

June 2018

## West Virginia 2 – Proctor to Kent

State Project U352-2-11.66 00  
Federal Project NH-0002(528)D

# ENVIRONMENTAL ASSESSMENT

Prepared for:



**CDM  
Smith**



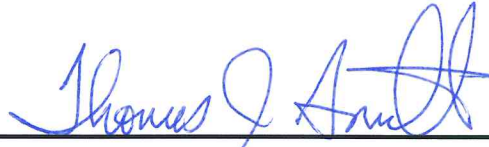
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Federal Project NH-0002(528)D  
**Environmental Assessment**  
**West Virginia 2 – Proctor to Kent**

Submitted Pursuant to 42 USC 4332(2)(c)  
U.S. Department of Transportation  
Federal Highway Administration  
and  
West Virginia Department of Transportation – Division of Highways

June 29, 2018


Date of Approval



For West Virginia Division of Highways

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For Federal Highway Administration

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The proposed project consists of the upgrade and relocation of a 5.25-mile portion of West Virginia State Route 2 (WV 2) from Proctor, West Virginia to Kent, West Virginia in Wetzel and Marshall Counties. This project will provide a safe, convenient highway with increased traffic capacity.

Comments on this Environmental Assessment are due by September 17, 2018 and should be sent to:

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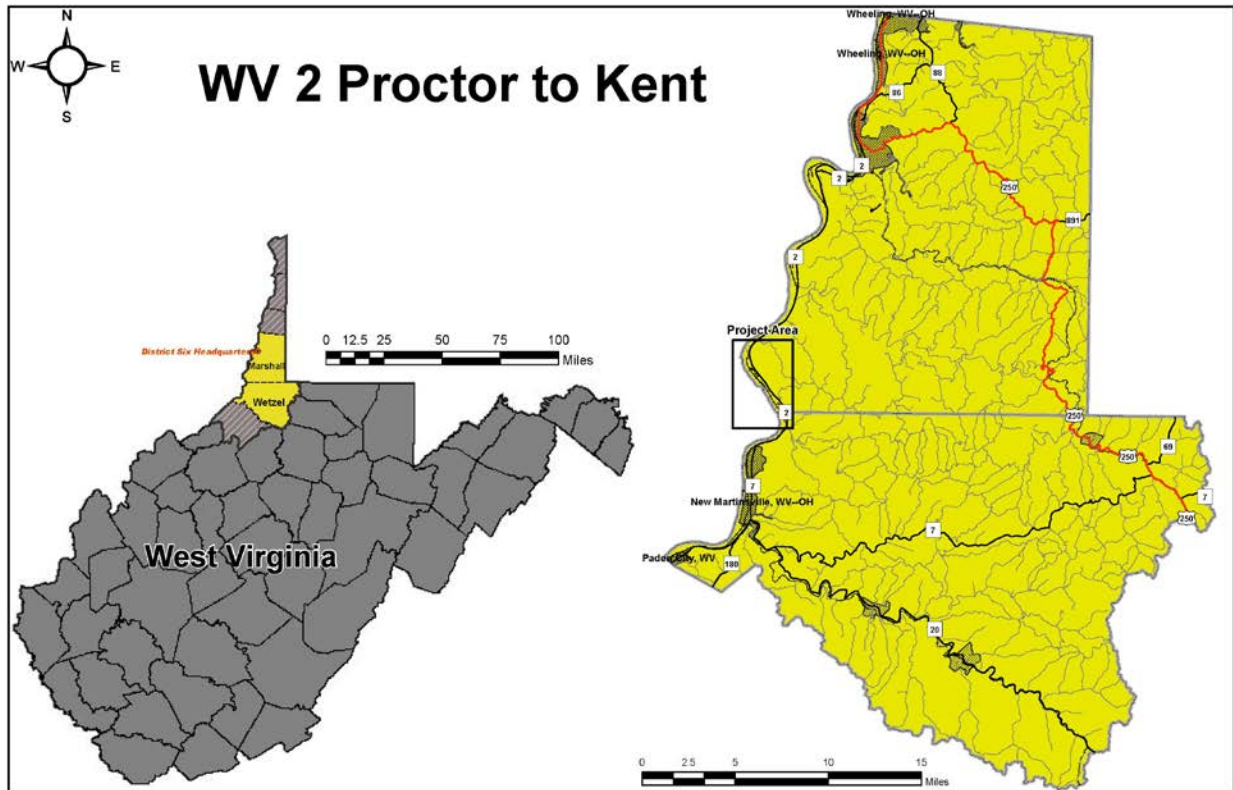
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## ES. 1 Project Description

The West Virginia Department of Transportation Division of Highways (WVDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to upgrade and relocate a 5.25-mile portion of West Virginia State Route 2 (WV 2) from Proctor, West Virginia to Kent, West Virginia in Wetzel and Marshall Counties. The project begins 0.47 of a mile south of the Marshall County Line and ends 0.18 of a mile south of Marshall County Route 78 just north of Sims Run. The proposed improvements include the upgrade of WV 2 from a rural two-lane arterial to a four-lane divided highway. This project is one of many on WV 2 that will ultimately provide a safe, convenient highway with increased traffic capacity from Interstate Route 77 (I-77) in Wood County, West Virginia to Hancock County, West Virginia. The general project location is shown on **Figure ES-1**.

**Figure ES-1: General Location of Project Area**



## ES. 2 Purpose and Need

The WV 2 project has the following needs:

1. Improve traffic volume capacity.

2. Enhance safety by providing operational improvements to reduce crash rates by widening the roadway and reducing the number of at-grade access points and the traffic conflicts associated with multiple at-grade intersections.

Thus, a relocated and widened WV 2 would alleviate traffic congestion and enhance safety along WV 2.

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 through operational improvements.*

## ES. 3 Alternatives Considered

Four Build alternatives were considered under this EA. The No Build Alternative and the widening of WV 2 were also considered but eliminated because they do not meet the purpose and need of the project.

### Alternative 1

Alternative 1 begins at the southern end of the project limits at the existing four-lane section 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. Because of the slope of the hillside, any impact would result in a high cut. 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 Bayer property past the Bayer Heritage Federal Credit Union up to CR 2/2, which is an access to Axiall's brine wells and to several gas well pads located at the top of the hill. A short section of tangent roadway follows, which runs parallel to the existing roadway. A new curve to the east and a reverse curve to the west align the roadway behind the Axiall facilities. Finally, a long curve to the east aligns the roadway with the project to the north. This alignment impacts a portion of a historic property boundary (MR-0144, the green barn property), residences at Dry Run, the Bayer Heritage Credit Union, the Blue Racer supply gas lines, and the Axiall brine well infrastructure.

Alternative 1 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.

### Alternative 2

Alternative 2 was developed to maximize the separation between the chemical facilities and the roadway. This separation was obtained by pushing the alignment higher up on the hillside. The general configuration is similar to Alternative 1, but located further to the east and at a higher profile grade. This alignment impacts the residences at Dry Run, the Bayer Heritage Credit Union, the CR 2/2 Access Road, and the Blue Racer supply gas lines.

Alternative 2 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.

### Alternative 3

Alternative 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 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.

### Alternative 1A – The Preferred Alternative

Alternative 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 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 Axiall 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.

## ES. 4 Environmental Impacts

Table ES-1 presents a summary of key impacts for the build options for the WV 2 project.

**Table ES-1: Summary of Environmental Impacts**

Evaluation Factor	Alternative 1	Alternative 2	Alternative 3	Alternative 1A Preferred Alternative
<b>Engineering</b>				
Prelim. Length of WV 2 Improvements (miles)	5.8 miles	5.8 miles	5.9 miles	5.3 miles
Roadway Configuration	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
Estimated earthwork excavation (cubic yards)	2,813,849	4,605,846	6,183,857	3,059,351
<b>Natural Environment</b>				
Stream Impacts (linear feet)	2,023	3,321	2,759	1,913
Wetlands (acres)	4.19	4.12	4.01	3.03
Floodplains (acres)	10.07	10.02	10.91	5.59

Evaluation Factor	Alternative 1	Alternative 2	Alternative 3	Alternative 1A Preferred Alternative
T&E Species	0	0	0	0
<b>Human Environment</b>				
Forested Land (acres)	152.21	273.34	221.57	174.61
Historic Resources	1	None	None	None
Archaeological Sites	1	No adverse effect	No adverse effect	None
Cemetery	None	None	None	None
Industrial Facilities (e.g. Chemical Plant)	2 - Axiall Brine Well Infrastructure <sup>1</sup> and Blue Racer Valve Cluster	1 - Axiall Brine Well Infrastructure <sup>1</sup>	1 - Axiall Brine Well Infrastructure <sup>1</sup>	1-Axiall Brine Piping Infrastructure
Commercial Facilities (e.g. Businesses)	1 – Bayer Heritage Credit Union	1 – Bayer Heritage Credit Union	None	1 – Bayer Heritage Credit Union
Residential Displacements	9	5	9	5
Environmental Justice Populations	None	None	None	None
Noise <sup>2</sup>	Yes	Yes	Yes	Yes
Air	No	No	No	No
Prime Farmland/ Farmland of Statewide Importance (acres)	6.21/121.38	6.07/88.48	4.41/102.22	2.97/76.52
Section 4(f)/6(f) Properties	0	0	0	0
<b>Physical Impacts</b>				
Hazard Waste Sites	None	None	None	None
Public Utility Conflicts	Gas pipelines feeding the Blue Racer Fractionation Plant	Gas pipelines feeding the Blue Racer Fractionation Plant	Electrical tower	None
<b>Financial / Costs</b>				
Estimated Construction Costs (Excluding utility relocation and right of way acquisition)	\$60,100,000	\$77,900,000	\$89,300,000	\$58,494,312

<sup>1</sup>The brine wells are used to retrieve brine water from the earth as a “raw material” which is then used in chemical production.

