided By State and Local Government		(20)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
5. Distance From Urban Built-up Area		(15)	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
6. Distance To Urban Support Services		(15)	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
7. Size Of Present Farm Unit Compared To Average		(10)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
8. Creation Of Non-farmable Farmland		(10)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
9. Availability Of Farm Support Services		(5)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
10. On-Farm Investments		(20)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
11. Effects Of Conversion On Farm Support Services		(10)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
12. Compatibility With Existing Agricultural Use		(10)	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
TOTAL SITE ASSESSMENT POINTS		<b>160</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>PART VII</b> (To be completed by Federal Agency)						
Relative Value Of Farmland (From Part V)		100	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Total Site Assessment (From Part VI above or local site assessment)		160	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>TOTAL POINTS (Total of above 2 lines)</b>		<b>260</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>
Site Selected: <b>Site A</b>		Date Of Selection <b>3/1/18</b>		Was A Local Site Assessment Used?		
				YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Reason For Selection: <b>Site A has the least relocation impacts and has the least impacts to natural resouces, including streams and wetlands.</b>						
Name of Federal agency representative completing this form: <b>CDM Smith</b>					Date: <b>3/29/18</b>	

## 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](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.



# APPENDIX D – CULTURAL RESOURCES

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## CORRESPONDENCE



RECEIVED  
SEP 05 2013  
ENGINEERING DIVISION  
WV DOH

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

EEC/AA Employer

August 29, 2013

Mr. Ben L. Hark  
WVDOH  
1900 Kanawha Blvd., E  
Building Five, Room 110  
Charleston, WV 25305-0430

Re: WV 2 – Proctor to Kent; State Project No. 35 2-2-11.66 00; Federal Project No. NH-0002(528)D  
FR#: 13-879-Multi

Dear Mr. Hark:

We have reviewed the cultural resource survey reports that were submitted for the above mentioned project to determine its effects to cultural resources. 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.

Archaeological Resources:

We have reviewed the report titled Phase I Archaeological Survey of WV-2 Alternate 1, and Alternate 2, from Proctor to Kent, in Marshall and Wetzel Counties, West Virginia. According to the report, the proposed Area of Potential Effect (APE) for direct effect underwent systematic survey, during which four new archaeological sites were identified. However, the report does not present a complete description of the survey results. While a brief section of the report (4.1.4 Field Conditions) provides very general conditions observed in the proposed APE, the report does not include a section that describes observations made in portions of the APE where sites were not documented. Federal and state guidelines indicate that technical reports should contain all results of field investigations, not just the positive results. Descriptions of the soils in non-site areas, the overall number of shovel probes excavated, whether soils were disturbed or intact are important to gaining an overall understanding of an area. Please submit a revised report that includes a section describing the observations made in the portions of the proposed APE where sites were not discovered. We will provide further comment upon receipt of the revised report.

Architectural Resources:

We cannot complete our review with the provided information. While we concur with the majority of the consultant's findings, it is our opinion that the Proctor Landing Light (WZ-0028) may be eligible for inclusion in the National Register of Historic Places as part of a multiple resource listing. According to the 1989 *Ohio River Navigation Light Survey*, there are 65 similar structures along the West Virginia side of the Ohio River that date to as early as 1950. In addition, it is our opinion that the community of Kent (resources MR-0155 through MR-0165) may be eligible for inclusion in the National Register as a rural historic district. Therefore, we request that an assessment of effect be conducted for resource WZ-0028, as well as resources MR-0155 through MR-0165.

Also, we do not concur with the consultant's opinion that resources WZ-0136 and WZ-0140 are not eligible for inclusion in the National Register of Historic Places. It is our opinion that these resources are eligible for inclusion in the National Register as contributing resources to the Baltimore & Ohio Railroad, which is eligible under Criteria A for Transportation. Therefore, we request that an assessment of effect be conducted for these resources, as well.

August 29, 2013  
Mr. Hark  
FR#: 13-879-Multi  
Page 2

In addition, we concur with the consultant's opinion that resources WZ-0007, MR-0037-0109, MR-0058, and MR-0144 are eligible for inclusion in the National Register of Historic Places. However, it is our opinion that the structures and outbuildings associated with resource MR-0144 (the secondary barn/wagon shed, silo, bridge, and culvert system) may also be eligible for inclusion in the National Register as part of a historic farmstead. We also concur with the consultant's opinion that the proposed project is unlikely to introduce any new visual elements that would diminish the qualities that make resources WZ-0007, MR-0037-0109, MR-0058, and MR-0144 significant and/or eligible for inclusion in the National Register. However, any direct impact to these resources should be avoided. Please indicate *in writing* whether the proposed project will have a direct impact on any of these resources, including the structures and outbuildings associated with resource MR-0144.

For future projects of this scale, please include a large foldout map depicting all resources and where they are in relation to one another. In addition, many of the Historic Property Inventory (HPI) forms are marked as having no additions and/or alterations, while the photographs and written descriptions clearly indicate otherwise. In the future, please ensure that the HPI forms are marked appropriately and that any additions and/or alterations (including vinyl siding and replacement windows) are described in the correct section. Also, large rural properties with multiple resources and outbuildings (i.e., MR-0162) are potential historic farmsteads, and it is imperative that the total number of acres is recorded. In the future, please be sure to include the total number of acres for such properties in the appropriate section of the HPI form.

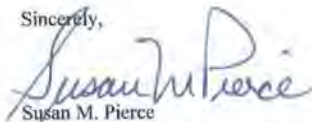
We will provide further comments upon receipt of the requested information.

Public Comments

In addition, 36 CFR 800.2(d)(1), 800.2(d)(2), 800.3(e), 800.6(a)(4) all stress the importance of public comment during the Section 106 review process. If you have already completed this aspect of the requirements under Section 106, please provide written documentation of that along with any comments you have received.

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, or Michael Kyne, Structural Historian, at (304) 558-0240.*

Sincerely,



Susan M. Pierce  
Deputy State Historic Preservation Officer

SMP/LAL/MLK



**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

February 4, 2014

Mr. Ben L. Hark  
WVDOH  
1900 Kanawha Blvd., E  
Building Five, Room 110  
Charleston, WV 25305-0430

Re: WV 2 – Proctor to Kent; State Project No. U32-2-11.66 00;  
Federal Project No. NH-0002(528)D  
FR#: 13-879-Multi-1

Dear Mr. Hark:

We have reviewed the revised Phase I archaeological survey report that was submitted for the above mentioned project to determine its effects to cultural resources. 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.

Archaeological Resources:

Thank you for submitting the revised report, which now satisfactorily documents the Phase I survey conducted for the above referenced project. The report states that four new archaeological sites, 46MR193, 46MR194, 46MR195 and 46MR197, were documented during the course of the field work. Sites 46MR193 and 46MR197 consist of historic period artifact scatters associated with extant farmsteads. Site 46MR194 is a multicomponent site of historic period artifacts intermixed with those dating to the prehistoric period associated with the foundation remains of a homestead or outbuilding. Site 46MR195 is a low density scatter of historic period artifacts lacking any apparent structural association. The historic period artifacts suggest that occupations date from the late 19<sup>th</sup> through mid-20<sup>th</sup> centuries. However, the lack of diagnostic artifacts limits the ability to associate material remains with a more specific time period. The prehistoric component at 46MR194 also lacks diagnostic artifacts. In addition, none of the sites produced evidence suggesting the presence of subsurface features. As well, they all show evidence of previous disturbance and lack integrity. As a result, we concur that sites 46MR193, 46MR194, 46MR195 and 46MR197 are not eligible for inclusion in the National Register of Historic Places. We also concur that no further archaeological work is necessary for the currently proposed project.

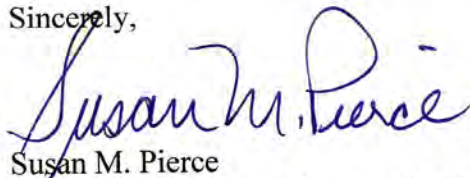
February 4, 2014  
Mr. Hark  
FR#: 13-879-Multi-1  
Page 2

Architectural Resources:

In our previous correspondence dated August 29, 2013, we requested that an assessment of effect be conducted for resources WZ-0028, WZ-0136, and WZ-0140. We also requested that an assessment of effect be conducted for resources MR-0155 through MR-0165, which may be eligible for inclusion in the National Register of Historic Places as a historic district. In addition, we requested a written statement indicating whether the proposed project will have a direct impact on any of the resources associated with MR-0144 (the secondary barn/wagon shed, silo, bridge, and culvert system). At this time, we reiterate our request for the aforementioned information. Please see our previous correspondence for additional details. We will provide further comment upon receipt of the requested information.

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, or Michael Kyne, Structural Historian, at (304) 558-0240.*

Sincerely,



Susan M. Pierce  
Deputy State Historic Preservation Officer

SMP/LLD/MLK



**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

RECEIVED  
FEB 23 2015  
ENGINEERING  
DIVISION

Mr. Ben L. Hark  
WV Division of Highways, Engineering Division  
1334 Smith Street  
Charleston, WV 25301

Re: WV 2 – Proctor to Kent; State Project No. U352-2-11.66 00;  
Federal Project No. NH-0002 (528) D  
FR#: 13-879-Multi-4

Dear Mr. Hark:

We have received your letter of January 16, 2015 regarding the WV-2 Proctor to Kent Project. Thank you for the clarification to questions raised in our December 11, 2014 letter to your office.

We have reviewed the above mentioned project to determine its effects to cultural resources. 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.

1. The location of the Hanes House (WZ-0007), Proctor Landing Light (WZ-0028), and the two railroad bridges (WZ-0316 & WZ-0140) in relation to the project limits is acknowledged.
2. Acknowledgement is duly noted.
3. Revised figures for the Sims Farmhouse (MR-0058) National Register boundary are acknowledged.
4. The justification to rescind the Kent Rural Historic District (MR-0155 – MR-065) eligibility reassessment is accepted and acknowledged.
5. The grammatical corrections for the agricultural outbuildings collection (MR-0144) are acknowledged.
6. Corrections to the typographical errors on pages 6-4, 6-30, 6-125, and 6-156 are acknowledged.
7. No further comment is necessary.
8. The edited description of the Area of Potential Effect (APE) to more clearly convey the extent of the APE is acknowledged. The APE revision precludes the need to contact the Ohio Historic Preservation Office.
9. We concur with the recommendations that are presented in Table 6.1 "Summary of Previously Documented Properties within view of the APE" (p. 6-11), Table 6.2 "Summary of Newly Documented Properties within view of the APE" (pp. 6-32-35), and Table 7-1 "Eligibility

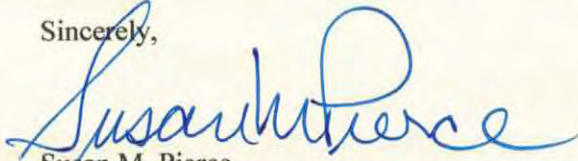
Mr. Ben L. Hark  
FR #13-879-MULTI  
February 17, 2015  
Page 2

Recommendations" (p. 7-1). In addition, we concur with the effects determinations for those resources that are listed in the table (p.3) in your January 16<sup>th</sup> letter, namely the Hanes House (WZ-0007), the Proctor Landing Light (WZ-0028), the two railroad bridges (WZ-0136 and WZ-0140), the Mason-Dixon Line Monument (NR-0037-0109), the Sims Farmhouse (MR-0058) will not be adversely effected by the proposed project. Lastly, we concur that the Alternate 1 design proposal will have an adverse effect on the outbuildings collection (MR-0144), and while design Alternate 2 will have an effect on the resource, we concur that the effect will not be adverse.

Finally, on page 7-9 of the revised *Cultural Historic Survey for the Proposed Upgrade to WV Route 2 from Proctor to Kent in Wetzel and Marshall Counties, WV*, avoidance of those NRHP-eligible (both individually eligible and contributing to an historic district) resources is recommended. We concur with the consultant's recommendation that the design alternatives that avoid historic resources are preferable.

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

Sincerely,



Susan M. Pierce  
Deputy State Historic Preservation Officer

SMP/JSS



*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  
WV Division of Highways, Engineering Division  
1334 Smith Street  
Charleston, WV 25301

Re: WV 2 – Proctor to Kent;  
State Project No. U352-2-11.66 00;  
Federal Project No. NFA-2317(003)D  
FR#: 13-879-Multi-5

Dear Mr. Hark:

We have reviewed the additional information submitted for the above-mentioned project to determine its effects to cultural resources. 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.

We previously reviewed this project and provided comments most recently in a letter dated February 17, 2015. Since those previous comments, Preferred Alternative 1 for the WV 2, Proctor to Kent – GO BOND 1 project has been shifted further to the east of its initial design proposal. This shift moves the proposed right-of-way into the hillside and further from a previously documented barn.

We have reviewed the submitted information and concur that the unnamed barn (MR-0144) remains eligible for the National Register of Historic Places. We agree that because the proposed project has been shifted farther away from the unnamed barn and will no longer take property associated with the barn, that the proposed project will not adversely affect the barn. No further consultation is necessary regarding this architectural resource; however, we do ask that you contact our office if your project should change.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Benjamin M. Riggle, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce  
Deputy State Historic Preservation Officer

SMP/BMR



# APPENDIX E – AIR QUALITY REPORT

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## Air Quality Report

### 1.1 Attainment Status

The Clean Air Act (CAA) of 1970 requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants that cause adverse effects to public health and the environment. The EPA has established NAAQS for six common air pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead (Pb). 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 since attained the standard are called “maintenance” areas.

The proposed project is located in Marshall and Wetzel counties in WV. Wetzel County is in attainment of all NAAQS. Marshall County is designated as a nonattainment area for the 2010 1-hour SO<sub>2</sub> standard and a maintenance area for the 1997 annual PM<sub>2.5</sub> standard. It is considered in attainment of all other NAAQS<sup>1</sup>.

### 1.2 Transportation Conformity

Approval, funding, or implementation of FHWA projects are subject to the transportation conformity regulations under the CAA (40 Code of Federal Regulations [CFR] 93 Subpart A). Each metropolitan planning area is required to develop an official metropolitan transportation plan pursuant to 23 CFR Part 450. If a potential project is included in a transportation plan and transportation improvement program (TIP) that conform to the state air quality implementation plan (SIP) and the CAA Amendments, then the project is already included in the emission budgets developed for the region. Thus, a unique, regional analysis of project emissions would not be required; however, analysis regarding possible localized impacts is still required. The Metropolitan Planning Organization (MPO) for the study area, Bel-O-Mar Regional Council, is responsible for transportation planning and determining regional conformity.

Transportation conformity applies to nonattainment and maintenance areas. Since the study area is in maintenance for the 1997 PM<sub>2.5</sub> standard and is designated as nonattainment of the 2010 1-hour SO<sub>2</sub> standard, transportation conformity regulations apply<sup>2</sup>.

This project was included in the 2040 Long Range Transportation Plan (2016) prepared by the Bel-O-Mar Regional Council<sup>3</sup>. The EPA determined that emissions from mobile sources are insignificant for transportation conformity in the region and waived the emissions analysis requirement for PM<sub>2.5</sub> for the long-range transportation plans and TIP. Qualitative regional conformity, including an interagency

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<sup>1</sup> EPA. 2016. Green Book: West Virginia Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Accessed on November 29, 2016 at: [https://www3.epa.gov/airquality/greenbook/anayo\\_wv.html](https://www3.epa.gov/airquality/greenbook/anayo_wv.html).

<sup>2</sup> West Virginia Department of Environmental Protection (WVDEP). 2016. SO<sub>2</sub> Nonattainment Areas. Accessed on November 29, 2016 at: <http://www.dep.wv.gov/daq/planning/NAAQS/Pages/SO2-Nonattainment-Areas.aspx>.

<sup>3</sup> Bel-O-Mar Regional Council. 2016. Belmont-Ohio-Marshall Counties Transportation Plan for 2040. June. Accessed on November 29, 2016 at: <http://www.belomar.org/wordpress/wp-content/uploads/2016/07/bomts-lrp-2040-final-document.pdf>.

consultation process, fiscal constraints, latest planning assumptions, and public involvement, was satisfied for the 2040 Transportation Plan.

The proposed project upgrades a rural two-lane arterial roadway to a four-lane divided highway from Proctor to Kent. This will provide a safe convenient highway with increased traffic capacity. WVDOT estimated an average daily traffic (ADT) increase from 4,900 in 2012 to 6,300 in 2032, with approximately 13 percent of the ADT estimated to be trucks<sup>4</sup>.

Projects in PM<sub>2.5</sub> nonattainment or maintenance areas that have a significant number of diesel vehicles, are anticipated to significantly increase the number of diesel vehicles, and change the LOS of an intersection to D, E, or F are required to conduct a hotspot analysis (40 CFR 93.123). Projects that involve bus and rail terminals are often subject to this requirement due to increase in diesel use. Facilities with an AADT greater than 125,000, 8 percent or more of that AADT as diesel trucks, is considered to be significant (71 FR 12468). The AADT of this project is less than 125,000 and the project is not expected to cause a significant increase in the number of diesel vehicles or adversely affect intersections. Therefore, a PM<sub>2.5</sub> hotspot analysis is not required.