<sup>2</sup>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.

## ES. 5 Recommended Preferred Alternative – Alternative 1A

All four Build alternatives have similar impact characteristics and equally meet the purpose and need of the project. The recommended preferred alternative for this project is Alternative 1A. Alternative 1A has the least overall impacts and construction costs.

# CHAPTER 1. INTRODUCTION AND PURPOSE AND NEED

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## 1.1 Introduction

The West Virginia Department of Transportation Division of Highways (WVDOH), in cooperation with the Federal Highway Administration (FHWA), proposes to upgrade and relocate a 5.25-mile portion of West Virginia State Route 2 (WV 2) from Proctor, West Virginia to Kent, West Virginia in Wetzel and Marshall Counties. The project begins 0.47 of a mile south of the Marshall County Line and ends 0.18 of a mile south of Marshall County Route 78 just north of Sims Run. The proposed improvements include the upgrade of WV 2 from a rural two-lane arterial to a four-lane divided highway. This project is one of many on WV 2 that will ultimately provide a safe, convenient highway with increased traffic capacity from Interstate Route 77 (I-77) in Wood County, West Virginia to Hancock County, West Virginia.

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

This EA evaluates the alternatives developed and discloses the potential environmental impacts for the four Build Alternatives including the Preferred Alternative.

## 1.2 Existing Highway Network

WV 2 is a rural two-lane highway within the northwest portion of the state that links Huntington, West Virginia to Chester, West Virginia just northeast of Pittsburgh, Pennsylvania within the Upper Ohio River Valley region. The project area lies between the communities of Proctor and Kent in Wetzel and Marshall Counties. **Figure 1-1** illustrates the general location of the project in the region and **Figure 1-2** shows the project location.

The existing WV 2 roadway has one 12-foot travel lane in each direction with variable width shoulders through the limits of this project. The project area has no major intersections within the project limits. Immediately to the south of the project limits is a four-lane bridge and a short section of four-lane highway. Several miles to the north of the project limits, WV 2 has a continuous four-lane highway from Woodlands, WV to Wheeling, WV. In addition to the Proctor to Kent segment of WV 2, two other segments of WV 2 are undergoing widening projects: the Franklin to Woodlands segment is under construction and the Kent to Franklin segment is designed and awaiting construction.

## 1.3 Regional Transportation Plans

Plans to upgrade WV 2 in Marshall County are consistent with the area's future vision described in the *2040 Belmont-Ohio-Marshall Transportation Study Transportation Plan*, adopted June 2016 by the Belomar Regional Council. The WV 2 Proctor to Kent project is listed as *2LN-12: WV2 from Wetzel County Line to CR 78*. The following is an excerpt from that plan.

*“This is the only remaining two lane segment of WV2 in Marshall County. A portion of this segment is included in the current long-range plan for upgrade to four lane. This section will remain in this plan. A second section will complete the four laning to the Wetzel County line. As part of the WV2 upgrade to four lanes, the remaining section is added.”*

**Figure 1-1: General Location of Project Area**

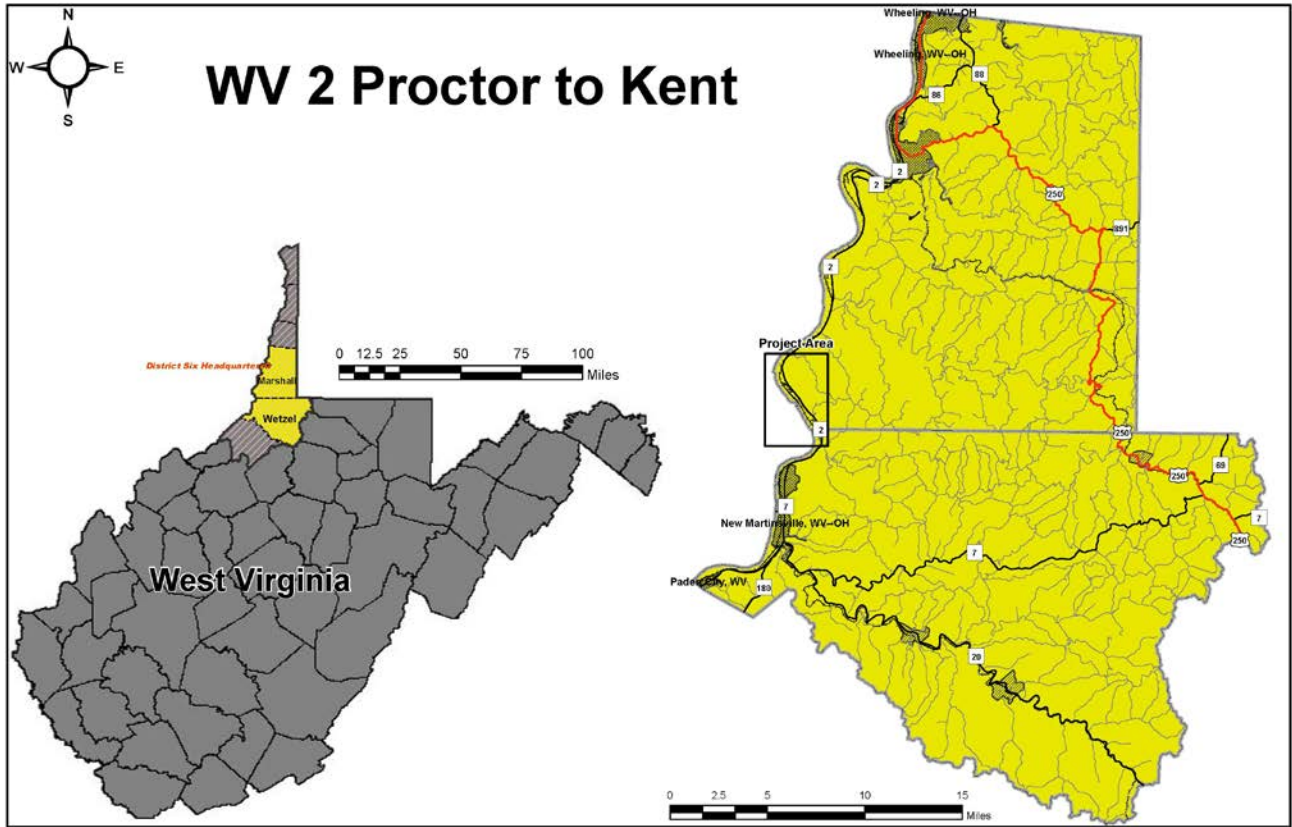
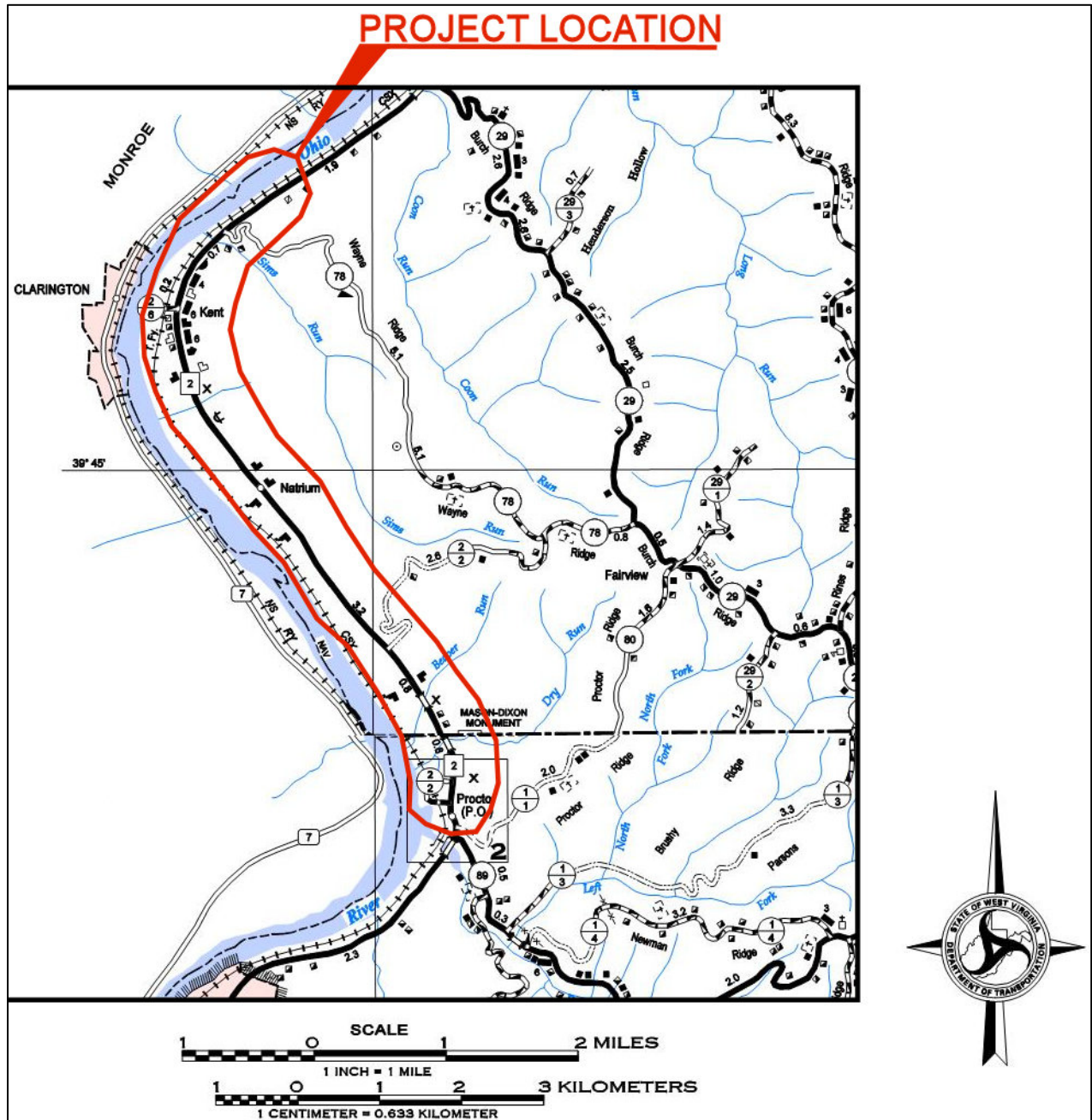


Figure 1-2: Project Location



## 1.4 Project Funding

Funding for this section of WV 2 was included in the 2017 “Roads to Prosperity Highway Program”. A portion of the funding for this program was included in a \$1.6 billion referendum, which permitted the sale of general obligation bonds. The referendum passed under a special election held October 7, 2017. The West Virginia Legislature then passed a bill on December 4, 2017, authorizing the sale of the bonds. This project is listed in the Fiscal Years (FY) 2016-2021 West Virginia Statewide Transportation Improvement Program (STIP) Amendment #15 dated December 4, 2017 with State Project Number

U326 2 01166 00 and Federal Project Number NFA2317003D. The project is also listed in the FY 2018-2021 Belmont-Ohio-Marshall Transportation Improvement Program (TIP).

## 1.5 Project Need

### 1.5.1 Background

West Virginia Route 2 (WV 2) is a state highway, which provides a continuous link between Huntington located in the southwestern part of the state and Chester located in the northern panhandle. The alignment typically parallels the Ohio River for most of its length. The segment from Parkersburg to Wheeling is the primary overland link between the cities on the West Virginia side of the River. The highway has been periodically widened from 2-lanes to 4-lanes when financing has become available. Currently, WV 2 has been continuously widened to 4-lane highway from Franklin, Marshall County, to I-70 in Wheeling, Ohio County. There are two more projects which will continue the 4-lanes south to the Marshall/Wetzel County line in Proctor, West Virginia.

The WV 2 Proctor to Kent project serves the Upper Ohio Valley Region and the project area is characterized by industrial development which developed around the chemical, steel, and coal facilities. There are three industrial complexes within the project area that serve the chemical and shale gas industries. These industries have historically generated commercial and employee traffic. The shale gas industry is a relatively recent development in the project area and has resulted in increased commercial vehicle traffic accessing the numerous well heads and gas processing facilities located throughout the Northern Panhandle. An additional benefit of the proposed project would allow the Covestro LLC (formerly Bayer Corporation), Axiall (formerly PPG), and Blue Racer Midstream (formerly Dominion) plants to maximize the developable land available near them, which as a result will help boost economic development within the project vicinity. Additionally, the security at the Covestro, Axiall, and Blue Racer Midstream plants would be enhanced by limiting the access to their properties.

Community Leaders in the Upper Ohio Valley have been advocating a continuous 4-lane highway from Parkersburg to Wheeling for many years, but funding has not been available to complete the construction. With the legislative passage of the Go-Bond Authorization, the projects from Proctor to Kent and Kent to Franklin are now funded and will be constructed in the very near future.

### 1.5.2 Traffic Volume Capacity

This 5.25-mile segment of WV 2 from Proctor to Kent had an annual average daily traffic (AADT) of 4,900 vehicles per day (vpd) in 2012, which is projected to increase to 6,300 vpd in the design year of 2032. 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.

These traffic volumes were used to estimate Level of Service (LOS), a qualitative measure of highway traffic conditions, as identified in the 2010 Highway Capacity Manual (HCM). Individual levels of service characterize conditions in terms of speed, travel time, freedom to maneuver, traffic interruptions, and



comfort, convenience and safety. Six LOSs are defined and given letter designations from A to F, with LOS A representing free flow conditions and LOS F representing severe congestion and/or time delays. Typically, a minimum LOS D is considered acceptable in urban areas and LOS C is considered acceptable in rural areas.

The existing year design-hour volume of 684 vehicles per hour (vph) and the proposed design-hour volume of 880 vph both correlate to LOS D for WV 2 between Proctor and Kent. Once WV 2 is widened to four lanes, the level of service increases to LOS A. This increase in level of service is a result of the improved capacity of a four-lane highway, which is further improved by wider shoulders and improved access management from the reduction of driveways.

### 1.5.3 Traffic Safety

Existing WV 2 is a rural two-lane roadway with variable width shoulders, which are typically narrow and in some cases non-existent. Immediately to the south of the project limits, within the area of the WV 2 – WV 89 Intersection and the Proctor Creek Bridge, there is a short section of four-lane highway. Several miles to the north of this project, WV 2 has a continuous four-lane typical section from Franklin to Wheeling. The design for the Kent to Franklin section just to the north of this project has been completed but is not yet constructed.

The project area is characterized by the chemical and gas processing plants located along the roadway. Each of these facilities contributes multiple driveways, which provide access for commercial vehicles and plant workers. These facilities also contribute to the truck traffic along the corridor. The plant workers cause significant peaks in traffic flow during shift changes.

Accident data was sampled for the three-year period from 2013 to 2016. This data reflected 34 accidents with 17 of those resulting in injuries. There were no reported fatalities over this period. The accident rate was below the statewide average for a similar type facility, however the injury rate was double the statewide average. **Table 1-1** shows the basic accident statistics.

**Table 1-1: Accident Statistics**

Date Range: 01/01/13 to 12/31/15		Total Days: 1094									
Highway Section County	Route	Milepost		Length (In Miles)	ADT	Accidents	Accident Rate *	Injury Accidents	Injury Accident	Fatal Accidents	Fatal Accident
		Begin	End								
Marshall & Wetzel	WV 2	-	-	3.51	4,900	34	180.7	17	90.4	0	0.0
<i>Statewide Average</i>							<i>199.0</i>		<i>42.0</i>		<i>1.4</i>

\* Rates are per Hundred Million Vehicle Miles

Source: WVDOH

The predominate collision type is single vehicle, which accounted for 47 percent of the accidents. Most of these crashes involved an impact with a fixed object. Both sides of the roadway are lined with utility poles, which are located within the 10-foot wide clear zone. Three of the single vehicle accidents involved striking an animal. The other collision types included: rear-end at 24 percent, and right-angle at

18 percent. The rear-end and right-angle crashes could be attributed to the number of plant entrances and driveways located along the length project.

These types of accidents are consistent with a two-lane rural highway. There are large fields located around each of the chemical plants that attract deer, turkey, and geese. The single vehicle accidents could be reduced by a four-lane typical section and wider shoulders. The rear-end and right-angle crashes could be reduced by providing access management along the new WV 2 road alignment. This could be accomplished by providing well marked intersections to access to the industries.