### 1.3 Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources (e.g., cars, trucks, and construction equipment), non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories, refineries, and power plants). EPA has also recognized emissions of air toxics from mobile sources as a potential environmental and health concern. The interim guidance released by FHWA dated February 2007 requires discussion of Mobile Source Air Toxics (MSATs) in National Environmental Policy Act (NEPA) documents. The guidance was updated in September 2009, December 2012, and October 2016.

The current guidance on MSATs is FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, released on October 18, 2016. This guidance advises on when and how to analyze MSATs in the NEPA process for highway projects. This guidance is interim because MSAT science is still evolving. Currently, there are limitations on tools and techniques for evaluating potential project-level health risks from MSAT exposure. FHWA regularly updates the guidance based on new scientific data.

The proposed project involves widening and relocation of a state highway. The design year ADT for the state highway is projected to be less than 140,000 to 150,000 vehicles per day which, according to FHWA MSAT guidance, is considered to be a project "with low potential MSAT effects and therefore only requires a qualitative analysis. The analysis is presented below.

For each alternative in this EA, the amount of MSAT emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. VMT is calculated by multiplying the ADT by the project length. The ADT is anticipated to be the same between

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<sup>4</sup> G. Graley. 2011. Memorandum to Dirar Ahmad on State Project U352-2-11.65 Protcor-Natrium Rd. Marshall & Wetzel Counties. October 19.

the No Build and Build Alternatives. The corridor length would be the same for No Build and Widening the Existing WV2 Alternatives (5.28 miles) so the VMT for No Build and the Widening the Existing WV2 Alternatives would be similar. Because the estimated VMT under the two Build Alternatives are nearly the same, varying by less than four percent, it is expected there would be no appreciable difference in overall MSAT emissions among the future alternatives.

Speed may increase due to additional capacity increasing the efficiency of the transportation network for either of the Build Alternatives. According to the EPA's MOVES2014 model, emissions of all of the priority MSAT decrease as speed increases. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 90 percent between 2010 and 2050<sup>5</sup>. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

MSAT science is still evolving and the available technical tools do not enable prediction of the project-specific health impacts of the emission changes associated with the alternatives evaluated in the EA. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22) regarding incomplete or unavailable information.

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. As the lead authority for administering the Clean Air Act and its amendments, EPA has specific statutory obligations with respect to hazardous air pollutants and MSAT and is continually assessing human health effects, exposures and risks posed by air pollutants. Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings, cancer in animals, and irritation to the respiratory tract, including the exacerbation of asthma.

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts. Each step in the process builds on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments,

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<sup>5</sup> Federal Highway Administration (FHWA). 2016. Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. October 18. Accessed on November 29, 2016 at: [http://www.fhwa.dot.gov/environment/air\\_quality/air\\_toxics/policy\\_and\\_guidance/msat/2016msat.pdf](http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/2016msat.pdf).

particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that timeframe, since such information is unavailable. It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways, to determine the portion of time that people are exposed at a specific location, and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds and, in particular, for diesel PM.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable. Because of the limitations in the methodologies for forecasting health impacts, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts.

## 1.4 Construction Emissions

Heavy construction equipment, including excavators, scrapers, graders, rollers, compactors, and pavers, 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 keep them in full satisfactory condition to minimize pollutant emissions. Equipment emissions may be reduced by using newer, lower-emitting equipment, retrofitting older equipment engines, and controlling activity.

# APPENDIX F – NOISE REPORT

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DRAFT REPORT

**West Virginia 2 Expansion**  
Noise Study



West Virginia  
Department of Transportation  
Division of Highways

January 2013



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# Section 1

## Introduction

This section describes the proposed project.

### 1.1 Project Description

Realignment and widening of West Virginia Route 2 (WV-2) between Proctor and Kent, West Virginia is proposed. The project begins just north of the intersection of Proctor Creek Road (County Route 89) in Proctor, Wetzel County, WV and ends just north of Kent, WV in Marshall County. Proctor and Kent, WV are the two primary residential areas located within the project limits. Both of these communities are relatively small. The existing WV-2 is a rural two-lane arterial.

There are two chemical plants located within the project area, which have a major impact on the proposed WV-2 improvements - PPG Industries and Bayer Corporation. These plants each have approximately 600 employees and have a major economic and traffic impact in this area of the Upper Ohio Valley. Both of these plants have extensive infrastructure located along and crossing WV-2. Personnel from these plants have expressed their concerns about the current location of WV-2 being in close proximity to their facilities. Their recommendation is to relocate WV-2 to the east, between the plant facilities and the hillside. This location would allow the construction of a single access point, which would be easier to control from a security standpoint. It would also provide some separation from the roadway, which currently disconnects their facilities.

The proposed WV-2 would be constructed as a four-lane highway, located along the hillside (east of the current location). These alignments have been endorsed by both of the chemical plants located along the existing WV-2. These alignments allow existing WV-2 to become a frontage road. Access to the new WV-2 would be provided by only two or three intersections, enhancing safety and capacity. Additionally, these alignments allow the construction of a median barrier wall, which would also limit access conflicts and potential median-crossing accidents. Details of the proposed alignments can be found in "Alternative Alignment Analysis WV-2 Proctor to Natrium & Natrium to Kent" (WSA 2005).

### 1.2 Statement of Compliance

This analysis will follow Federal Highway Administration (FHWA) Regulation 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise" and the West Virginia Department of Transportation (WVDOH) "Noise Policy", July 13, 2011.

According to FHWA and WVDOH, there are three types of projects:

**Type I Project** - Noise abatement accomplished in conjunction with a construction or reconstruction project on a section of federal-aid highway, as designated in 23 CFR Part 772.

**Type II Project** - Noise abatement on an existing section of a federal-aid highway which does not include construction or reconstruction, as designated in 23 CFR Part 772.

**Type III Project** - A Federal or Federal-aid highway project that does not meet the classifications of a Type I or Type II project, as designated in 23 CFR Part 772.

The proposed project is designated as a Type I project due to the following:

- Construction of a roadway along new location
- Increase in the number of lanes

### 1.3 Date of Public Knowledge

The Date of Public Knowledge or the date of approval of the final environmental document for this project will be the date of approval of the ongoing EA document.

The criteria for determining when undeveloped land is “permitted” for development will be the approval date of a building permit for an individual lot. After the Date of Public Knowledge for the project, federal and state governments are no longer responsible for providing noise abatement measures for new development within the noise impact area of the proposed highway project. It is the responsibility of local governments and private landowners to ensure that noise compatible designs are used for development permitted after the Date of Public Knowledge.

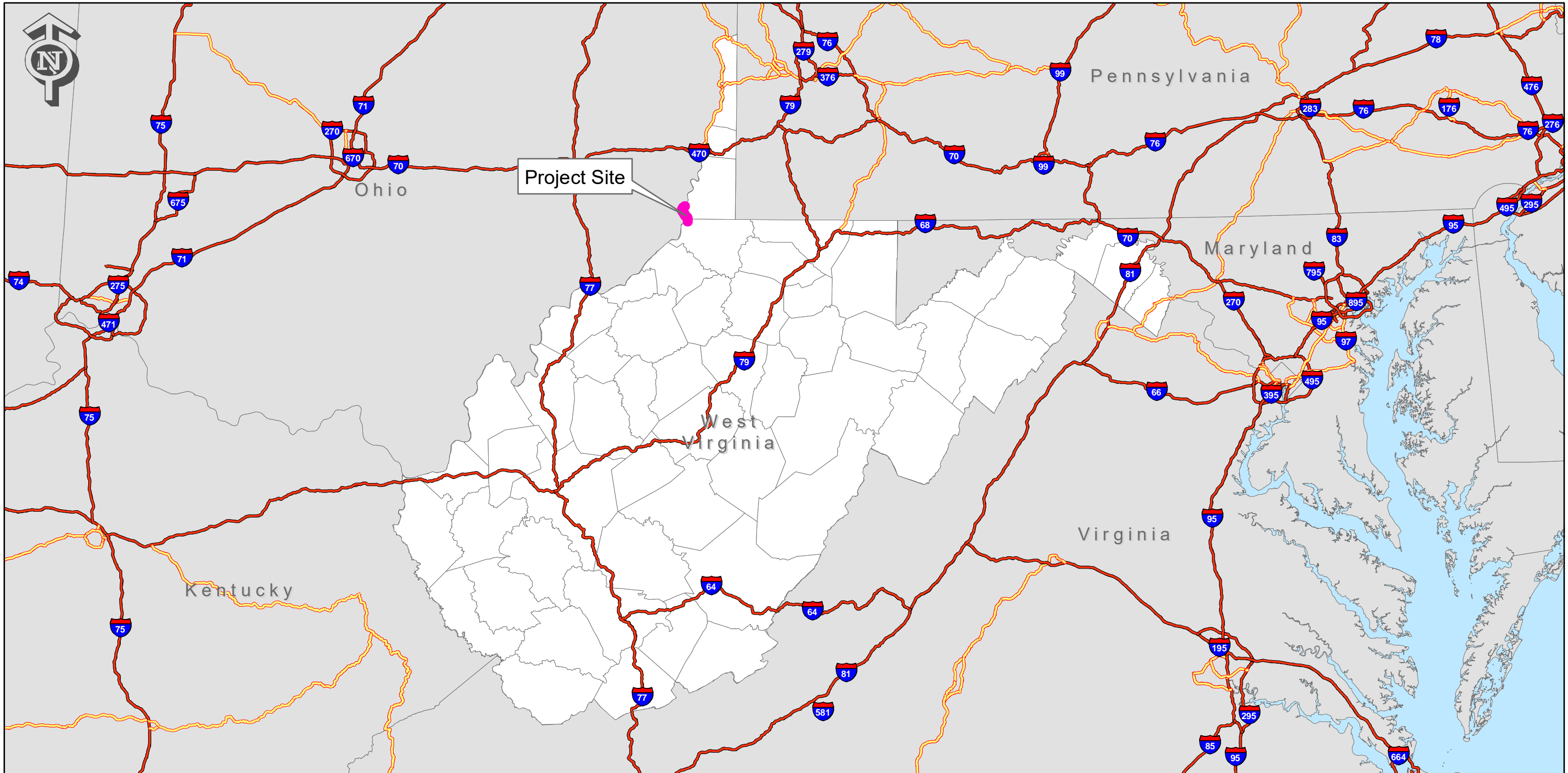
The state and federal policy applies only to developed land and to undeveloped land for which development is permitted before the project Date of Public Knowledge. Mitigation measures studied in this report are evaluated for locations to developed and undeveloped land permitted prior to the date of public knowledge.

# West Virginia 2 Expansion EA

## Marshall County

### Figure 1-1

#### Project Location



## Section 2

# Basic Noise Concepts

This section describes basic noise terminology and concepts and applicable regulations.

## 2.1 Fundamentals of Noise

Noise can be defined as unwanted sound. Traffic noise (or any noise) can disrupt normal activities when the noise reaches certain levels and when noises are distinctly louder than the typical ambient noise environment. Sound is commonly represented by the dimensionless units of “decibels”, represented by the abbreviation “dB”. Sound from highway traffic is primarily generated from tire-pavement interaction, vehicle exhaust, and engines. Vehicle traffic sounds are generally considered to be unwanted, or noise, to most people.

The magnitude of noise or the deviation from the ambient is usually described by sound pressure. The magnitude of noise is usually described by a ratio of its sound pressure to a reference sound pressure, which is usually twenty micro-Pascals (20 Pa). A logarithmic scale is used to relate sound pressure to a common reference pressure, yielding the Sound Pressure Level (SPL). SPL is measured in dimensionless units of decibels (dB) and are modified by frequency response of human hearing or weighting. Three weightings have been established for measuring sound pressure: A, B, and C. The commonly accepted limits of human hearing to detect sound magnitudes are between the threshold of hearing at 0 decibels and the threshold of pain at 140 decibels. **Figure 2-1** shows some examples of common noise sources and their sound levels.

Sound occurs over a wide range of frequencies. Sound frequencies are represented in units of Hertz (Hz), which correspond to the number of vibrations per second of a given tone. The commonly accepted audible frequency is between 20 Hz and 20,000 Hz, and human hearing is most sensitive to the frequencies between 1,000 Hz and 6,000 Hz.

The A-weighted scale is commonly used in highway traffic noise studies because it falls within the most sensitive human ear frequency (1,000 Hz to 6,000 Hz). Sound levels that are measured using the A-weighted scale are often expressed as dB(A). All noise levels in this TNA will be expressed in dB(A).

A key concept in evaluating potential noise impacts is the perceived effect of incremental increases in existing noise levels. The relationships between changes in sound levels, loudness, and acoustic energy are presented in **Table 2-1**. For example, the table shows that an increase of 3 dB(A) is barely perceptible, an increase of 5 dBA is noticeable, and that a 10 dB(A) increase would be perceived by someone to be a doubling of the noise level (loudness).

COMMON SOUND/NOISE LEVELS		
Outdoor	dBA	Indoor
	110	Rock band at 5 meters
Jet flyover at 300 meters		
Pneumatic hammer	100	Subway train
Gas lawn mower at 1 meter		
	90	Food blender at 1 meter
Downtown (large city)	80	Garbage disposal at 1 meter
		Shouting at 1 meter
Lawn mower at 30 meters	70	Vacuum cleaner at 3 meters
Commercial area		Normal speech at 1 meter
Air conditioning unit	60	Clothes dryer at 1 meter
Babbling brook		Large business office
Quiet urban (daytime)	50	Dishwasher (next room)
Quiet urban (nighttime)	40	Library
	30	
	20	
	10	
		Threshold of hearing
	0	

Source: FHWA

Figure 2-1 Common Sound/Noise Levels

**Table 2-1 Relationships between changes in Sound Levels, Loudness, and Acoustic Energy**

Sound Level Change	Change in Loudness 1,2	Relative Change in Acoustic Energy 3
+30 dB(A)	Eight Times as Loud	1,000
+20 dB(A)	Four Times as Loud	100
+10 dB(A)	Twice as Loud	10
+5 dB(A)	Readily Perceptible	~3
+3 dB(A)	Barely Perceptible	2
0 dB(A)	No Change	0
-3 dB(A)	Barely Perceptible	1 / 2
-5 dB(A)	Readily Perceptible	~1 / 3
-10 dB(A)	Half as Loud	1 / 10
-20 dB(A)	1/4 as Loud	1 / 100
-30 dB(A)	1/8 as Loud	1 / 1000

Source: FHWA 2011

Note:

<sup>1</sup> Loudness pertains only to the perceived magnitude of a sound or sounds. Loudness does not describe the tonal qualities of one or more sounds. Two sounds can have the same sound level magnitudes, and can sound “just as loud”, and be distinguishable because of differing tones (frequencies).

<sup>2</sup> Relative to the loudness of an initial sound level. E.g. the loudness of a 63 dB(A) sound would be barely perceptible from the loudness of a 60 dB(A) sound. An 80 dB(A) sound would generally be perceived as four times as loud as a 60 dB(A) sound.

<sup>3</sup> Relative to the acoustic energy of an initial sound level. E.g. a sound level of 63 dB(A) has twice the acoustic energy as an initial sound level of 60 dB(A). A sound level of 80 dB(A) has 100 times the acoustic energy as 60 dB(A).

The degree of disturbance or annoyance of unwanted sound depends essentially on three things:

1. The amount and nature of intruding noise;
2. The relationship between the ambient noise and the intruding noise; and
3. The type of activity occurring when the intruding noise is heard.

In considering the first of these three factors, it is important to note that individuals have different hearing sensitivity to noise. Loud noises bother some more than others and some individuals become angered if an unwanted noise persists. The time patterns of noise also enter into a person’s judgment of whether or not a noise is objectionable. For example, noises occurring during sleeping hours are usually considered to be more objectionable than the same noises in the daytime.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted sound in terms of its relationship to noise from other sources (ambient noise). The blowing of a car horn at night, when ambient noise levels are approximately 45 dB(A), would generally be much more objectionable than the blowing of a car horn in the afternoon, when ambient noise levels might be 55 dB(A).

Over a period of time, individuals tend to accept the noises that intrude into their daily lives, particularly if the noises occur at predicted intervals and are expected. Attempts have been made

to regulate many types of noises including airplane noise, factory noise, railroad noise, and highway traffic noise. In relation to highway traffic noise, methods of analysis and control have developed rapidly over the past few years.

Noise levels in this analysis are based on an  $L_{eq}$  descriptor. The  $L_{eq}$  descriptor, or equivalent sound level, refers to the steady-state (constant sound) A-weighted sound level, which contains the same acoustic energy as the actual time-varying sound levels during the same time period. In other words, the fluctuating sound levels of the traffic noise over a period of time are represented in terms of a constant noise level with the same energy content. For this analysis, the time period used corresponds with the loudest hour.