#### 1.5.4 Traffic Operations

The project area has no major intersections within the project limits. WV 89 is located just to the south of this project and is the closest intersection within proximity to the project. The traffic operations along WV 2 are characterized by three major plant entrances and associated access driveways. There are traffic signals located at the main entrances of Covestro and Axiall. These signals were constructed to provide safer, more convenient access to the plant entrances. They are especially needed during shift changes to allow workers to egress the sites without waiting in long queues. Over 24 hours the traffic stream on WV 2 includes 13 percent trucks. A significant portion of these trucks are accessing the industrial areas within the project limits, which causes traffic conflicts and slows the overall traffic stream. Providing a four-lane highway with reduced access points will significantly improve the traffic operation characteristics of WV 2.

#### 1.5.5 Project Need

The WV 2 project has the following needs:

1. Improve traffic volume capacity.
2. Enhance safety by providing operational improvements to reduce crash rates by widening the roadway and reducing the number of at-grade access points and the traffic conflicts associated with multiple at-grade intersections.

Thus, a relocated and widened WV 2 would alleviate traffic congestion and enhance safety along WV 2.

#### 1.5.6 Project Purpose

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 through operational improvements.*

## CHAPTER 2. ALTERNATIVES

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Four build alternatives: Alternative 1, Alternative 2, Alternative 3, and Alternative 1A in addition to the No Build alternative were evaluated in this environmental assessment. Each alternative was evaluated according to its ability to meet the purpose and need of the proposed project. A fifth option to widen the existing roadway was considered early in the process, and subsequently discarded because it would not meet the purpose and need for the project. Widening existing WV 2 would not meet these requirements, because it severs the plant properties and does not reduce the number of at-grade access points, which will not help reduce crash rates.

The four build alternatives for the project were developed to decrease the number of access points along the roadway, to provide a safer roadway with increased traffic capacity, and to avoid or mitigate impacts along the project. Personnel from the industrial plants in the area 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 – between the plant facilities and the hillside. This location allows the construction of a single access point, which would be easier to control from a security standpoint. It would also provide some separation of the plants from the roadway, which currently severs their facilities.

Because of the unique parameters associated with the nature of the study area, options for new location alternatives are limited to a small corridor. Alternative 1 is located along the foot of the hillside to the east of the Ohio River CSX Railroad tracks which are located parallel to the project along the Ohio River. Each subsequent alternative was located progressively further into the hillside. Alternative 2 was developed to analyze a larger buffer area between the industrial plants and the roadway. Alternative 3 was developed to avoid the newly constructed supply pipelines and truck offloading facilities, which support the Blue Racer facility. Alternative 1A, the Preferred Alternative was developed to maintain the overall features of Alternative 1 but was adjusted to avoid and minimize impacts to the historic green barn property and the Blue Racer facilities. All four build alternatives utilize a 4-lane typical section, with a 14-foot wide paved median. The shoulders are 10 feet wide with 8 feet of pavement. The four build alternatives are illustrated on **Figures 2-1, 2-2, and 2-3**. The 2018 Design Report describing the alternatives in detail is provided in **Appendix A**.

All four build alternatives meet the purpose and need of the projects by increasing the capacity of WV 2, and by enhancing safety by reducing the number of driveways and access points to the mainline highway and providing wider shoulders and additional roadside clear area.