## 2.2 Traffic Noise and Propagation

The level of highway traffic noise depends on three things:

1. the volume of the traffic;
2. the speed of the traffic; and
3. the number of trucks in the flow of traffic.

Highway traffic noise is never constant. The noise level is always changing with the number, type, speed, and type of the vehicles which produce the noise as well as the driving habits of the vehicle operator. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater numbers of trucks. Vehicle noise is a combination of the noises produced by the engine, exhaust, and tires. The loudness of traffic noise can also be increased by defective mufflers or other faulty equipment on vehicles. Any condition (such as a steep incline) that causes heavy laboring of motor vehicle engines will also increase traffic noise levels. In addition, there are other more complicated factors that affect the loudness of traffic noise. For example, as a person moves away from a highway, traffic noise levels are reduced by distance, terrain and vegetation, as well as natural and manmade obstacles. **Figure 2-2** shows the effect of traffic volume, speed and trucks on noise.

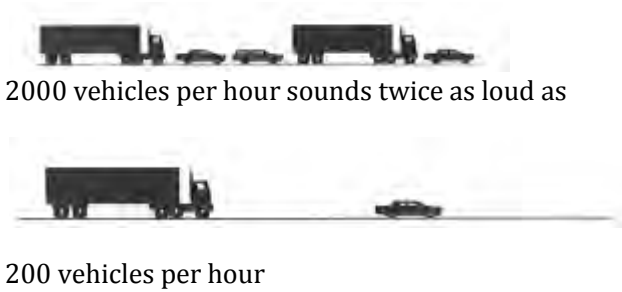
Noise emanating from a roadway can follow four paths to reach nearby receptors (**Figure 2-3**):

1. Direct Path: The noise follows a straight path from the source to the receptor.
2. Diffracted Path: The noise follows a path from the source to the top of a barrier and then is bent down toward the receptor.
3. Reflected path: The noise is bounced off of a barrier and concerns only the receptor on the opposite side of the roadway from the barrier.
4. Transmitted Path: The noise is transmitted directly through the barrier.

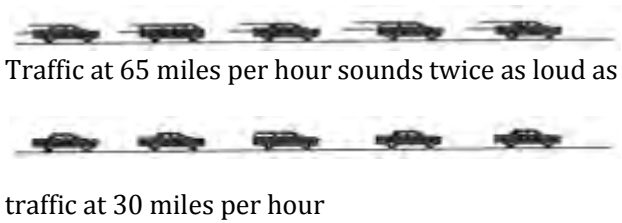
Thus, a wall, building, earth berm, hill, or other type of solid structure or terrain feature, if large enough, can serve as a partial sound barrier and can provide some reduction at receptors in the “shadow zone” created by the barrier. For maximum effect, the barrier must break the line of sight between the noise source and the receptor.



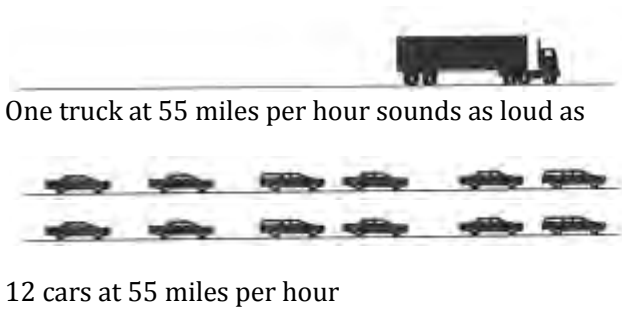
### How Traffic Volume Affects Traffic Noise



### How Speed Affects Traffic Noise

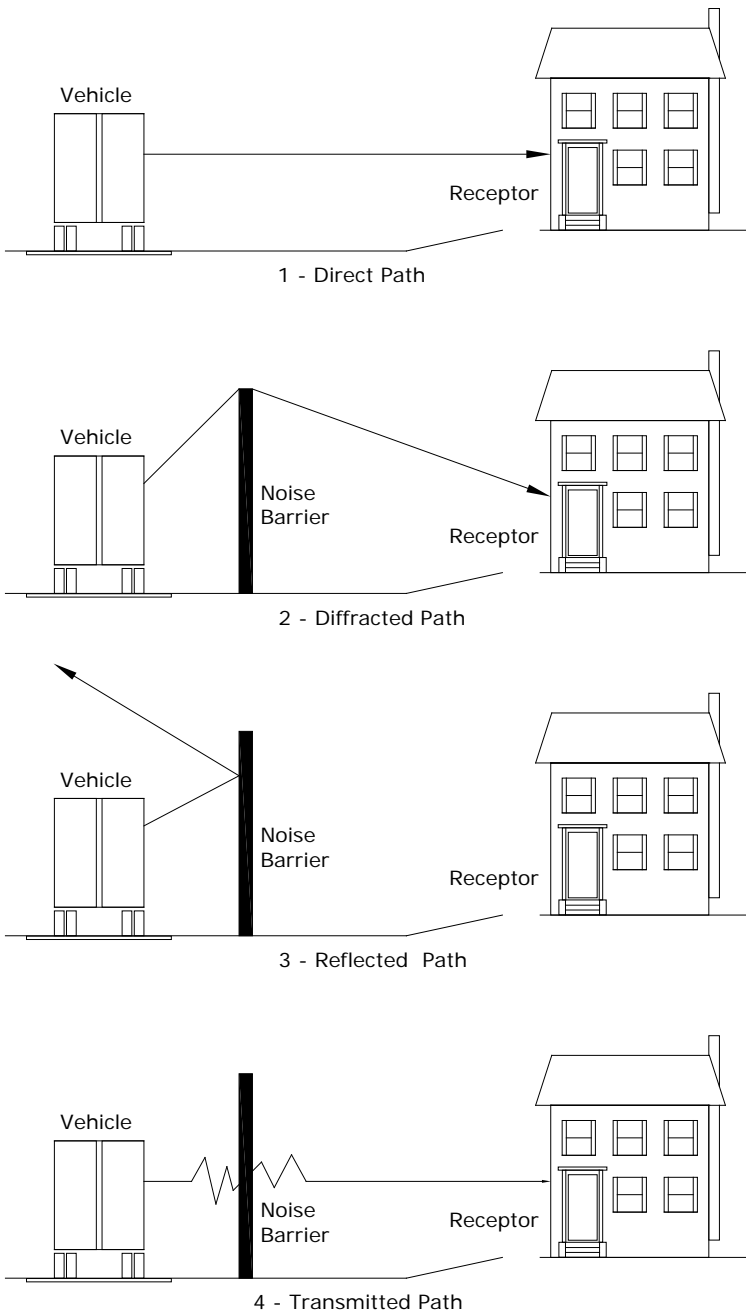


### How Trucks Affect Traffic Noise



Source: FHWA 2010

**Figure 2-2 Effect of Traffic Volume, Speed, and Trucks on Noise**



Source: FHWA

**Figure 2-3 Different Paths Followed by Noise**

In some cases, refracted traffic noise transmission can be more annoying than direct transmission because the occurrence are generally inconsistent and introduce exposure to sounds that are disparately different than customary. This refraction is typically caused by wind and temperature gradients.

## 2.2 Highway Noise Regulations

To determine if highway noise levels are compatible with various land uses, FHWA and WVDOH have developed noise abatement criteria (NAC) and procedures to be used in the planning and design of highways. These abatement criteria and procedures are in accordance with Title 23 CFR Part 772 and WVDOH's Noise Policy. A summary of the current FHWA NAC for various land uses is presented in **Table 2-2**.

**Table 2-2 Noise Abatement Criteria Hourly A-Weighted Sound Level in Decibels (dB(A))**

Activity Category	Activity Leq(h) (dBA)	Evaluation Location	Activity Description
A	57	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 <sup>1</sup>	67	Exterior	Residential
C <sup>1</sup>	67	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, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	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 <sup>1</sup>	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	NA	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing.
G	NA	NA	Undeveloped lands that are not permitted for development.

Source: 23 CFR Part 772

Note: <sup>1</sup> Includes undeveloped lands permitted for this activity category.

A receptor is defined as a discrete or representative location of a noise sensitive areas, for any of the land uses listed in **Table 2-2**. Traffic noise impact occurs when predicted levels “approach” the NAC (within 1 dBA of NAC) or when predicted traffic noise levels “substantially” exceed the existing noise level. Based on WVDOH noise policy, a 15 dB(A) increase of future predicted noise levels above existing noise levels is considered a “substantial increase”.

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area. For the areas where impacts are identified, methods of noise abatement are evaluated to determine the feasibility and reasonableness of their implementation. Feasibility is primarily concerned with the acoustical and engineering ability and limitations of a noise abatement measure. Feasibility evaluation is based on many factors, including topography, availability of space, drainage, presence of other noise sources, safety, and maintenance requirements. Reasonableness is a more subjective criterion than feasibility.

## Section 3

# Ambient Noise Levels

This section describes the noise monitoring procedure and measured noise levels in the project area.

### 3.1 Noise Monitoring Procedure

The initial step in a noise analysis involves measuring ambient noise levels at various locations throughout the project area. Noise from natural and mechanical sources and human activity typically constitute the ambient noise in an area. The purpose of the ambient noise level information is to quantify the existing acoustic environment and provide a baseline for assessing the impact of future noise levels on the receptors in the vicinity of the proposed action resulting from increased traffic and the new roadway alignment. Field measurements will also assist in evaluating the level of noise reduction that may be provided by existing elements such as fences and scattered vegetation that cannot be precisely modeled by the computer. This information will be an important consideration in the determination of noise impacts and the evaluation of any associated noise abatement measures for the project. No interior noise level measurements were performed.

Noise levels were measured at 6 locations within the project study area, as shown in **Figure 3-1**. Outdoor measurements were taken using a Type 1# SoundPro DL sound level meter between Thursday November 8, 2012 and Sunday November 11, 2012. The noise meter was placed 5 feet above the ground level. Noise levels were measured for 20 minutes at each location, and the equivalent steady-state sound level ( $L_{eq}$ ) was collected for each site logged in one minute intervals. One minute data log is important to determine any aberrant noise events at each site.

### 3.2 Noise Monitoring Results




A summary of measured noise levels are provided in **Table 3-1**. Measured noise levels ranged from 43.7 dB(A) to 62.7 dB(A). Summary of output from the noise meter at each monitoring location is included in **Appendix A**. Meteorological data collected in Woodsfield, OH, approximately 14 miles east of the project area shows calm winds and no precipitation during the monitoring period. Although this meteorological station is located at a higher elevation (1,180 feet) than the project site (approximately 650 feet), this was the closest meteorological station with readily available data (Weather Underground 2012). A summary of meteorological data from the monitoring periods are presented in **Table 3-2**. Traffic data was not collected concurrently with the noise measurements.

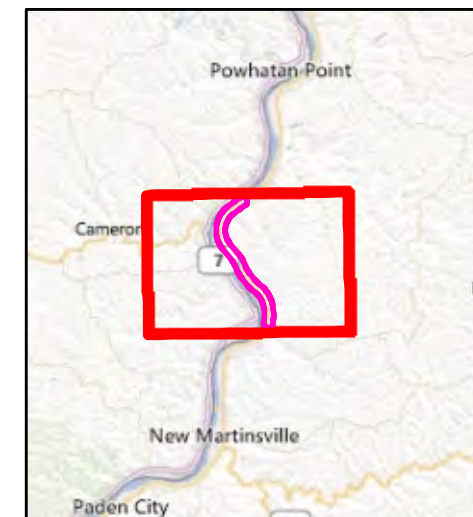
# West Virginia 2 Expansion EA

## Field Measurements

Figure 3-1

### Legend

-  Data Collection Site
-  Project Area Boundary
-  County Boundary



**Table 3-1 Measured Noise Levels**

Monitoring Location	Monitored Period	Land Use	L <sub>eq</sub> (dB(A))
1	11/11/12 16:37-16:57	Residential	62.7
2	11/11/12 16:03-16:23	Residential	54.4
3	11/11/12 15:05-15:25	Industrial/Commercial	54.5
4	11/09/12 12:05-12:25	Industrial/Commercial	57.7
5	11/08/12 15:07-15:27	Industrial/Commercial	55.6
6	11/08/12 11:35-11:55	Residential	43.7

**Table 3-2 Meteorological Data during Monitoring**

Monitoring Location	Temperature (°F)	Dew Point (°F)	Wind Direction	Wind Speed (mph)	Relative Humidity (%)	Precipitation (in)
1	70	30	ESE	2	22	0
2	70	32	E	5	23	0
3	70	32	SE	4	24	0
4	50	33	SSE	5	54	0
5	45	30	SW	5	54	0
6	38	28	N	3	67	0

Source: Station ID MOH035 Ohio Department of Transportation Monroe County Garage, Woodsfield, OH (Weather Underground 2012)

Note: This is the closest station to the project area with readily available data.

## Section 4

# Noise Analysis

This section describes the noise analysis procedure and results.

### 4.1 Noise Analysis Procedure

FHWA's Traffic Noise Model Version 2.5 (TNM2.5) traffic noise prediction and analysis software is capable of predicting highway traffic noise. Released in April 2004, TNM2.5 is the latest version currently available and is the required noise analysis software on all federal-aid highway projects. TNM2.5 predicts noise levels at receptor location based on vehicle volume, speed, fleet mix, distance to receiver, and area terrain.

The traffic noise scenarios evaluated in this analysis include the following:

- Existing (2012) loudest-hour noise levels;
- Design year (2032) No Build loudest-hour noise levels; and
- Design year (2032) Build loudest-hour noise levels.

Average daily traffic (ADT) of 4,900 and 6,300 for 2012 and 2032, respectively, provided by the WV DOT were used (Graley 2011). It was assumed that loudest-hour noise level would occur during peak traffic hour and that peak traffic hour volume is approximately 13% of ADT. Based on provided data, it was estimated that vehicle distribution for auto, medium trucks, and heavy trucks were 84%, 8%, and 8%, respectively. Table 4-1 shows the modeled traffic volumes on WV-2.

**Table 4-1 Modeled WV-2 Traffic Volume**

Vehicle Type	Distribution	2012 Peak Hour Traffic Volume	2032 Peak Hour Traffic Volume
Auto	84%	535	688
Medium Truck	8%	51	66
Heavy Truck	8%	51	66

Note: Presented traffic volumes are total volumes (i.e. all lanes) for WV-2.

Receptors in the model were placed at every residence and industrial/commercial property within the project area.

### 4.2 Model Validation

Modeled noise levels for the existing conditions were compared against monitored noise levels presented in Section 3.2 to evaluate the accuracy of the model setup. Modeled receptors closest to the monitoring locations at similar distances from the existing highway were chosen for this evaluation. **Table 4-2** compares monitored noise levels and the representative modeled noise

levels. Monitoring location number 5 was not included in the evaluation as there was no representative modeled receptor.

**Table 4-2 Measured and Modeled Noise Levels**

Monitoring Location	Measured $L_{eq}$ (dB(A))	Representative Modeled Receptor	Modeled $L_{eq}$ (dB(A))	Difference (dB(A))
1	62.7	Receiver 9	63.8	-1.1
2	54.4	Receiver 30	54.3	0.1
3	54.5	Receiver 35	55.9	-1.4
4	57.7	Receiver 38	58	-0.3
6	43.7	Receiver 48	44.7	-1

Note: Monitoring location #5 was not included in this evaluation because there was no representative modeled receptor.

All monitored noise levels were within +/- 3 dB(A), which is a threshold typically used to validate models. The measured noise levels are lower than modeled noise levels most likely because measurements were taken during non-peak traffic period and peak-hour traffic was used in the model.

### 4.3 Predicted Noise Levels

Noise levels were predicted for existing (2012) and design year (2032) loudest-hour traffic volumes at 48 receptor locations that represent existing land uses. They are numbered in numeric order beginning with "Receiver 1." Predicted noise levels for the No Build and Build scenarios were calculated and compared to the existing conditions noise levels at all modeled receptors. The magnitude of the predicted noise levels and their increase over existing levels determines if a noise impact occurs (i.e. approaching FHWA NAC or substantial increase in noise level). The predicted noise levels and noise impacts in each scenario are shown in **Appendix B**.

It was estimated that the modeled residential receptors currently experience noise levels between 45 and 70 dB(A). Their levels in 2032 are expected to be 46 to 71 dB(A) if no change is made to the existing highway design and 51 to 74 dB(A) for the proposed highway alignment and design. Impacted residences in the 2032 Build scenario are expected to be different from current locations of impact because the highway would be moving to the hillside. Most receptors that are predicted to be impacted in the 2032 Build scenario are those slated to be relocated due to encroachment of the right-of-way. The study area is primarily industrial with few scattered residential, so there would not be enough receptors benefitting from noise abatement measures, and therefore, no abatement measures are recommended.



## Section 5

### Construction Noise

The major construction activities for this project are expected to be earth removal, hauling, grading, and paving. Temporary and localized construction noise impacts will likely occur as a result of these activities. Temporary speech interference for passersby and individuals living or working near the project can be expected. Noise levels in the project area will be increased during construction. The sound levels resulting from construction activities at nearby noise-sensitive receivers will be a function of the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. Default sound levels from construction equipment used in FHWA's Roadway Construction Noise Model (RCNM) are shown in **Table 5-1**.

If meeting the project schedule requires that earth removal, grading, hauling, and/or paving must occur during evening, nighttime, and/or weekend hours in the vicinity of residences, the Contractor shall notify WVDOH as soon as possible. In such instances, all reasonable attempts shall be made to notify and to make appropriate arrangements for the mitigation of the predicted construction noise impacts upon the affected property owners and/or residents.

Low-cost and easily implemented construction noise control measures should be incorporated into the project plans and specifications to the extent possible. These measures include, but are not limited to, work-hour limits, equipment exhaust muffler requirements, haul-road locations, elimination of "tail gate banging," ambient-sensitive backup alarms, construction noise complaint mechanisms, and consistent and transparent community communication.

**Table 5-1 FHWA RCNM Default Noise Emission Reference Levels and Usage Factors**

Equipment Description	Impact Device?	Acoustical Use Factor	Spec 721.560 Lmax @ 50ft (dB(A), slow)	Actual Measured Lmax @ 50 ft (dB(A), slow)
Auger Drill Rig	No	20%	85	84
Backhoe	No	40%	80	78
Boring Jack Power Unit	No	50%	80	83
Chain Saw	No	20%	85	84
Clam Shovel (dropping)	Yes	20%	93	87
Compactor (ground)	No	20%	80	83
Compressor (air)	No	40%	80	78
Concrete Mixer Truck	No	40%	85	79
Concrete Pump Truck	No	20%	82	81
Concrete Saw	No	20%	90	90
Crane	No	16%	85	81
Dozer	No	40%	85	82
Drill Rig Truck	No	20%	84	79
Drum Mixer	No	50%	80	80
Dump Truck	No	40%	84	76
Excavator	No	40%	85	81
Flat Bed Truck	No	40%	84	74
Front End Loader	No	40%	80	79
Generator	No	50%	82	81
Generator (<25KVA, VMS signs)	No	50%	70	73
Gradall	No	40%	85	83
Grader	No	40%	85	N/A
Grapple (on backhoe)	No	40%	85	87
Horizontal Boring Hydr. Jack	No	25%	80	82
Hydra Break Ram	Yes	10%	90	N/A
Impact Pile Driver	Yes	20%	95	101
Jackhammer	Yes	20%	85	89
Man Lift	No	20%	85	75
Mounted Impact Hammer (hoe ram)	Yes	20%	90	90
Pavement Scarifier	No	20%	85	90
Paver	No	50%	85	77
Pickup Truck	No	40%	55	75
Pneumatic Tools	No	50%	85	85
Pumps	No	50%	77	81
Rock Drill	No	20%	85	81
Roller	No	20%	85	80
Scraper	No	40%	85	84
Shears (on backhoe)	No	40%	85	96
Tractor	No	40%	84	N/A
Vibratory Concrete Mixer	No	20%	80	80
Vibratory Pile Driver	No	20%	95	101
Warning Horn	No	5%	85	83
Welder/Torch	No	40%	73	74

Source: USDOT 2006

## Section 6

### Conclusions

This report documents the evaluation of existing ambient noise levels at six noise monitoring locations and the assessment of predicted loudest-hour equivalent existing, No Build, and Build condition traffic noise levels and traffic noise impacts at 48 noise sensitive receptor locations in the vicinity of the project. Ten of the modeled receptors must be relocated due to the new alignment of the highway, and four of those receptors were predicted to be substantially impacted in 2023 Build scenario in their current location. Only one other receptor is expected to be impacted substantially; therefore, no abatement measures would be reasonable for this proposed project. Any subsequent project design changes may require a reevaluation of the noise impacts and abatement measures.

A copy of this traffic noise analysis will be provided to local officials to ensure, to the maximum extent possible, future developments are planned, designed, and programmed in a manner that will avoid traffic noise impacts.

Construction noise impacts, some of them potentially extreme, will occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this report that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts. The contractor shall notify WVDOH if construction activities are required in the vicinity of one or more residential neighborhoods.

## Section 7

### References

1. 23 CFR 772. *Procedures for Abatement of Highway Traffic Noise and Construction Noise.*
2. Federal Highway Administration (FHWA). 2010. *Highway Traffic Noise Analysis and Abatement Guidance.* December. Available at: <http://www.fhwa.dot.gov/environment/htnoise.htm>. Accessed on: March 23, 2010.
3. Federal Highway Administration (FHWA). 2011. *Highway Traffic Noise Website.* Available at: [http://www.fhwa.dot.gov/environment/noise/regulations\\_and\\_guidance/analysis\\_and\\_abatement\\_guidance/revguidance.pdf](http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf). Accessed on: December 24, 2012.
4. U.S. Department of Transportation (USDOT). 2006. *Construction Noise Handbook.* Available at: [http://www.fhwa.dot.gov/environment/noise/construction\\_noise/handbook/](http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/). Accessed on: December 24, 2012.
5. West Virginia Division of Highways (WVDOH). 2011. *Noise Policy.*
6. G. Graley. 2011. *Memorandum to Dirar Ahmad on State Project U352-2-11.65 Proctor-Natrium Rd. Marshall & Wetzel Counties.* October 19.
7. Wilbur Smith Associates (WSA). 2005. *Alternative Alignment analysis WV-2 Proctor to Natrium & Natrium to Kent, Wetzel & Marshall Counties, West Virginia.* February 23.

# Appendix A

## Noise Monitoring Data

# West Virginia 2

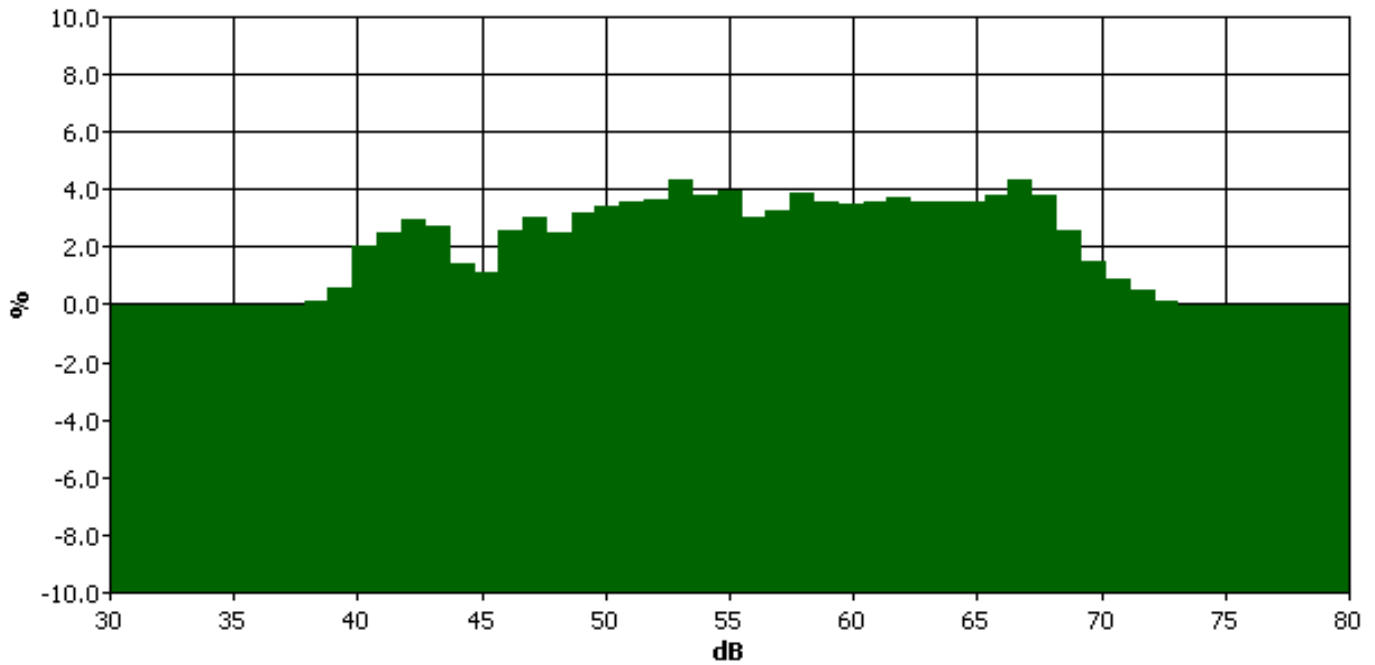
## Information Panel

Name WV2 Site 1  
Start Time Sunday, November 11, 2012 16:37:00  
Stop Time Sunday, November 11, 2012 16:57:00  
Device Model Type SoundPro DL  
Comments

## General Data Panel

<u>Description</u>	<u>Meter</u>	<u>Value</u>	<u>Description</u>	<u>Meter</u>	<u>Value</u>
Leq	1	62.7 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/3	Exchange Rate	2	5 dB
Weighting	2	C	Response	2	FAST

## Statistics Chart



# West Virginia 2

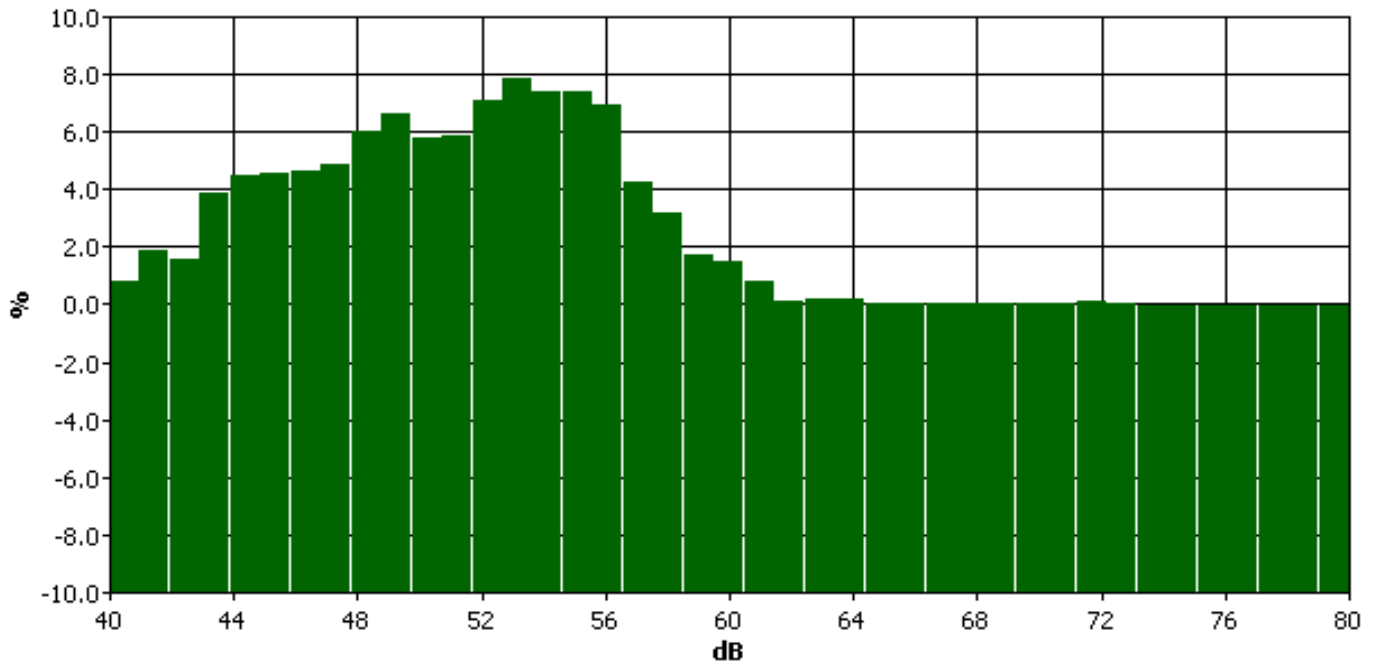
## Information Panel

Name WV2 Site 2  
Start Time Sunday, November 11, 2012 16:03:00  
Stop Time Sunday, November 11, 2012 16:23:00  
Device Model Type SoundPro DL  
Comments

## General Data Panel

<u>Description</u>	<u>Meter</u>	<u>Value</u>	<u>Description</u>	<u>Meter</u>	<u>Value</u>
Leq	1	54.4 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/3	Exchange Rate	2	5 dB
Weighting	2	C	Response	2	FAST

## Statistics Chart



# West Virginia 2

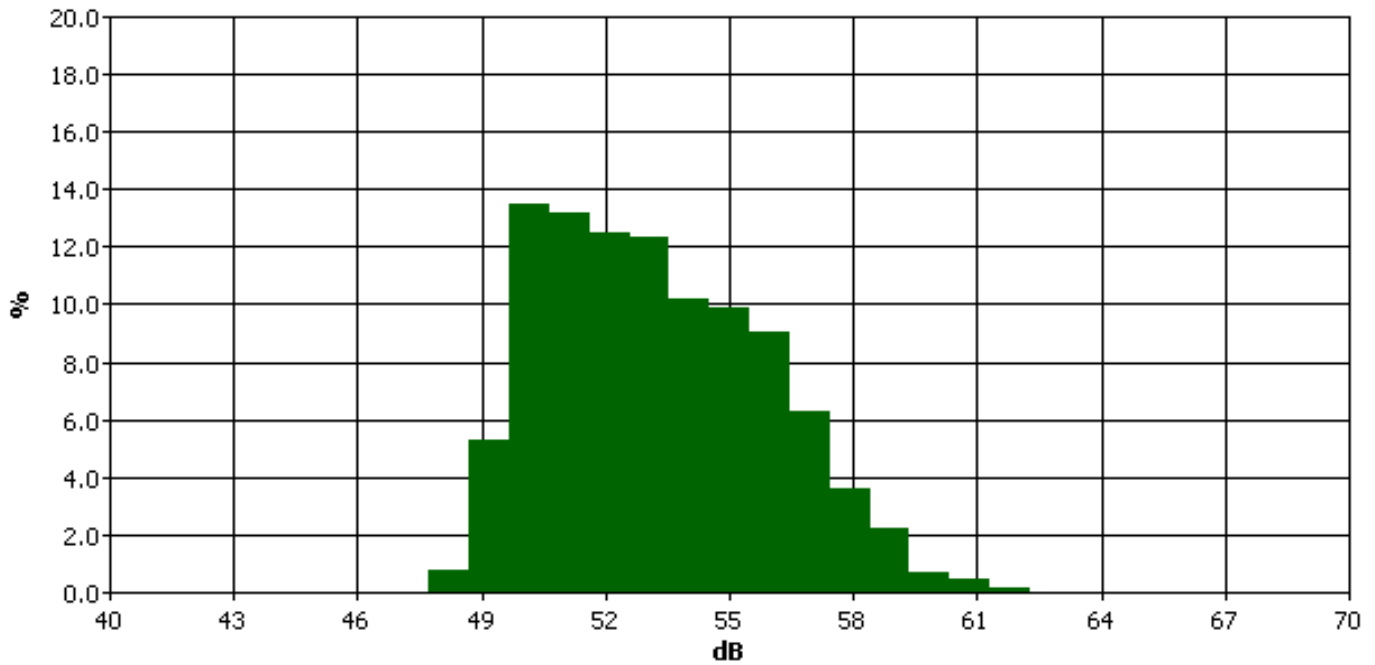
## Information Panel

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Start Time Sunday, November 11, 2012 15:05:00  
Stop Time Sunday, November 11, 2012 15:25:00  
Device Model Type SoundPro DL  
Comments

## General Data Panel

<u>Description</u>	<u>Meter</u>	<u>Value</u>	<u>Description</u>	<u>Meter</u>	<u>Value</u>
Leq	1	54.5 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/3	Exchange Rate	2	5 dB
Weighting	2	C	Response	2	FAST