Figure 2-1: WV 2 Design Study Alternatives, Sheet 1 of 3

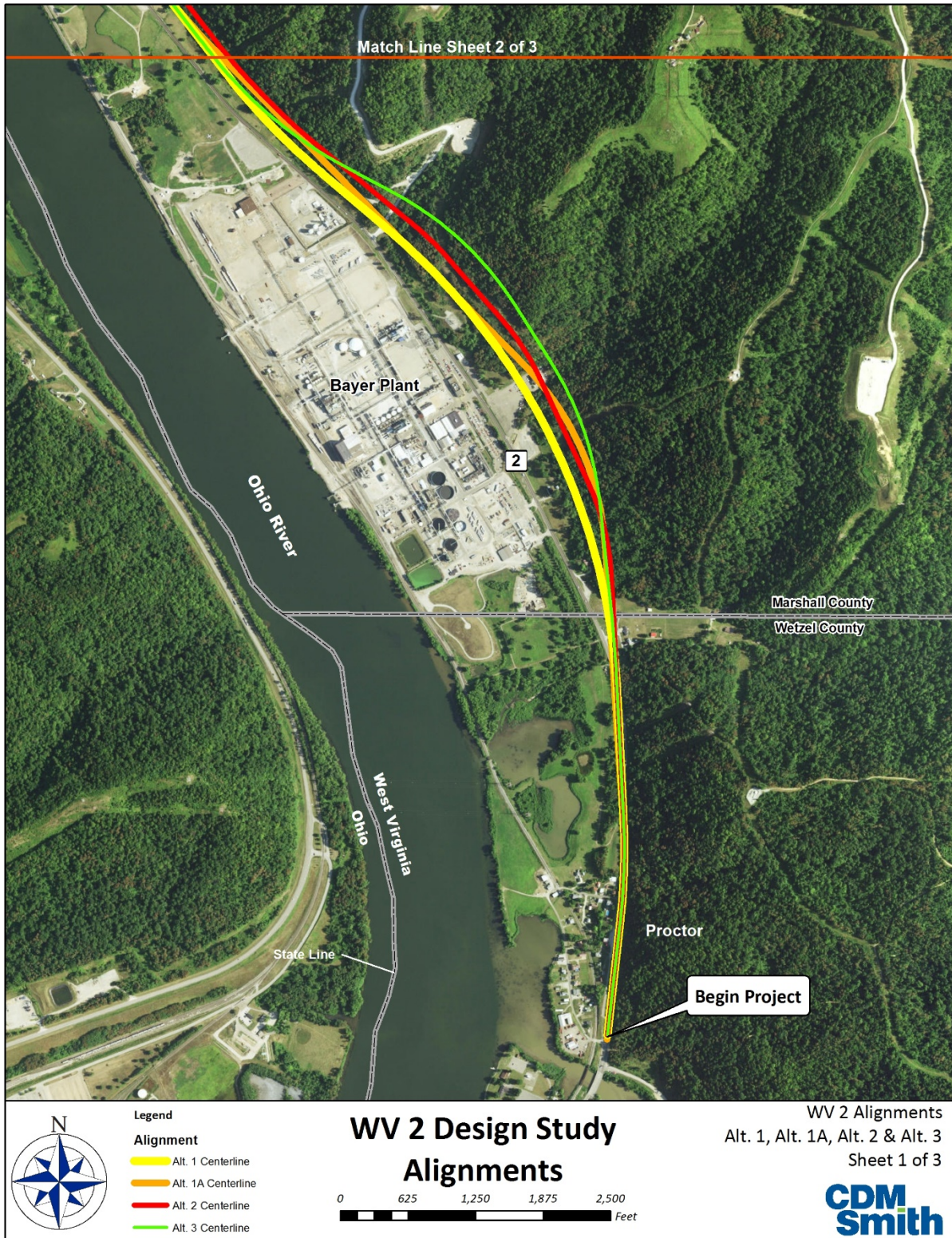


Figure 2-2: WV 2 Design Study Alternatives, Sheet 2 of 3

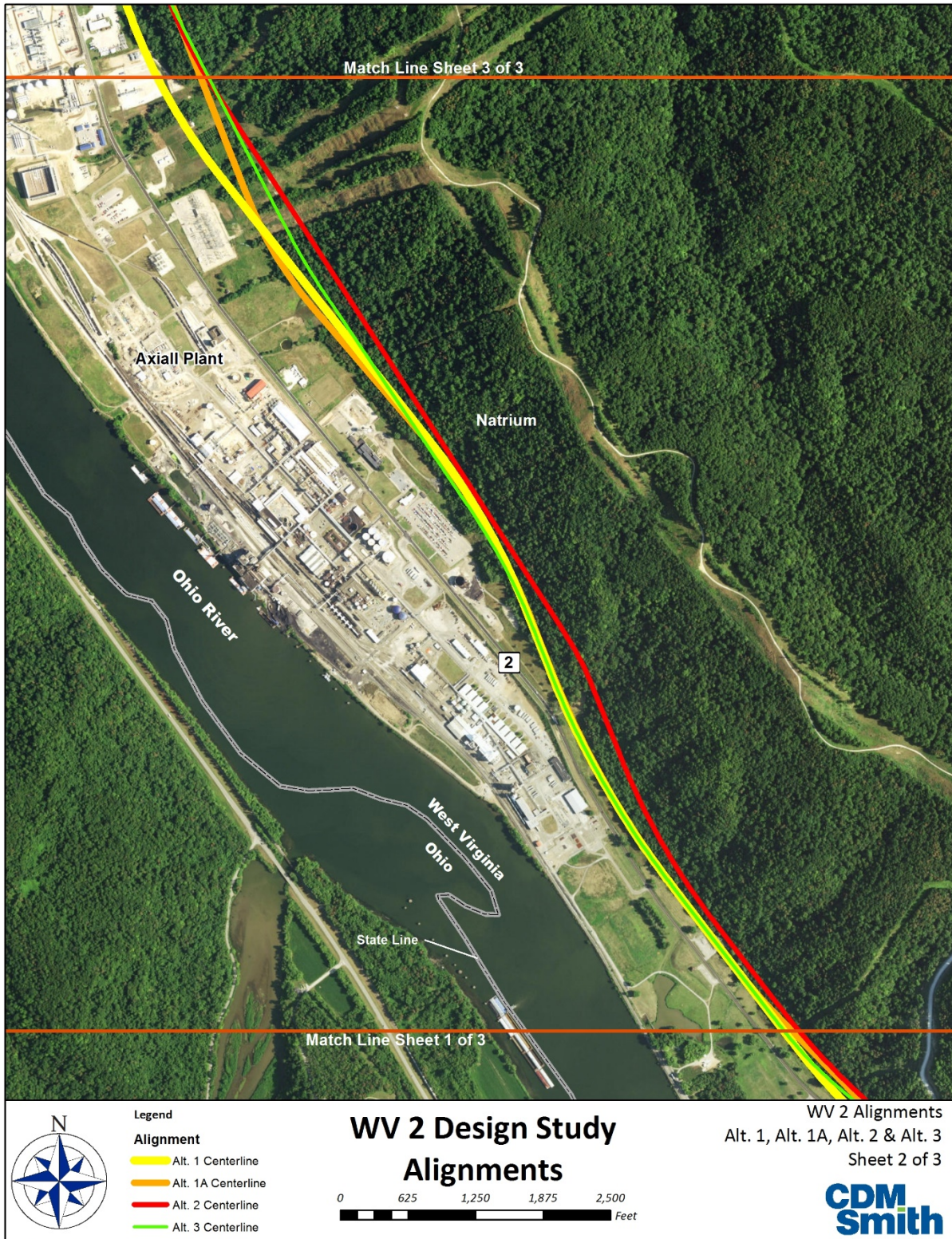
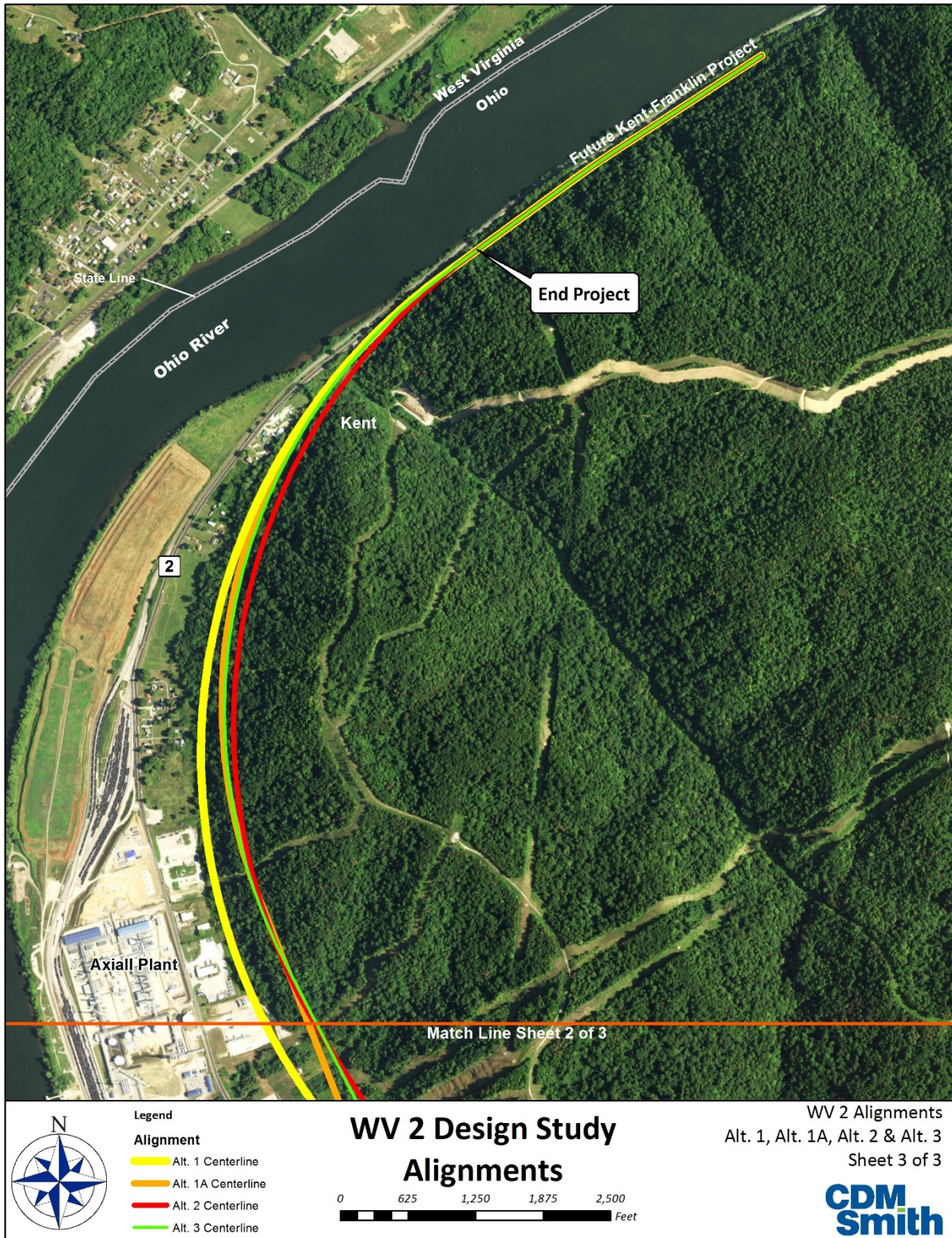


Figure 2-3: WV 2 Design Study Alternatives, Sheet 3 of 3



## 2.1 Alternative 1

Alternative 1 begins at the southern end of the project limits at the existing four-lane section 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. Because of the slope of the hillside, any impact would result in a high cut. 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 Bayer property past the Bayer Heritage Federal Credit Union up to CR 2/2, which is an access to Axiall's brine wells and to several gas well pads located at the top of the hill. A short section of tangent roadway follows, which runs parallel to the existing roadway. A new curve to the east and a reverse curve to the west align the roadway behind the Axiall facilities. Finally, a long curve to the east aligns the roadway with the project to the north (see **Figure 2-3**). This alignment impacts a portion of a historic property boundary (MR-0144, the green barn property), residences at Dry Run, the Bayer Heritage Credit Union, the Blue Racer supply gas lines, and the Axiall brine well infrastructure.

Alternative 1 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.

## 2.2 Alternative 2

Alternative 2 was developed to maximize the separation between the chemical facilities and the roadway. This separation was obtained by pushing the alignment higher up on the hillside. The general configuration is similar to Alternative 1 but located further to the east and at a higher profile grade. This alignment impacts the residences at Dry Run, the Bayer Heritage Credit Union, the CR 2/2 Access Road, and the Blue Racer supply gas lines (see **Figure 2-3**).

Alternative 2 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.

## 2.3 Alternative 3

Alternative 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 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 (see **Figure 2-3**).

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.