## Statistics Chart





# West Virginia 2

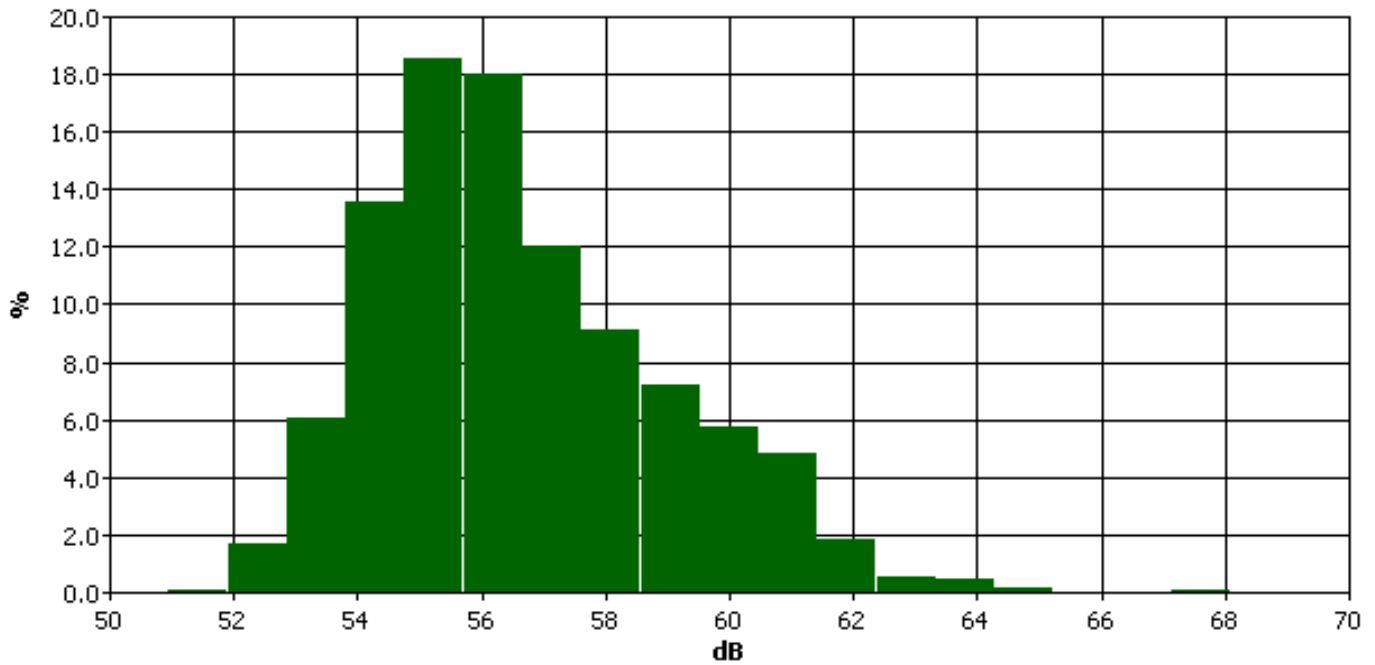
## Information Panel

Name WV2 Site 4  
Start Time Friday, November 09, 2012 12:05:00  
Stop Time Friday, November 09, 2012 12:25:00  
Device Model Type SoundPro DL  
Comments

## General Data Panel

<u>Description</u>	<u>Meter</u>	<u>Value</u>	<u>Description</u>	<u>Meter</u>	<u>Value</u>
Leq	1	57.7 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/3	Exchange Rate	2	5 dB
Weighting	2	C	Response	2	FAST

## Statistics Chart



# West Virginia 2

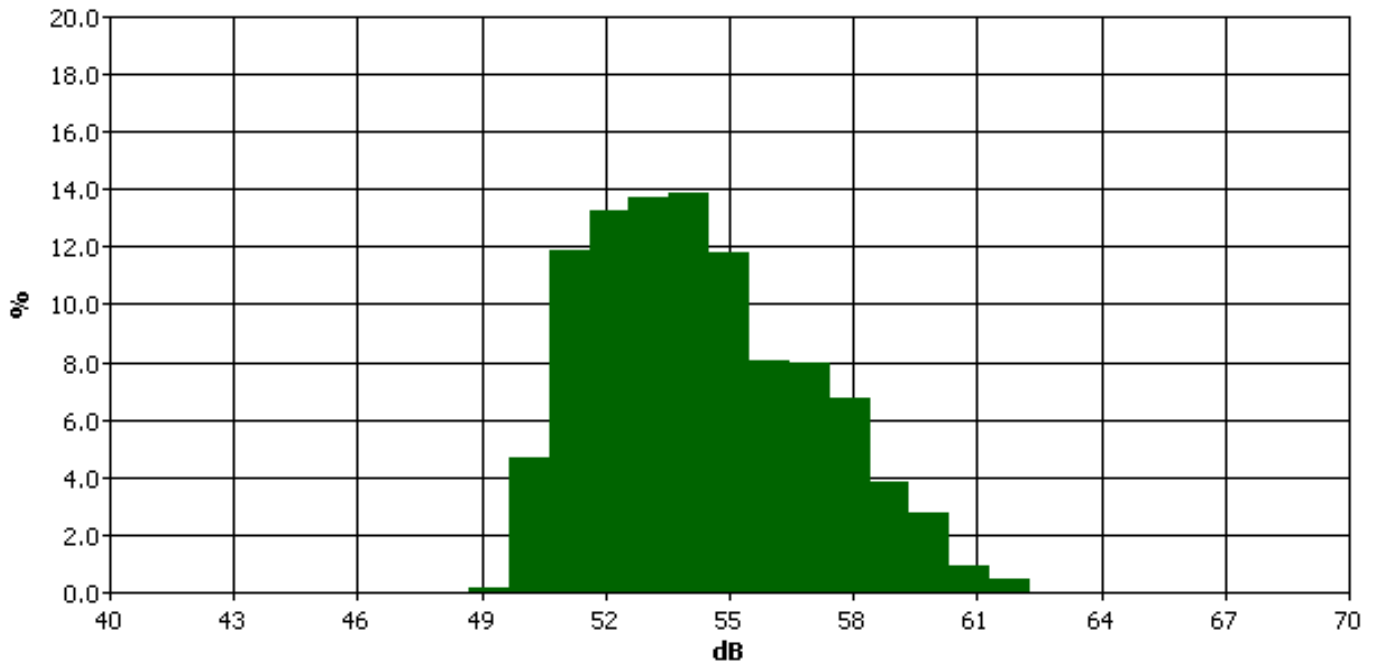
## Information Panel

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Start Time Thursday, November 08, 2012 15:07:00  
Stop Time Thursday, November 08, 2012 15:27:00  
Device Model Type SoundPro DL  
Comments

## General Data Panel

<u>Description</u>	<u>Meter</u>	<u>Value</u>	<u>Description</u>	<u>Meter</u>	<u>Value</u>
Leq	1	55.6 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/3	Exchange Rate	2	5 dB
Weighting	2	C	Response	2	FAST

## Statistics Chart



# West Virginia 2

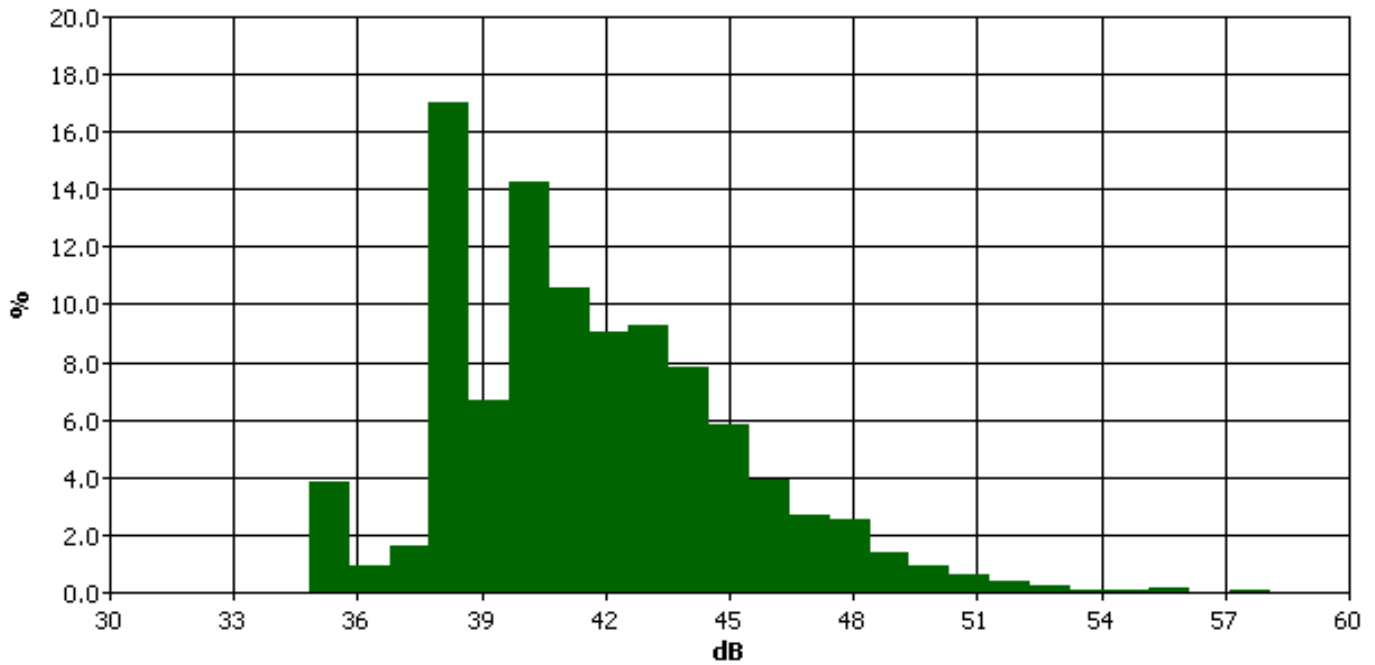
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Stop Time Thursday, November 08, 2012 11:55:00  
Device Model Type SoundPro DL  
Comments

## General Data Panel

<u>Description</u>	<u>Meter</u>	<u>Value</u>	<u>Description</u>	<u>Meter</u>	<u>Value</u>
Leq	1	43.7 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/3	Exchange Rate	2	5 dB
Weighting	2	C	Response	2	FAST

## Statistics Chart



## Appendix B

### Noise Analysis Results

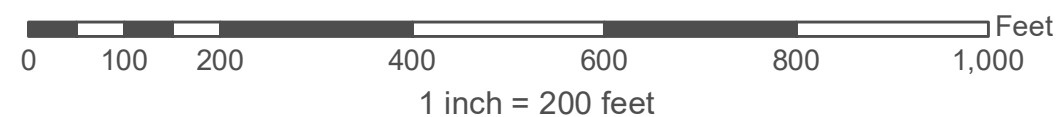
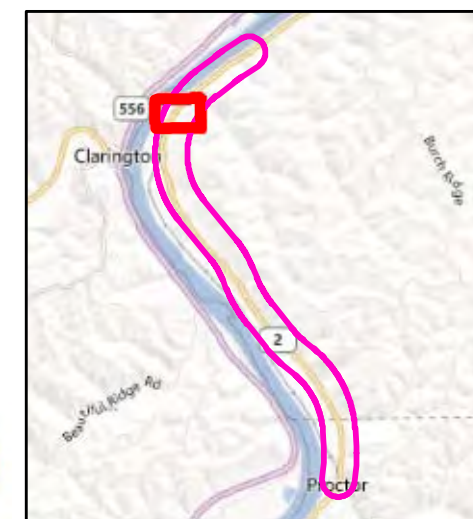
# West Virginia 2 Expansion

Noise Study Area  
2012 Existing  
Noise Results

Figure - B1

### Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



# West Virginia 2 Expansion

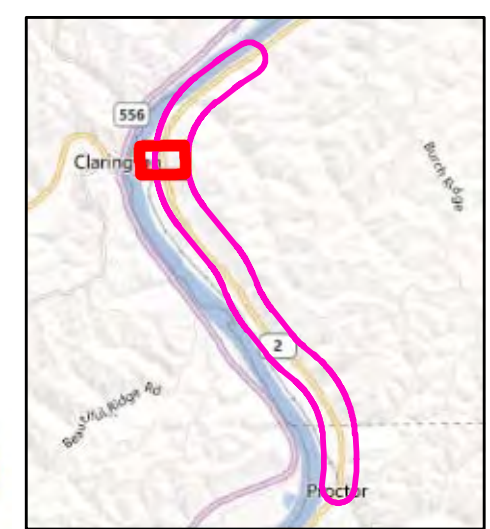
## Noise Study Area 2012 Existing Noise Results

Figure - B2



### Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- County Boundary



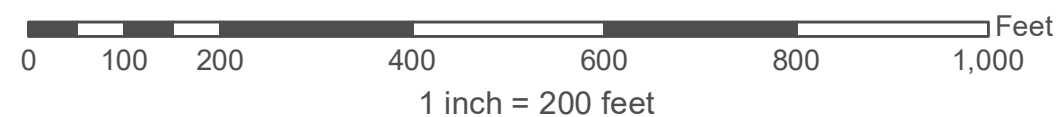
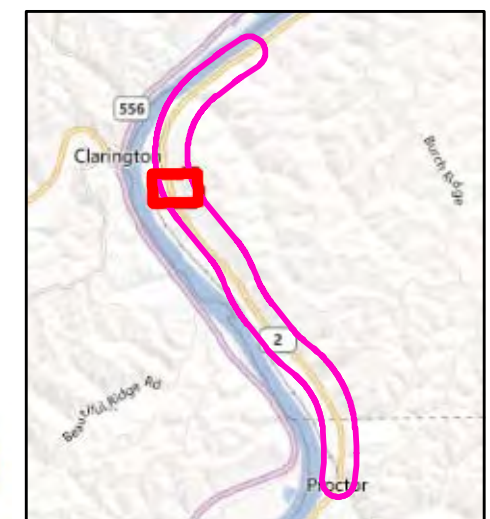
# West Virginia 2 Expansion

Noise Study Area  
2012 Existing  
Noise Results

Figure - B3

### Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



# West Virginia 2 Expansion

Noise Study Area  
2012 Existing  
Noise Results

Figure - B4

## Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary





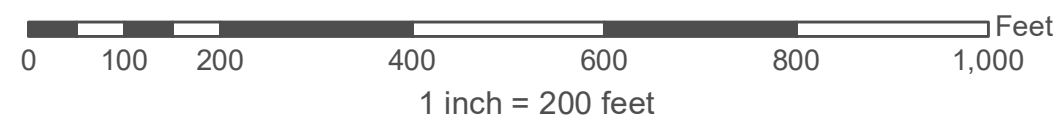
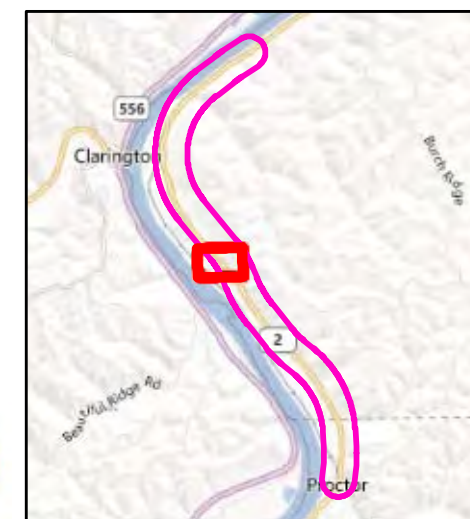
# West Virginia 2 Expansion

## Noise Study Area 2012 Existing Noise Results

Figure - B5

### Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



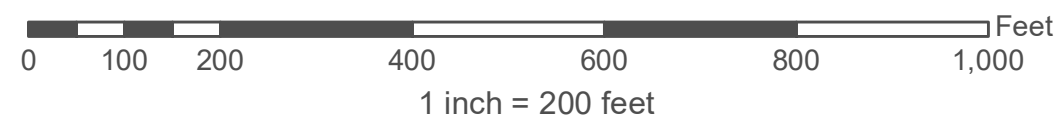
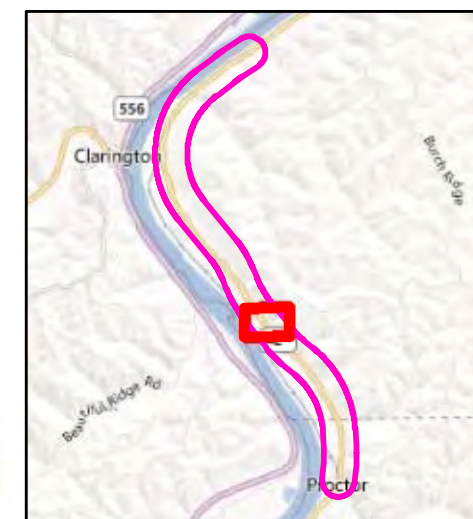
# West Virginia 2 Expansion

Noise Study Area  
2012 Existing  
Noise Results

Figure - B6

## Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



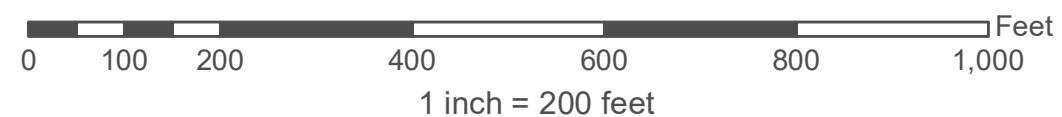
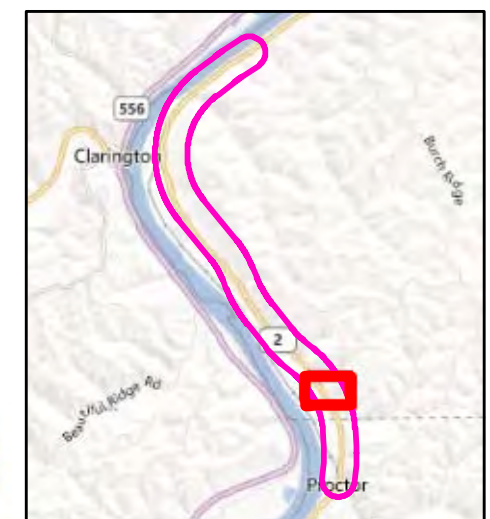
# West Virginia 2 Expansion

Noise Study Area  
2012 Existing  
Noise Results

Figure - B7

## Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



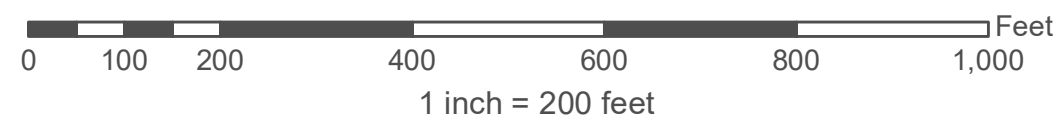
# West Virginia 2 Expansion

Noise Study Area  
2012 Existing  
Noise Results

Figure - B8

## Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary







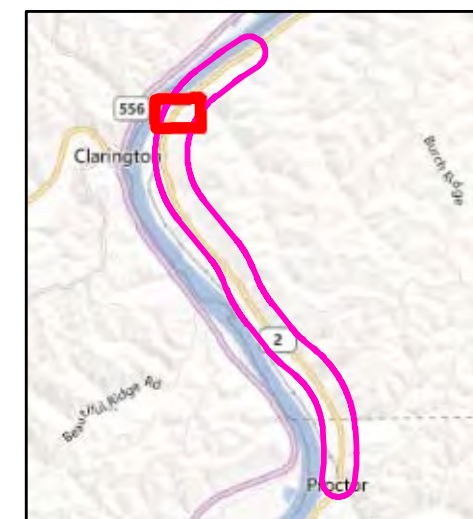
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B9

### Legend

-  Not Impacted Receptor
-  Impacted Receptor
-  Project Area Boundary
-  County Boundary



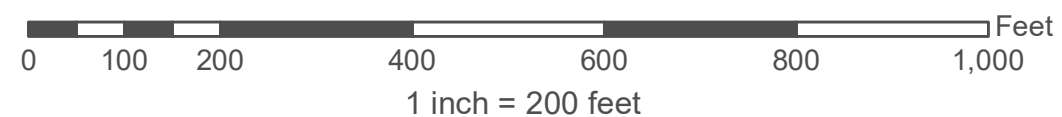
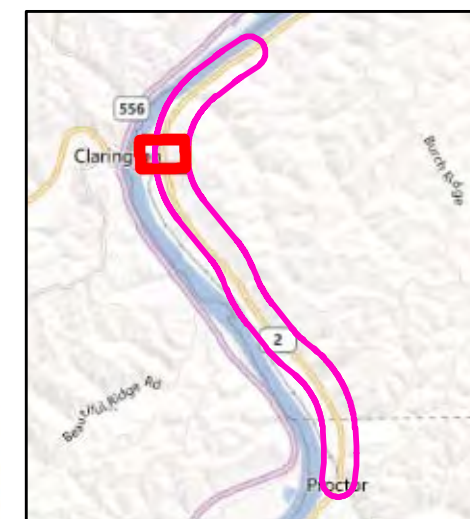
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B10

### Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- + County Boundary



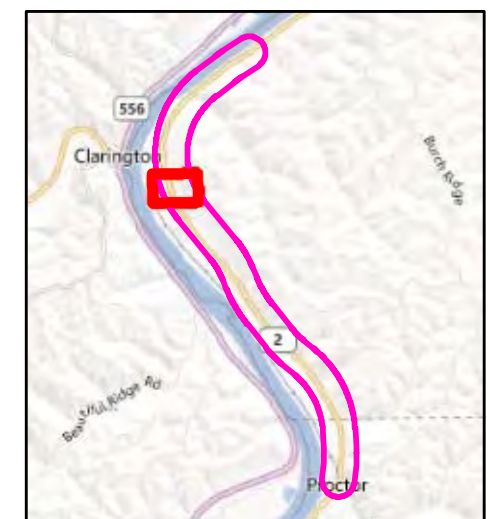
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B11

### Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



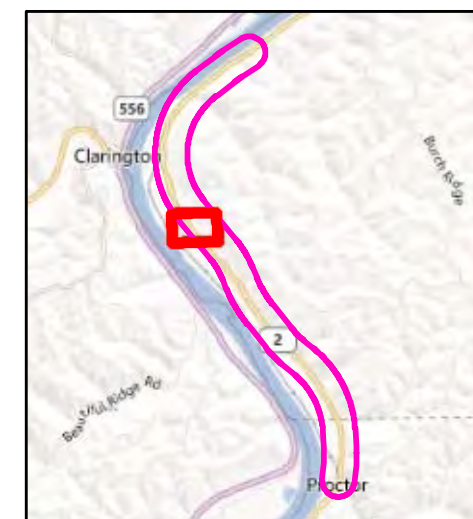
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B12

## Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary





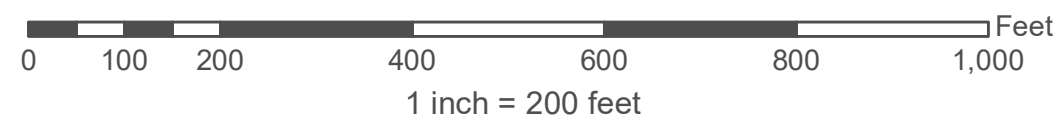
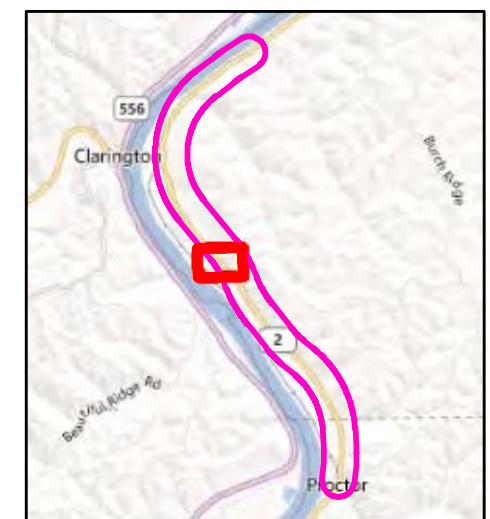
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B13

## Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



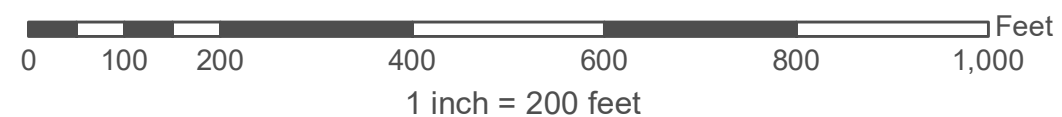
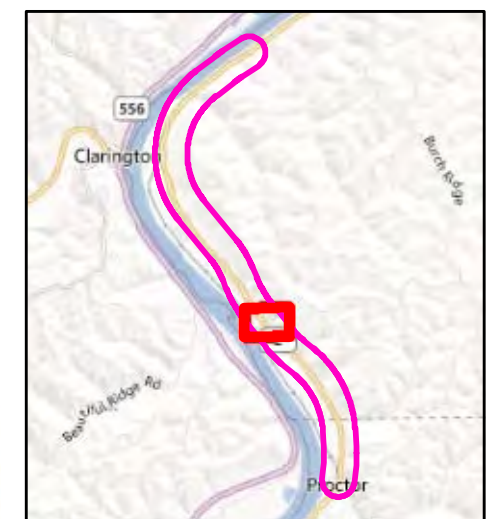
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B14

### Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary



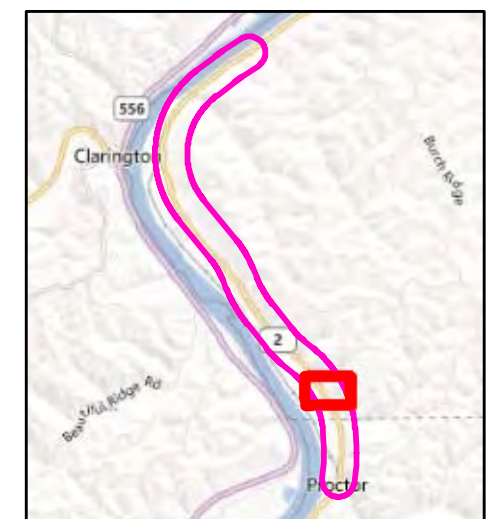
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B15

## Legend

- Not Impacted Receptor
- Impacted Receptor
- Project Area Boundary
- ⊕ County Boundary







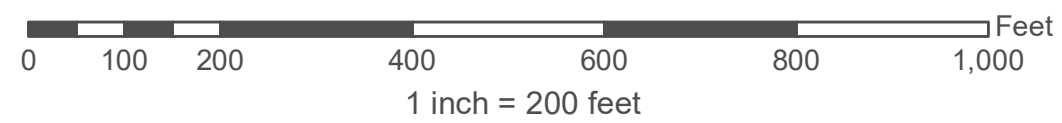
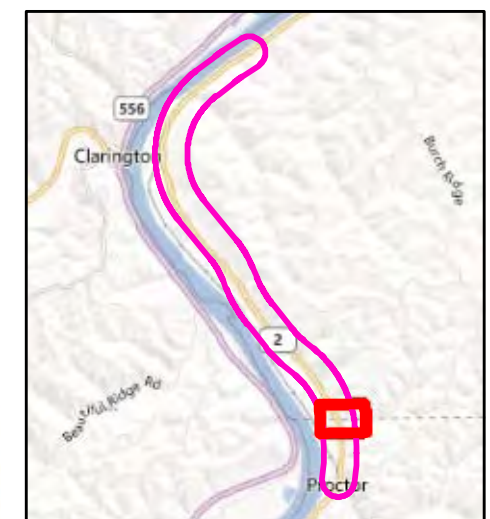
# West Virginia 2 Expansion

Noise Study Area  
2032 No Build  
Noise Results

Figure - B16

## Legend

-  Not Impacted Receptor
-  Impacted Receptor
-  Project Area Boundary
-  County Boundary



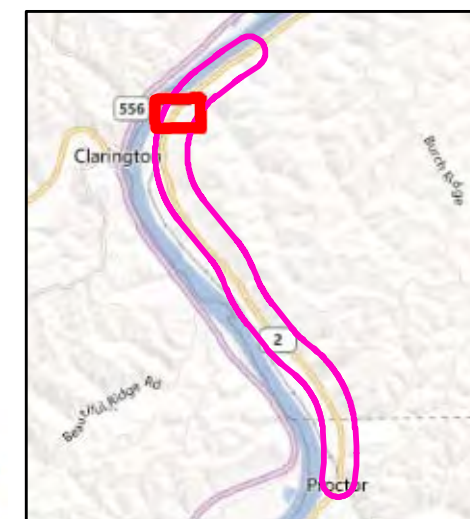
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B17

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- ⊕ County Boundary



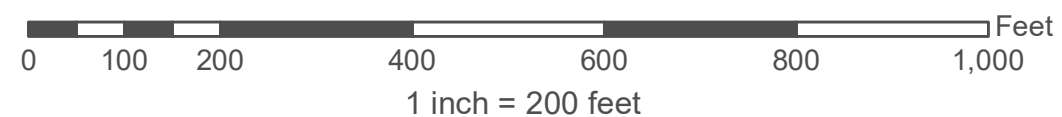
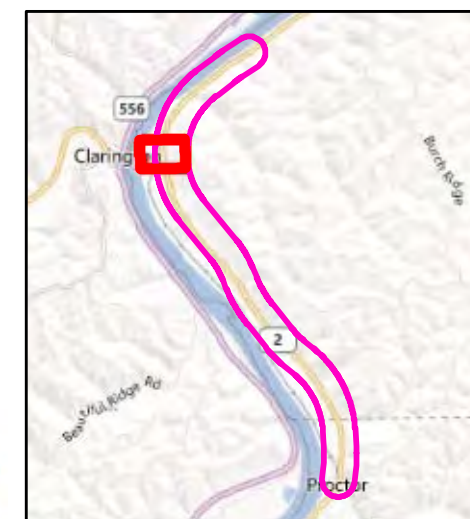
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B18

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- County Boundary



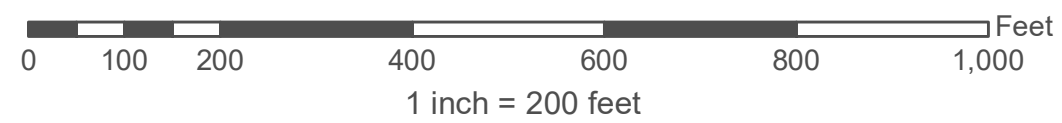
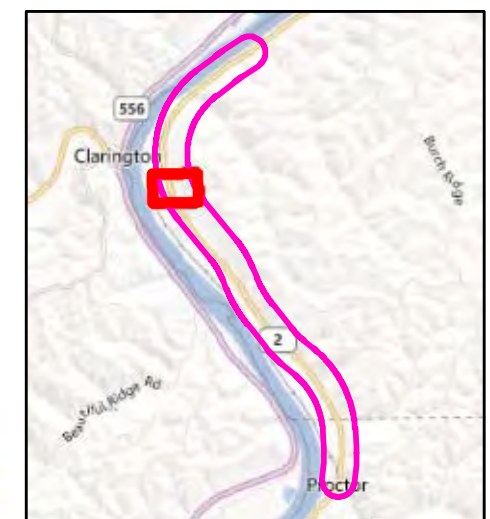
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B19

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- ⊕ County Boundary



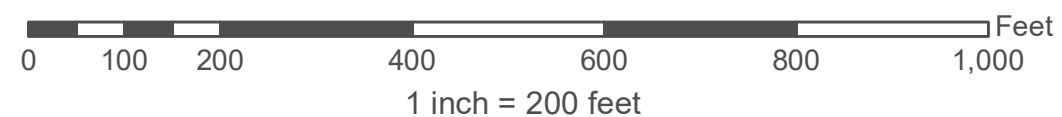
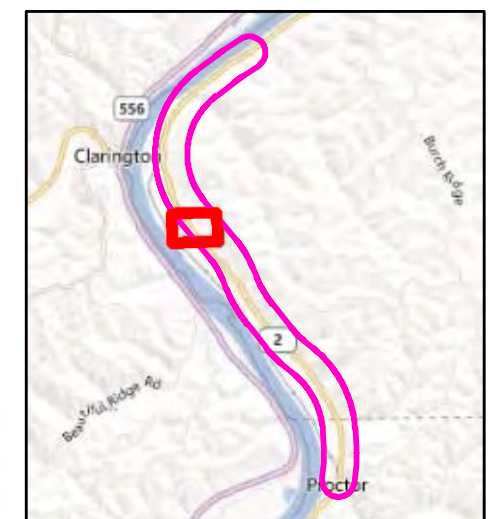
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B20

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- ⊕ County Boundary





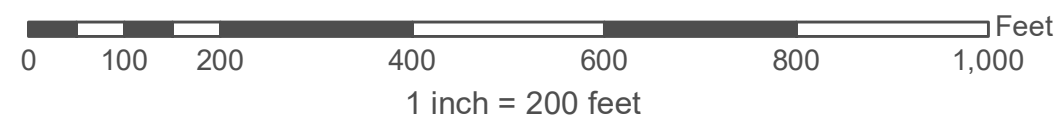
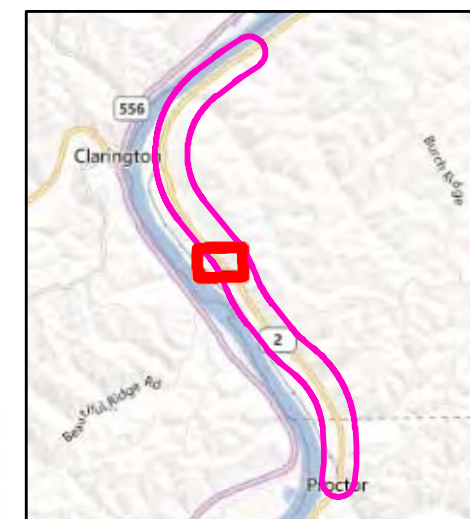
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B21

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- + County Boundary



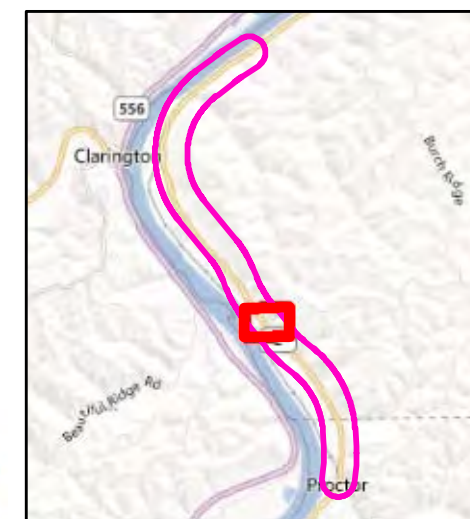
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B22