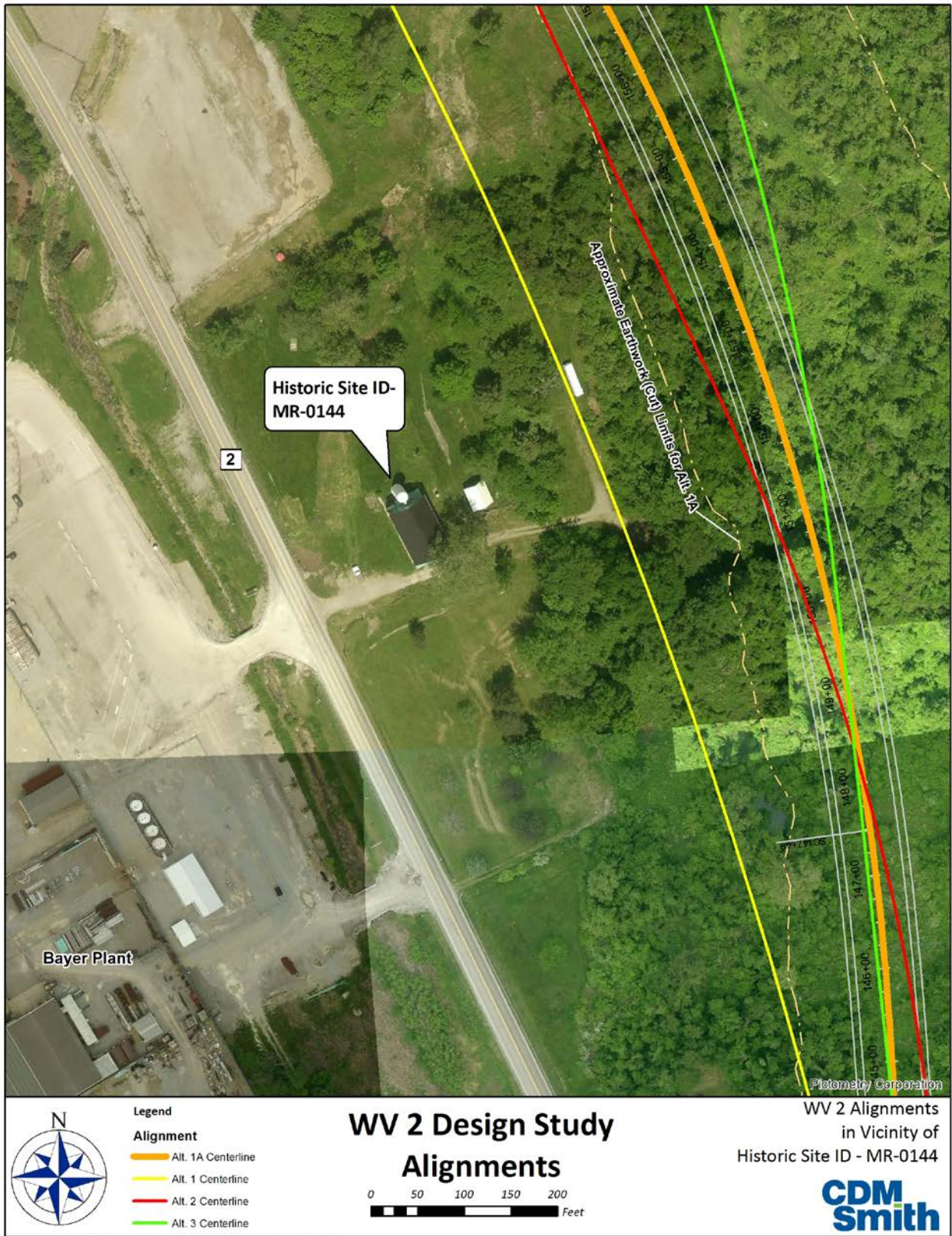
## 2.4 Alternative 1A – The Preferred Alternative

Alternative 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 the encroachment on the pipelines and valve complex near the Blue Racer Plan (see **Figure 2-4**). The horizontal curves and vertical profile for Alternative 1A have been adjusted near these features to minimize the overall impacts. This alignment impacts the Bayer Heritage Credit Union and a portion of the brine piping infrastructure at the Axiall 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.



Figure 2-4: WV 2 Design Study Alternatives in Vicinity of Historic Site ID - MR-0144



## 2.5 No Build Alternative

Under the No Build Alternative, the proposed widening and relocation of a portion of WV 2 from Proctor to Kent will not be constructed. Future traffic growth related to the anticipated increase in industrial development will create substantial delays and high congestion on this portion of WV 2. Operational improvements will not be made, thus not improving safety. Thus, the No Build Alternative does not meet the purpose and need to increase system capacity and enhance safety.

## 2.6 Comparison of Alternatives

All four build alternatives meet the purpose and need of the projects by increasing the capacity of WV 2, and by enhancing safety by reducing the number of driveways and access points to the mainline highway and providing wider shoulders and additional roadside clear area.

### 2.6.1 Overview

The four build alternatives are located within a corridor that is bounded between the Ohio River, which the CSX Railroad line runs adjacent to, and the steep hillside located east of existing WV 2. Each of the alternatives will consist of four 12-foot travel lanes, with a 14-foot flush median, four-foot inside shoulders and eight-foot outside shoulders. The four build alternatives are all similar in length, approximately 5.3 to 5.9 miles in length. Alternative 1A is the least expensive with a cost of \$58.5 million and Alternative 3 is the most expensive at \$89.3 million. Alternative 1 would have the most impacts to wetlands (4.19 acres), while Alternative 1A would impact the least wetlands (3.03 acres). Alternative 2 has the greatest impacts to streams (3,321 linear feet) and Alternative 1A would have the least amount of impacts to streams (1,913 linear feet). Alternative 2 would have the greatest impact to forested lands (273.34 acres) while Alternative 1A will impact the least amount of forested lands (138.91 acres). Alternatives 1 and 3 would have the most residential relocations at 9 and Alternatives 2 and 1A have the least at 5. Alternative 1 would impact one historic resource, the green barn property, while Alternatives 1A, 2, and 3 would not impact any historic resources. The comparison of the four build alternatives is summarized in **Table 2-1**.

Alternative 1 would avoid the towers that feed the transformer station located at the northern end of the Axiall plant; whereas Alternative 2 would require them to be relocated. Alternatives 1, 2 and 3 would impact the Axiall Brine Well Infrastructure. Alternative 1A would not impact the electrical towers or the Axiall Brine Well Infrastructure. The Blue Racer Midstream Gas Plant 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 during this evaluation. Plans for the widened and relocated WV 2 were provided to the gas company to show the proposed roadway alignment. These lines will have to be located during the design phase of the proposed project. There will be some electrical lines impacted at the northern end of the project, which will likely need to be relocated.

CSX Railroad tracks are 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 CSX Railroad right of way. Other than the residential areas at Proctor, Dry Run and Kent, most of the property within the project area is owned by either by Covestro, Axiall or Blue Racer Midstream.

As indicated in Table 2-1, impacts are very similar between the four build alternatives.

**Table 2-1: Alternatives Analysis Evaluation/Cost Matrix**

Evaluation Factor	Alternative 1	Alternative 2	Alternative 3	Alternative 1A Preferred Alternative
<b>Engineering</b>				
Prelim. Length of WV 2 Improvements (miles)	5.8 miles	5.8 miles	5.9 miles	5.3 miles
Roadway Configuration	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
Estimated earthwork excavation (cubic yards)	2,813,849	4,605,846	6,183,857	3,059,351
<b>Natural Environment</b>				
Stream Impacts (linear feet)	2,023	3,321	2,759	1,993
Wetlands (acres)	4.19	4.12	4.01	3.03
Floodplains (acres)	10.07	10.02	10.91	5.59
T&E Species	0	0	0	0
<b>Human Environment</b>				
Forested Land (acres)	152.21	273.34	221.57	174.61
Historic Resources	1	None	None	None
Archaeological Sites	1	No adverse effect	No adverse effect	None
Cemetery	None	None	None	None
Industrial Facilities (e.g. Chemical Plant)	2 - Axiall Brine Well Infrastructure <sup>1</sup> Blue Racer Valve Cluster	1 - Axiall Brine Well Infrastructure <sup>1</sup>	1 - Axiall Brine Well Infrastructure <sup>1</sup>	1-Axiall Brine Piping Infrastructure
Commercial Facilities (e.g. Businesses)	1 – Bayer Heritage Credit Union	1 – Bayer Heritage Credit Union	None	1 – Bayer Heritage Credit Union
Residential Displacements	9	5	9	5
Environmental Justice Populations	None	None	None	None
Noise <sup>2</sup>	Yes	Yes	Yes	Yes
Air	No	No	No	No
Prime Farmland/Farmland of Statewide Importance (acres)	6.21/121.38	6.07/88.48	4.41/102.22	2.97/76.52
Section 4(f)/6(f) Properties	0	0	0	0
<b>Physical Impacts</b>				
Hazard Waste Sites	None	None	None	None
Public Utility Conflicts	Gas pipelines feeding the Blue Racer Fractionation Plant	Gas pipelines feeding the Blue Racer Fractionation Plant	Electrical tower	None

Evaluation Factor	Alternative 1	Alternative 2	Alternative 3	Alternative 1A Preferred Alternative
<b>Financial / Costs</b>				
Estimated Construction Costs (Excluding utility relocation and right of way acquisition)	\$60,100,000	\$77,900,000	\$89,300,000	\$58,494,312

<sup>1</sup> The brine wells are used to retrieve brine water from the earth as a “raw material” which is then used in chemical production.

<sup>2</sup> 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.

### 2.6.2 Recommended Preferred Alternative

All four build alternatives have similar impact characteristics and equally meet the purpose and need of the project. The recommended Preferred Alternative for this project is Alternative 1A. Alternative 1A has the least overall impacts and construction costs.

## 2.7 Public and Stakeholder Involvement

Public outreach for the proposed WV 2 Proctor to Kent project included coordination with resource agencies and two public meetings. The first public workshop was held at New Martinsville Elementary School on November 2, 2017. The purpose of the meeting was to answer questions and listen to ideas or concerns about the WV 2 Proctor to Kent project. In total, 30 people attended the workshop. The meeting handout, the sign-in sheet, and comments received are included as **Appendix B**. A summary of the 13 comments received is provided below.

A total of 13 comments were received, six comment forms were submitted at the November 2, 2017 public workshop, three comments were submitted via the U.S. Postal Service, and four comments were received via the website. Of the six comments received at the public workshop, one respondent expressed his appreciation for those providing answers at the workshop and two others expressed their support of the project. Another had comments on houses that were missing on the maps presented and a desire for better advertising of future meetings. One respondent requested as much notice as possible so that Bayer Heritage Credit Union could plan accordingly. Three respondents support either Alternative 1 or Alternative 2.

The three comments received via the U.S. Postal Service were from the Cain family, who have owned and occupied property near Dry Run and the Marshall-Wetzel County line for many years. Respondents requested consideration for alignments at the Marshall-Wetzel County line to move west to avoid impacts to properties, including three long standing houses. Respondents including those who have lived there for over 60 years, stated how the properties have a family history, being in the family for over 80 years. One respondent offered information as to why it would be acceptable to move the Mason-Dixon Monument and the gas house to accommodate a more western alignment.

The four comments received via the website expressed concerns about the project. Respondents’ concerns included cost and use of money on other projects, concerns over Wetzel and Tyler County road improvements, eminent domain for certain properties, the loss of land, and road maintenance. One

respondent expressed support for Alternative 1 with concerns for the additional earthwork needed for Alternatives 2 and 3. Another suggested moving the alignment west, near Dry Run, to save three houses there.

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

An informal public workshop will be scheduled and advertised following the approval of the EA.



# CHAPTER 3. AFFECTED ENVIRONMENT & MITIGATION

The National Environmental Policy Act (NEPA) requires Federal Agencies to evaluate many categories of potential social, economic and natural environmental impacts for all Reasonable Alternatives under consideration for a proposed project. This chapter provides a description of the current conditions in the study area, and a description of impacts that could be expected for the human and natural environment, with the proposed project. Both negative and beneficial impacts can occur as a result of implementing transportation improvements. This chapter will discuss the negative and beneficial impacts associated with Alternatives 1, 2, 3, and the Preferred Alternative, Alternative 1A. Alternative 1A was chosen as the Preferred Alternative because it meets the purpose and need of the project while having the least amount of natural environment and human environment impacts.

## 3.1 Socioeconomics

### 3.1.1 Demographics

The proposed project area is located within U.S. Census Tracts 209 and 304 in Wetzel and Marshall Counties, respectively. As shown in **Table 3-1**, although the population within the state of West Virginia has increased overall from 2000 to 2014, the population within the general project area has decreased, particularly in the Wetzel County Census Tract covering the project area. The developed land within the study area consists mostly of factory and industrial buildings. In addition to the factories and industry buildings within the three plant complexes. There are two small communities of few single-family residences at the southern end of the corridor in Proctor, as well as at the northern end of the corridor in Kent.

**Table 3-1: Population and Growth Rate, 2000, 2010, and 2014**

Total Population	Location				
	West Virginia	Marshall County	Wetzel County	Census Tract 209, Marshall County	Census Tract 304, Wetzel County
2000	1,808,344	35,519	17,693	5,675	3,205
2010	1,852,994	33,107	16,583	5,299	3,045
2014	1,853,881	32,716	16,314	5,477	2,936
<b>Growth Rate: 2000-2014</b>	<b>2.52%</b>	<b>-7.89%</b>	<b>-7.79%</b>	<b>-3.49%</b>	<b>-8.39%</b>

*Source: U.S. Census Bureau, 2000 Census; U.S. Census Bureau, 2010 Census; U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, Table S0101*

As demonstrated in **Table 3-2** the population age in the project area is higher than in West Virginia overall; significantly more of the population is over the age of 64 in the Wetzel County Census Tract covering the project area. Approximately half of the project area’s population has achieved a high school degree as their highest level of educational attainment, compared to 41 percent in the state overall. The majority of the project area’s population is employed in service occupations. For more information about employment by industry, please see Section 3.1.3. The unemployment rate within the Marshall County Census Tract covering the project area is higher than in the state and counties overall; however,

the unemployment rate in the Wetzel County Census Tract is nearly one-third that of the state’s overall unemployment rate.

The median home values are greater in the project area than in the two counties, although less than the state overall. The median household income in the Marshall County Census Tract is slightly higher than in the state and county overall; however, the income in the Wetzel County Census Tract is lower than in the state and county as a whole.

**Table 3-2: Demographic Data for Proposed Project Location, 2014**

	Location				
	West Virginia	Marshall County	Wetzel County	Census Tract 209, Marshall County	Census Tract 304, Wetzel County
<b>Age (%)</b>					
Under 5	5.6	5.2	5.2	4.7	3.3
Over 64	16.8	18.3	20.5	17.0	27.3
<b>Median Age (years)</b>	41.6	44.1	45.5	43.4	45.5
<b>Educational Attainment (%)</b>					
Less than high school graduate	15.6	11.1	16.9	13.0	22.3
High school graduate	40.9	47.2	48.9	52.3	52.5
Some college or associate's degree	24.8	25.8	23.9	25.3	19.3
Bachelor's degree	11.6	10.7	6.0	6.6	3.5
Graduate or professional degree	7.2	5.2	4.2	2.8	2.4
<b>Occupation (%)</b>					
Management, business, science and arts	31.5	27.6	22.7	18.8	11.3
Service	18.9	22.0	23.0	25.0	27.4
Sales and office	24.3	21.9	18.5	19.6	13.8
Natural resources, construction, and maintenance	12.2	14.6	19.7	19.5	27.2
Production, transportation and material moving	13.1	13.9	16.1	17.1	20.3
<b>Unemployment Rate (%)</b>	8.2	7.7	8.0	10.0	2.7
<b>Median Income (\$)</b>	22,148	23,324	21,054	22,380	18,190
<b>Median Home Value (\$)</b>	120,500	96,500	85,000	100,400	92,900

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, Tables S0601, S2301, S2405, S2506

The proposed project would serve to improve access and safety concerns along the existing WV 2. The developed land within the study area consists mostly of factory and industrial buildings. In addition to the factories and industry buildings, there are two small residential communities located at the southern end of the study area in Proctor, as well as at the northern end of the study area in Kent; a few scattered residential properties are located along the project corridor.

Larger communities including New Martinsdale and Hannibal are located to the south of the study area and Moundsville and Glen Dale are located to the north of the study area. Residents located along the



Ohio River must travel along WV 2 to access community services. The proposed improvements to WV 2 will facilitate more efficient and safer travel along this corridor that connects the residents with places of employment and community services.

Between five and nine residential relocations are anticipated to be impacted under the four build alternative options. The Preferred Alternative would impact seven structures within the study area. Of the seven structures, five would be residential impacts and one is a commercial property, the Bayer Heritage Credit Union and one barn would be relocated. A table listing the number of structures estimated to be impacted by the four build alternatives are shown in **Table 3-3** below.

**Table 3-3: Estimated Structures to Be Acquired by Alternative**

Structure	No Build	Alternative 1	Alternative 2	Alternative 3	Alternative 1A Preferred Alternative
Residential	0	9	5	9	5
Other (shed, garage, foundation)	0	9	7	5	0
Commercial	0	2	2	1	1
Barn	0	1	1	1	1
Brine Well	0	1	1	1	0
Fraction Plant Valves and Product Loading Area	0	1	0	0	0
<b>TOTAL</b>		<b>23</b>	<b>16</b>	<b>17</b>	<b>7</b>

### 3.1.2 Environmental Justice

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that each Federal agency, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the environment to identify and avoid “disproportionately high and adverse” effects on minority and low-income populations. Disproportionate impacts are defined as, a project that predominately impacts a minority or low-income population group or, the impact is “more severe” than that experienced by non-minority or non-low-income populations.

Council on Environmental Quality (CEQ) guidance defines “minority” as non-white or Hispanic and defines the population of an affected area as a minority population when the total minority percentage in the affected area exceeds 50 percent or “is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.” Low-income populations, according to the CEQ guidance, are identified based on poverty thresholds used by the U.S. Census Bureau.

The developed land within the study area consists mostly of factory and industrial buildings. In addition to the factories and industry buildings within the three industrial plant complexes, there are a few scattered single-family residences along the project corridor and two small communities located at the southern end of the study area in Proctor, as well as at the northern end of the study area in Kent.

As shown in **Figure 1-2**, the majority of the project area is located in Marshall County. The two Census Tracts that include the project area have a total minority population of 1.9 percent (Census Tract 209 in Marshall County) and 1.1 percent (Census Tract 304 in Wetzel County), which are significantly lower than the state as a whole (7.3 percent) and lower than Wetzel (2.1 percent) and Marshall (3.0 percent) Counties (see **Table 3-4**). Thus, the proposed project is not anticipated to disproportionately affect minority populations.