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- ⊕ County Boundary



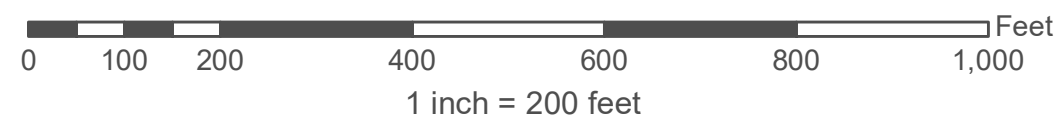
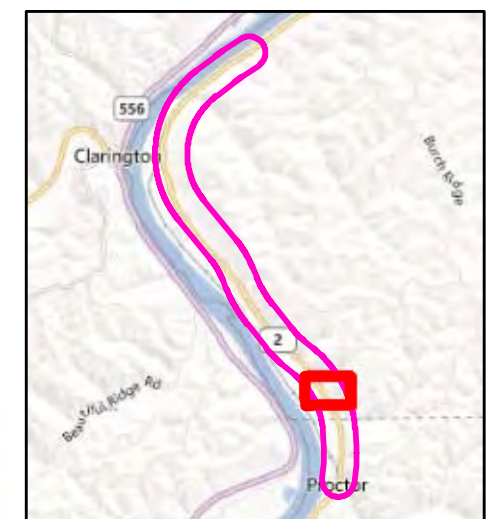
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B23

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- ⊕ County Boundary



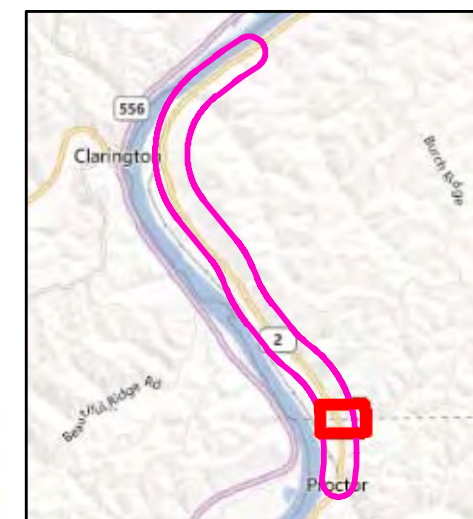
# West Virginia 2 Expansion

Noise Study Area  
2032 Build  
Noise Results

Figure - B24

## Legend

- Not Impacted Receptor
- Receptor Subject to Relocation
- Proposed Road Centerline
- Project Area Boundary
- + County Boundary








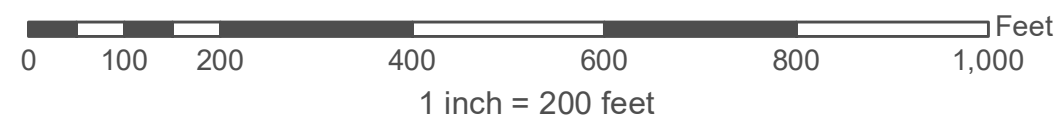
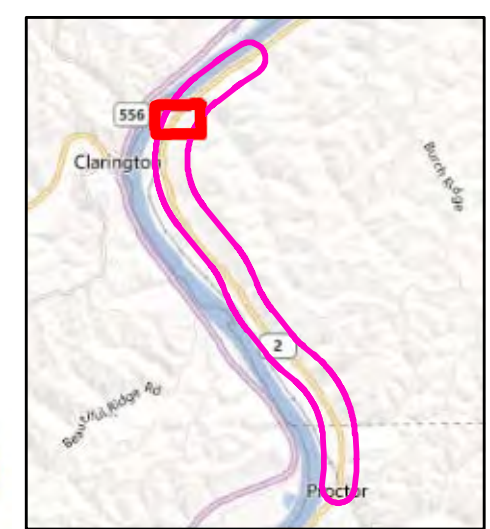
# West Virginia 2 Expansion

## Noise Study Area NAC Categories

Figure - B25

### Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary








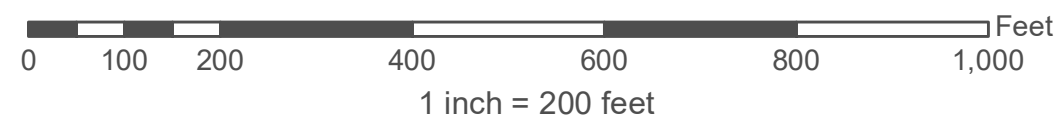
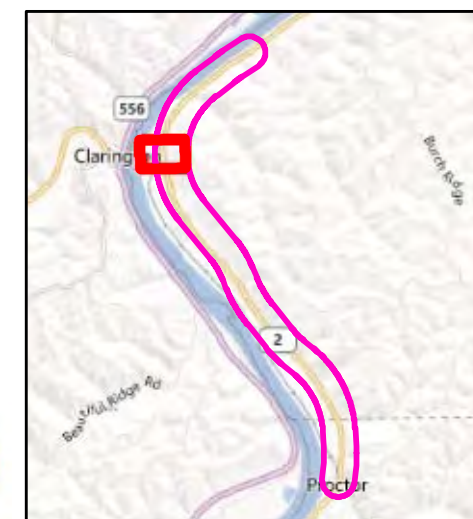
# West Virginia 2 Expansion

## Noise Study Area NAC Categories

Figure - B26

### Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary







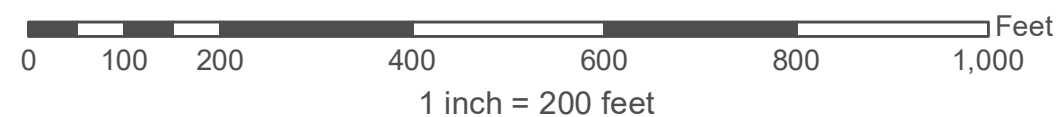
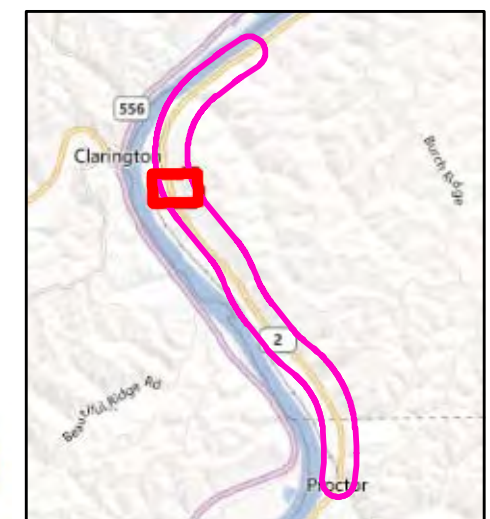
# West Virginia 2 Expansion

Noise Study Area  
NAC Categories

Figure - B27

### Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary








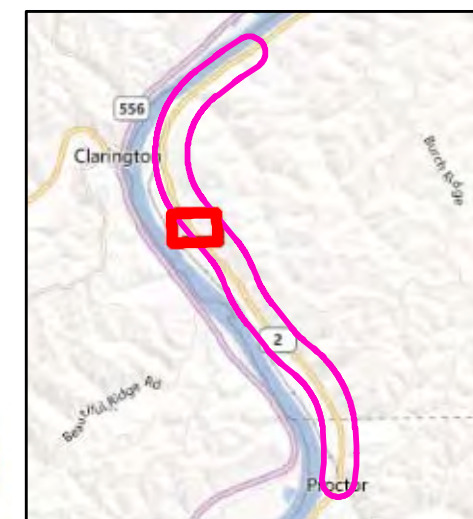
# West Virginia 2 Expansion

## Noise Study Area NAC Categories

Figure - B28

### Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary










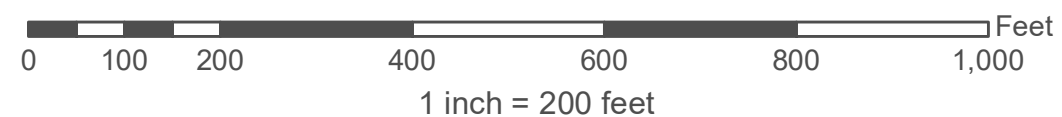
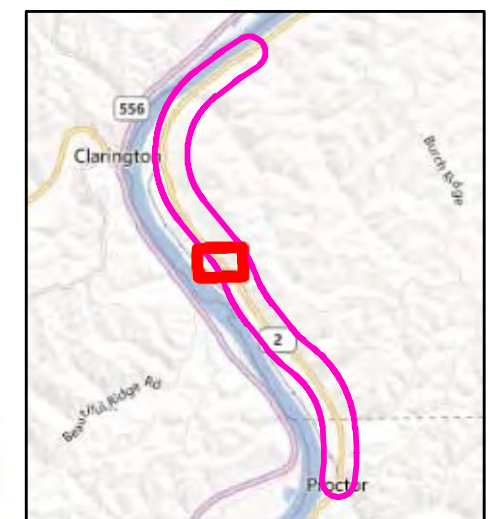
# West Virginia 2 Expansion

## Noise Study Area NAC Categories

Figure - B29

### Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary








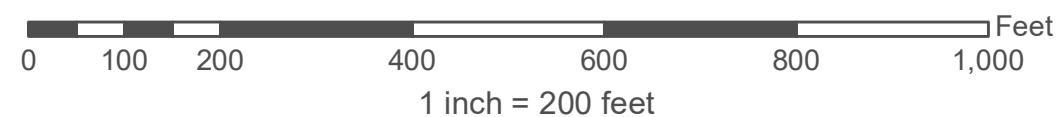
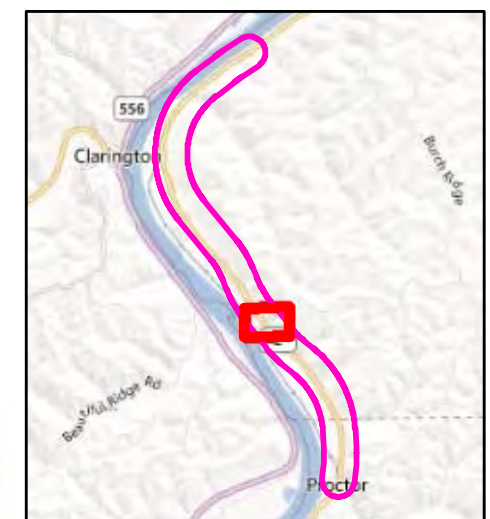
# West Virginia 2 Expansion

## Noise Study Area NAC Categories

Figure - B30

### Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary








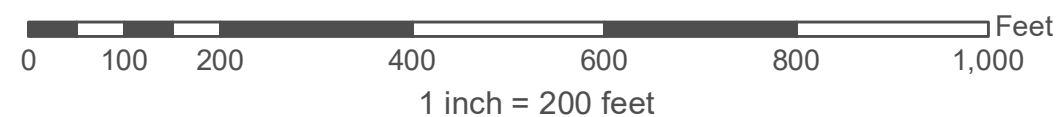
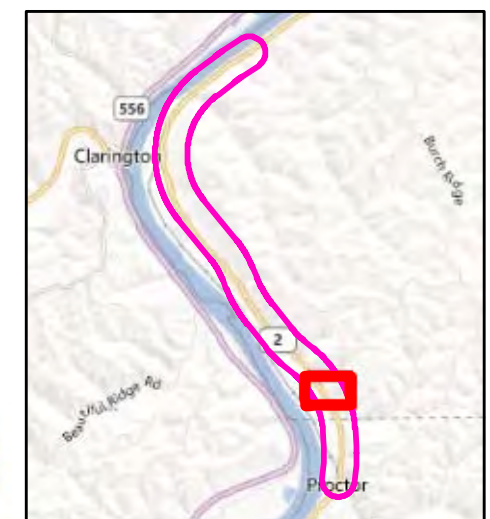
# West Virginia 2 Expansion

## Noise Study Area NAC Categories

Figure - B31

### Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary








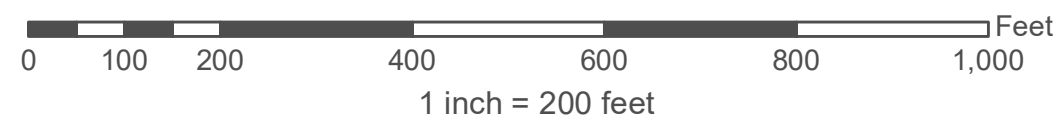
# West Virginia 2 Expansion

Noise Study Area  
NAC Categories

Figure - B32

## Legend

-  Residential
-  Industrial
-  Proposed Road Centerline
-  Project Area Boundary
-  County Boundary





June 2018

# West Virginia 2 Expansion

## Noise Study – Addendum

Prepared for:



**CDM  
Smith**



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## Addendum Introduction

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This document is an addendum to the West Virginia 2 Expansion Noise Study (CDM Smith, 2013). The following sections present information to supplement sections 4.3 *Predicted Noise Levels* and 6.0 *Conclusion* in the above referenced report. A new section 4.4 *Traffic Noise Abatement* has been added. The original 2013 noise study, referenced above, modeled and compared the Existing, No Build, and the Build (Alternative 1) scenarios.

To avoid impacts to a historic resource, minor shifts in the preferred alignment (Alternative 1) were required, resulting in a new alternative, Alternative 1A, the Preferred Alternative. A review of the original 2013 noise study was conducted using the current WVDOH Highway Traffic Noise Policy, effective July 13, 2011, to determine the potential for additional noise impacts associated with those shifts and determine if additional studies would be required.

After reviewing Alternative 1A, the roadway appears to have been shifted farther away from two of the five impacted noise receptors. One impacted receptor has been determined as a relocation due to right of way acquisition requirements. The remaining two receptors are considered to still be impacted and noise mitigation was evaluated for these receptors. Due to these factors, a revision to the TNM model used in West Virginia 2 Expansion Noise Study (CDM Smith, 2013) did not seem warranted.

### Changes to 2013 WV 2 Noise Study

The following sections replace the same numbered sections in the West Virginia 2 Expansion Noise Study (CDM Smith, 2013).

#### 4.3 Predicted Noise Levels

The noise levels for the proposed conditions were modeled using average daily traffic numbers for 2012 and 2032 provided by WVDOH. According to U.S. Census population estimates, the annual growth rate for Marshall and Wetzel Counties declined between 2010 and 2014 (-0.4 %). Due to the decline in population, it is anticipated that traffic volumes have also decreased during the same time period. Due to current trends it was determined that there has not been a significant increase in traffic along the corridor over the last six years.

There are 48 noise receptors spread throughout the length of the corridor, with residential receptors located predominately in the northern and southern parts of the study area, while the middle of the study area is mainly comprised of commercial receptors. In total, noise modeling indicated that nine receptors within the project area approach or exceed the NAC by 2012 traffic conditions and two additional receptors that would be approach or exceed the NAC by 2032 traffic conditions in the No Build scenario. However, the impacted receptors were reduced to five for the Build scenario, Alternative 1A (see **Appendix A of this Addendum** for the TNM results for all receptors). **Table 4-1** summarizes traffic noise impacts by scenario.

**Table 4-1: Traffic Noise Impacts by Scenario**

Scenario	Impacted Receptors per 23 CFR 772	Description*
2012 Existing Conditions	9	9 Category B (Residential)
2032 No Build	11	11 Category B (Residential)
2032 Build (Alternative 1A)	5	R-6, R-7, R-43, R-44, and R-45 Category B (Residential)

\* Noise modeling indicated the 2032 Build scenario would impact several existing receptors; however, those receptors are slated for relocation due to encroachment on the right of way.

As stated above, the Build scenario identified four receptors that approach or exceed the NAC, with one receptor having a substantial increase over existing noise levels. The impacted receptors include R-6, R-7, R-43, R-44, and R-45 for Alternative 1A, the Preferred Alternative (shown in **Figure 4-1**). R7 exceeds the NAC and has a substantial increase from existing noise levels. **Table 4-2** summarizes traffic noise impacts for the proposed project.

**Table 4-2: Traffic Noise Impacts for the Build Scenario**

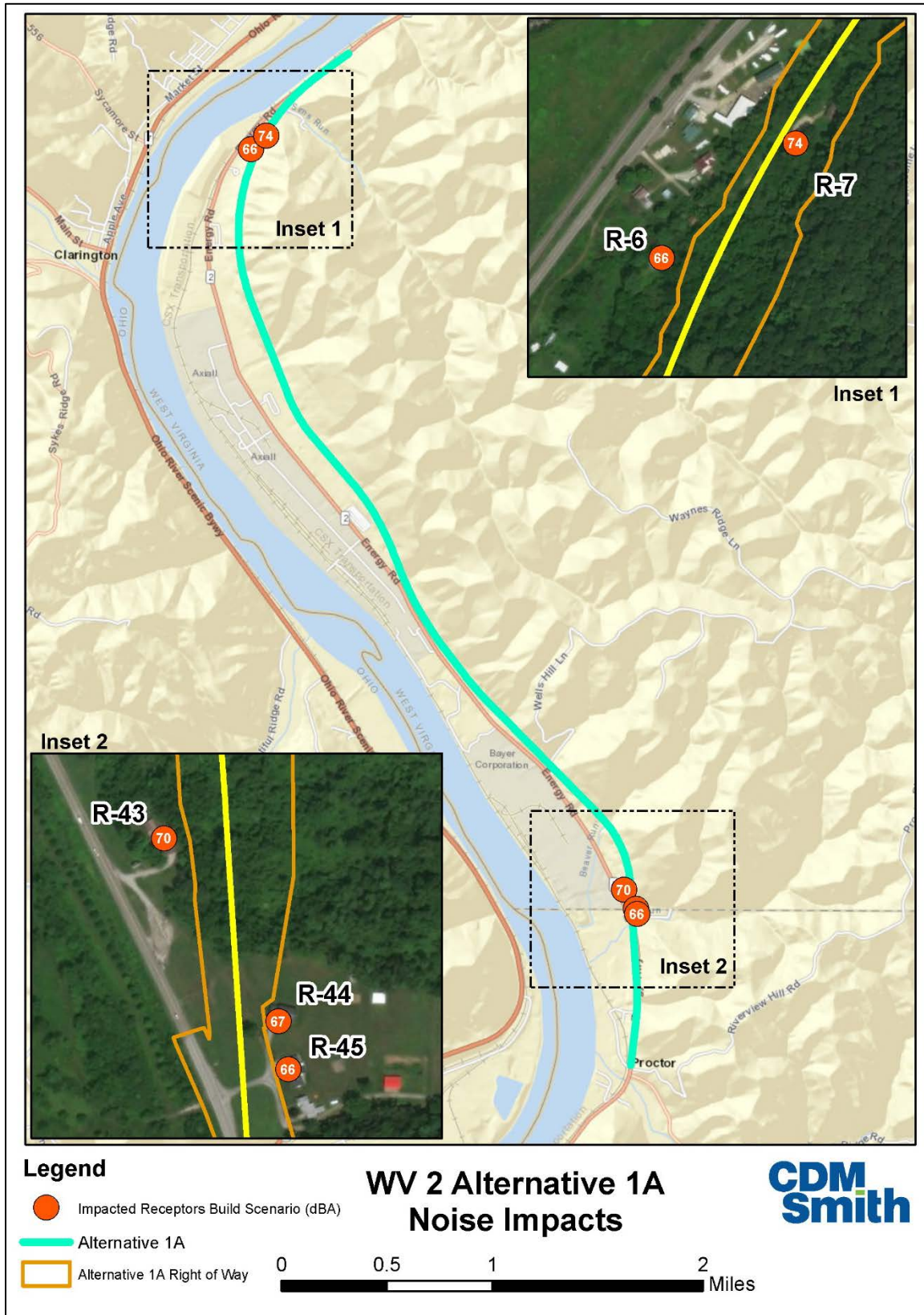
Receptor	Existing 2012 (dBA)	No Build 2032 (dBA)	Build 2032 (dBA)	Substantial Increase Build	Mitigation
R-6	57	58	66	9	Roadway has been moved approximately 40 ft away from the receiver and will reduce noise levels in this area.
R-7	55	56	74	19	Receptor to be relocated due to ROW impacts.
R-43	60	61	70	10	Roadway has been moved approximately 85 ft away from the receiver and will reduce noise levels in this area.
R-44	57	59	67	10	Noise mitigation does not seem feasible due to the property requiring direct access to proposed roadway limiting shielding from traffic noise.
R-45	58	60	66	8	Noise mitigation does not seem feasible due to the property requiring direct access to proposed roadway limiting shielding from traffic noise.

#### 4.4 Traffic Noise Abatement

The project area is primarily industrial with a few scattered residential areas at the northern and southern portions of the study area. Receptor R-7 is considered a relocation and would not require any mitigation for noise. The preferred alternative, Alternative 1A has been shifted farther away from Receptors R-6 and R-43. In reviewing the Build scenario model, the NAC Category B (Residential) is exceeded at 66 dBA which is approximately 120 to 132 feet from the centerline of the roadway. R-6 is approximately 160 feet and R-43 is approximately 165 feet from the centerline of the Alternative 1A. This should reduce the noise levels for these receptors below the impact level of 66 dBA.

After reviewing the location, topography, access points, and features for receptors R-44 and R-45, it was determined that noise mitigation would not be feasible due to fact that the receptors would require direct access to the roadway facility which would limit the effectiveness of a noise barrier. Due to this, no abatement measures have been recommended for the proposed project.

Figure 4-1: Alternative 1A Noise Impacts



## 6.0 Conclusion

This addendum documents the evaluation of existing ambient noise levels at six noise monitoring locations and the assessment of predicted loudest-hour equivalent Existing, No Build, and Build (Alternative 1A) condition traffic noise levels and traffic noise impacts at 48 noise sensitive receptor locations in the vicinity of the project. Ten of the modeled receptors would be relocated due to the new alignment of the highway. The Build scenario identified four receptors that approach or exceed the NAC and one receptor that has a substantial increase over existing noise levels. Alternative 1A, the Preferred Alternative, would impact receptors R-6, R-7, R-43, R-44, and R-45 (shown in **Figure 4-1**). R7 exceeds the NAC and has a substantial increase from existing noise levels.

It was determined that noise mitigation would not be feasible for receptors R-44 and R-45 due to fact that the receptors would require direct access to the roadway facility which would limit the effectiveness of a noise barrier. Due to this, no abatement measures have been recommended for the proposed project.

A copy of this traffic noise analysis will be provided to local officials to ensure, to the maximum extent possible, future developments are planned, designed, and programmed in a manner that will avoid traffic noise impacts.

Construction noise impacts, some of them potentially extreme, will occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this report that all efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts. The contractor shall notify WVDOH if construction activities are required in the vicinity of one or more residential neighborhoods.

## APPENDIX A – Traffic Noise Modeling Results

Receiver Name	Receiver ID	Dwelling Units	NAC Category	NAC Level	Exist	NoBuild	Change	Build	Change2
Receiver1	1	1	B	67	66	67	1	61	-6
Receiver2	2	1	B	67	66	67	1	60	-7
Receiver3	3	1	F	--	60	61	1	63	3
Receiver4	4	1	B	67	64	65	1	59	-4
Receiver5	5	1	B	67	60	61	1	63	3
Receiver6	6	1	B	67	57	58	1	66	9
Receiver7	7	1	B	67	55	56	1	74	19
Receiver8	8	1	B	67	54	55	1	63	9
Receiver9	9	1	F	--	64	65	1	55	-9
Receiver10	10	1	B	67	67	68	1	53	-14
Receiver11	11	1	B	67	70	71	1	53	-17
Receiver12	12	1	B	67	57	58	1	54	-3
Receiver13	13	1	B	67	60	61	1	52	-8
Receiver14	14	1	B	67	69	70	1	53	-16
Receiver15	15	1	B	67	65	66	1	53	-11
Receiver16	16	1	B	67	60	61	1	54	-6
Receiver17	17	1	B	67	64	65	1	54	-10
Receiver18	18	1	B	67	66	67	1	53	-13
Receiver19	19	1	F	--	60	62	1	54	-6
Receiver20	20	1	B	67	56	57	1	54	-2
Receiver21	21	1	B	67	56	57	1	54	-2
Receiver22	22	1	B	67	58	59	1	55	-2
Receiver23	23	1	B	67	66	67	1	54	-12
Receiver24	24	1	B	67	69	70	1	54	-16
Receiver25	25	1	B	67	63	64	1	54	-9
Receiver26	26	1	B	67	60	61	1	55	-6
Receiver27	27	1	B	67	66	67	1	53	-14
Receiver28	28	1	B	67	65	66	1	53	-12
Receiver29	29	1	B	67	54	55	1	57	3
Receiver30	30	1	B	67	54	55	1	57	2
Receiver31	31	1	F	--	72	73	1	52	-20
Receiver32	32	1	F	--	66	67	1	55	-11
Receiver33	33	1	F	--	60	61	1	57	-3
Receiver34	34	1	F	--	55	56	1	59	5
Receiver35	35	1	F	--	56	57	1	55	-1
Receiver36	36	1	F	--	61	62	1	52	-9
Receiver37	37	1	F	--	61	63	1	51	-10
Receiver38	38	1	F	--	58	59	1	52	-6
Receiver39	39	1	F	--	60	61	1	54	-6
Receiver40	40	1	F	--	63	64	1	63	0

Receiver Name	Receiver ID	Dwelling Units	NAC Category	NAC Level	Exist	NoBuild	Change	Build	Change2
Receiver41	41	1	F	--	52	53	1	61	9
Receiver42	42	1	F	--	60	61	1	60	0
Receiver43	43	1	B	67	60	61	1	<b>70</b>	10
Receiver44	44	1	B	67	57	59	1	<b>67</b>	10
Receiver45	45	1	B	67	58	60	1	<b>66</b>	8
Receiver46	46	1	B	67	59	60	1	65	6
Receiver47	47	1	B	67	52	54	1	57	4
Receiver48	48	1	B	67	45	46	1	51	6



# APPENDIX G – AGENCY CORRESPONDENCE

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# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

West Virginia Field Office  
694 Beverly Pike  
Elkins, West Virginia 26241

### Concurrence Form for Myotis Bat Survey Reports

Contact Name: Grant Maltba

Email Address or Fax Number: grant@apogee-environmental.com

FWS File #: 2017-I-0860 **All future correspondence should clearly reference this FWS File #.**

Project: WV State Route 2 Proctor to Kent, Marshall and Wetzel Counties, WV

The U.S. Fish and Wildlife Service (Service) has reviewed the report on the bat **mist net** survey conducted in the proposed project area and submitted on December 14, 2017. The survey followed the protocol outlined in the current Range-wide Indiana Bat Summer Survey Guidelines. These Guidelines are acceptable to address the endangered Indiana bat (*Myotis sodalis*) and the threatened northern long-eared bat (*Myotis septentrionalis*) (NLEB). These comments are provided pursuant to the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) The survey covered 8.4 acres kilometers of potential bat habitat and was conducted at 9 net sites from 8/7/2017 to 8/8/2017. No Indiana bats were captured.

0 NLEB were captured and 0 were tracked during this survey.

Surveys are considered current for 5 years (the summer they are completed and the following four summer seasons). In this case, the survey will expire on May 15, 2022. If a significant amendment is proposed to change or expand this project, or if timber will be removed after that date, a new survey may be necessary and the Service should be contacted.


The area was surveyed for caves and abandoned mine portals and none were found in the project area.

Based on the information provided to us, the Service has concluded that no Indiana bats or NLEB are expected to be adversely affected by the project. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. If there is a Federal nexus for the project (e.g., Federal funding provided, Federal permits required to construct), no tree clearing or any project construction activities on any portion of the parcel should occur until consultation under section 7 of the ESA, between the Service and the Federal action agency, is completed. Section 7 consultation is not complete until the Federal action agency submits a determination of effects to this

office, the Service concurs with the Federal action agency's determination. If there is no Federal nexus associated with this project, then no further coordination with this office is 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 determination 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.



Date: 4/3/2018

Biologist



Date: 4/6/18

Field Supervisor



RECEIVED  
MAY 04 2018  
ENGINEERING  
DIVISION

**DIVISION OF NATURAL RESOURCES**

Wildlife Resources Section  
Elkins Operations Center  
738 Ward Rd., PO Box 67  
Elkins, WV 26241  
Telephone 304-637-0245  
Fax 304-637-0250

**Stephen S. McDaniel**  
Director

April 30, 2018

Mr. Ben Hark  
Division of Highways  
Engineering Division  
1334 Smith Street  
Charleston, WV 25301

Dear Mr. Hark:

We have reviewed Natural Heritage Program files for information on rare, threatened and endangered (RTE) species and natural trout streams for the areas of the proposed highway projects:

RE	State Project S327-62-19.55 Federal Project STP-0062(817)D Point Pleasant 6 <sup>th</sup> Street Bridge Mason County	There are no known occurrences of any RTE species or natural trout streams within the project area.
SB	State Project 36-33-1.76, 2.22 Allegheny Mountain Curves Pendleton County	There are no known occurrences of any RTE species or natural trout streams at the project sites; however this project falls within Virginia big-eared bat habitat buffers, and within the critical habitat buffer for the Indiana bat.
SB	State Project U331-7-35.35 Federal Project CMAQ-0007(247)D WV 7 & CR 857 Monongalia County	There are no known occurrences of any RTE species or natural trout streams within the project area.
NM	State Project E339-901/13-U07.17 00 Federal Project FEMA-4331(020) Fike Drive Bridge Preston County	There are no known occurrences of any RTE species or natural trout streams at the project site; however this project falls within a habitat buffer for the Virginia big-eared bat.
?	State Project U354-2-23.11 07 WV 2 Parkersburg to St. Mary's Road BOND PROJECT Wood County	There are no known occurrences of any RTE species or natural trout streams within the project area.

RC	State Project 24-7-1.90 Big Sandy Pipe Replacement McDowell County	There are no known occurrences of any RTE species or natural trout streams within the project area.
SB	State Project S310-15-12.73 Federal Project STP-0015(109)D Paint Creek Arch Fayette County	There are no known occurrences of any RTE species or natural trout streams at the project site; however this project falls within habitat buffers for the Indiana bat.
SB	State Project S310-15-13.61 Federal Project STP-0015(106)D Milburn Bridge Fayette County	There are no known occurrences of any RTE species or natural trout streams at the project site; however this project falls within habitat buffers for the Indiana bat.
TB	State Project 28-20-11.40 TURNPINKE BOND WAVE 2 Princeton Overhead Bridge Mercer County	There are no known occurrences of any RTE species or natural trout streams within the project area.
SM	State Project S341-3-0.77 Federal Project STP-0003(241)D Marsh Fork Bridge Project Raleigh County	There are no known occurrences of any RTE species or natural trout streams at the project site; however this project falls within a habitat buffer for the Indiana bat. A mussel survey is required prior to any in-stream work.
TC	State Project U352-2-11.66 00 Federal Project NH-0002(528)D WV 2 Proctor to Kent Marshall and Wetzel Counties	There are no known occurrences of any RTE species or natural trout streams within the project area.

The Wildlife Resources Section knows of no surveys that have been conducted in these areas for rare species or rare species habitat. Consequently, this response is based on information currently available and should not be considered a comprehensive survey of the areas under review.

Thank you for your inquiry, and should you have any questions please feel free to contact me at the above number, extension 2048.

APR 30 2018

Sincerely,

Barbara Sargent  
Environmental Resources Specialist  
Environmental Coordination  
Operations Unit

**From:** Cummings, Traci L  
**To:** [Alison Rogers](#); [Hark, Ben L](#); [Mullins, Sondra L](#); [Demott, Rodney C](#); [Balderson, Lisa L](#)  
**Cc:** [Clegg, Larry P](#); [Goodin, Krista R](#)  
**Subject:** Fw: State Project U352-2-1.66 00/ WV2 Proctor to Kent Widening, Wetzel County, West Virginia  
**Date:** Thursday, May 17, 2018 10:48:42 AM

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FYI

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**From:** Kimberly Penrod <kpenrod@delawarenation.com>  
**Sent:** Thursday, May 17, 2018 9:37:34 AM  
**To:** Cummings, Traci L  
**Subject:** RE: State Project U352-2-1.66 00/ WV2 Proctor to Kent Widening, Wetzel County, West Virginia

Traci,

The protection of our tribal cultural resources and tribal trust resources will take all of us working together.

We look forward to working with you and your agency.

With the information you have submitted we can concur at present with this proposed plan.

As with any new project, we never know what may come to light until work begins.

The Delaware Nation asks that you keep us up to date on the progress of this project and if any discoveries arise please contact us immediately.

Our department is trying to go as paper free as possible. If it is at all feasible for your office to send email correspondence we would greatly appreciate.

Please update your files to reflect my contact information below.

If you need anything additional from me please do not hesitate to contact me.

*Respectfully,*

*Kim Penrod*

*Delaware Nation*

*Director, Cultural Resources/106*

*Archives, Library and Museum*

*31064 State Highway 281*

*PO Box 825*

*Anadarko, OK 73005*

*(405)-247-2448 Ext. 1403 Office*

*(405)-924-9485 Cell*

*[kpenrod@delawarenation.com](mailto:kpenrod@delawarenation.com)*

*Unless someone like you cares a whole awful lot, nothing is going to get better. It's not. ~Dr. Seuss*

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Catawba Indian Nation  
Tribal Historic Preservation Office  
1536 Tom Steven Road  
Rock Hill, South Carolina 29730

Office 803-328-2427  
Fax 803-328-5791



June 5, 2018

Attention: Ben L. Hark  
West Virginia Department of Transportation  
1900 Kanawha Boulevard East, Building 5, Room 110  
Charleston, West Virginia 25305-0430

Re. THPO #	TCNS #	Project Description
2018-1052-1		WV 2 Proctor to Kent Widening – Wetzel County

Dear Mr. Hark,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail [caitlinh@ccppcrafts.com](mailto:caitlinh@ccppcrafts.com).

Sincerely,

Wenonah G. Haire  
Tribal Historic Preservation Officer