The poverty rate in the Marshall County Census Tract is 11.4 percent, which is lower than in the state of West Virginia (18.1 percent) and Wetzel (20.2 percent) and Marshall (15.1%) Counties. However, the poverty rate in the Wetzel County Census Tract is 24.6 percent. This is higher than both the state and county overall. As mentioned previously and shown in **Figure 1-2**, only a small portion of the study area is located in Wetzel County. Of the five residential relocations associated with the Preferred Alternative, two are located in Marshall County and three are located in Wetzel County. The relocations in Wetzel County are not low-income households. Although the portion of the study area located in Wetzel County has the potential to contain households that are below the poverty level, the proposed project does not have the potential to disproportionately affect low-income populations.

**Table 3-4: Environmental Justice Demographic Data for Proposed Project Location**

Parameter	Location				
	West Virginia	Marshall County	Wetzel County	Census Tract 209, Marshall County <sup>2</sup>	Census Tract 304, Wetzel County <sup>2</sup>
Total Population	1,853,881	32,716	16,315	5,477	2,936
Total minority population <sup>1</sup>	7.3%	3.0%	2.1%	1.9%	1.1%
Population below poverty level	18.1%	15.1%	20.2%	11.4%	24.6%

<sup>1</sup> Persons not “white alone, not Hispanic or Latino”

<sup>2</sup> The smallest geographic unit available for income data is the census tract

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, Tables S0101, S0601

According to FHWA definitions, there is the possibility for low-income populations to be located within the study area. EO 12898 requires that the proposed project be reviewed to determine if there are disproportionately high or adverse effects on minority or low-income populations. The goal is to achieve a fair distribution of benefits and burdens to all communities impacted by the proposed alternatives, while giving the populations within the project area access to the transportation decision-making process. The alternatives were reviewed to determine whether disproportionate patterns or concentrations of adverse impacts would occur in areas with Environmental Justice populations when compared to impacts that would occur in other areas impacted by the project.

The No Build Alternative will have no adverse impacts on any segment of the population, including minorities and low-income persons. No relocations would occur. However, the potential benefits of the build alternatives such as traffic congestion relief and safety enhancements would be lost.

Environmental Justice populations will share the potential benefits of the selection of the build alternative as there will be traffic congestion relief resulting in reduced travel times and enhanced safety by providing operational improvements to reduce crash rates by widening the roadway and the

reduction of the traffic conflicts associated with multiple at-grade intersections. Under the four Build alternatives, residential relocations range from five to nine residences. A table listing all the number of structures estimated to be impacted for the four Build alternatives are shown in **Table 3-3** above. While the proposed project could impact low-income households, it is not anticipated to have an adverse impact on residents within the general project area. All of the four build alternatives will affect Environmental Justice populations in a similar manner to the general population.

Low-income, minority and other community members will have further chances to comment on the project through the public hearing process and public comment period during the review of this EA.

Environmental Justice populations would experience beneficial and adverse effects similar to those of the overall population. No Environmental Justice populations would bear a disproportionate impact from the project.

### 3.1.3 Economics

As shown in **Table 3-2** above, the majority of workers in the project area are in service or natural resources, construction and maintenance occupations (accounting for 44.5 percent and 54.6 percent of employees in the Wetzel and Marshall Census Tracts, respectively). By industry, as demonstrated in **Table 3-5**, the highest proportion of employees in the project area work in the educational services, health care and social assistance fields, followed by the construction field and the professional, scientific and management, and administrative and waste management services field in the Marshall County Census Tract. In addition to the industries located within the study area, many of employment centers are located outside of the study area in the communities including New Martinsdale and Hannibal, located to the south and Moundsville and Glen Dale located to the north of the study area. The operational and safety improvements of the existing WV 2 will improve commuter safety for those using WV 2 to commute back and forth to their places of employment.

The vast majority of workers are private wage and salary employees, although a greater proportion of employees are self-employed in the Marshall County Census Tract than in the counties or state overall.

**Table 3-5: Economic Demographic Data**

Parameter	Location				
	West Virginia	Marshall County	Wetzel County	Census Tract 209, Marshall County (includes project area)	Census Tract 304, Wetzel County (includes project area)
<b>Industry</b>					
Agriculture, forestry, fishing and hunting, and mining	5.3%	6.4%	5.7%	9.8%	9.9%
Construction	6.3%	7.3%	11.4%	10.7%	13.9%
Manufacturing	8.2%	7.1%	9.7%	8.4%	6.1%
Wholesale trade	2.2%	2.1%	0.8%	0.9%	0.8%
Retail trade	12.6%	12.2%	10.5%	8.3%	6.8%
Transportation and warehousing, and utilities	5.4%	4.9%	7.4%	7.5%	9.4%

Parameter	Location				
	West Virginia	Marshall County	Wetzel County	Census Tract 209, Marshall County (includes project area)	Census Tract 304, Wetzel County (includes project area)
Information	1.7%	1.9%	1.2%	2.8%	1.3%
Finance and insurance, and real estate and rental and leasing	4.2%	4.1%	3.2%	5.3%	1.1%
Professional, scientific, and management, and administrative and waste management services	7.7%	7.3%	6.2%	13.5%	7.9%
Educational services, and health care and social assistance	26.5%	26.9%	27.1%	19.8%	23.4%
Arts, entertainment, and recreation, and accommodation and food services	9.0%	9.2%	6.8%	5.8%	7.8%
Other services, except public administration	4.3%	4.8%	4.5%	2.7%	6.8%
Public administration	6.6%	5.8%	5.6%	4.5%	4.8%
<b>Class of Worker</b>					
Private wage and salary workers	76.1%	81.5%	79.2%	84.8%	83.7%
Government workers	19.2%	14.4%	17.9%	8.6%	16.0%
Self-employed in own not incorporated business workers	4.5%	4.1%	2.7%	6.6%	0.4%
Unpaid family workers	0.1%	0.0%	0.2%	0.0%	0.0%

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, Table DP03

The Belomar Regional Council (Belomar) is a planning council covering Ohio, Marshall, and Wetzel Counties in West Virginia and Belmont County in Ohio. The U.S. Economic Development Administration (EDA) designated the three West Virginia counties as Economic Development Districts (EDD), and charged Belomar with guiding the area’s economic development. According to Belomar’s Comprehensive Economic Development Strategy (CEDS) 2015 Update, recent job growth in the region can be attributed to increases in the oil and gas industries. Employment in the natural resources and mining sector nearly doubled from 2004 to 2013 in Wetzel and Marshall Counties (from 1,213 and 33 workers in 2004 to 2,262 and 119 workers in 2013 in Wetzel and Marshall Counties, respectively).<sup>1</sup>

According to the West Virginia Department of Commerce, the top employers in Wetzel and Marshall Counties are:

- Marshall County Coal Company (formerly McElroy Coal Company)
- TeleTech Customer Care Management Inc.
- Ohio Power Company
- Mound View Health Care, Inc.
- Wal-Mart Associates, Inc.
- Axiall Corporation (formerly PPG Industries, Inc.)

<sup>1</sup> Region X, Belomar Regional Council, 2015, Comprehensive Economic Development Strategy 2015 Update, p. 13

- Reynolds Memorial Hospital, Inc.
- Covestro, LLC (formerly Bayer MaterialScience, LLC)
- West Virginia Department of Highways
- Mentor Management, Inc., DbA
- Wetzel County Hospital
- Genesis HealthCare LLC (formerly SunHealth Specialty Services, Inc.)
- Wetzel County Board of Education<sup>2</sup>

Two of the top employers – Axiall Corporation and Covestro, LLC are located within the project area. The proposed project would enhance safety and access to their facilities, as well as other commercial establishments within the project area, thereby benefiting the region. In addition, other employment centers are located outside of the study area in New Martinsdale and Moundsville. The proposed improvements to WV 2 will improve operations and provide a safer facility to allow more efficient and safer travel along this corridor that connects the residents with places of employment.

### 3.1.4 Community Facilities and Services

Community facilities and services include amenities such as educational facilities, commercial facilities, health care, social services, religious institutions, recreational resources, and public safety (police, fire and emergency medical).

No community facility or service is located within the project area. The closest school to the proposed project area is New Martinsville Elementary School, located approximately 3.2 miles away, along WV 2 in New Martinsville, Wetzel County. Wetzel County Hospital, which offers 24-hour emergency care, is the closest medical facility to the project area – approximately 3.5 miles south of the project limits. The Wetzel County Department of Health and Human Resources, which administers public social service programs, is located in New Martinsville, approximately 2.5 miles from the project location. The closest church is located across the river in Clarington, Ohio, and the closest park, Lewis Wetzel Park, is in New Martinsville, nearly 3.2 miles away. The Grandview Fire Department and the Marshall County Sherriff's Office cover the Marshall County portion of the study area. The New Martinsville Fire Department and the New Martinsville Police Department cover the Wetzel County portion of the project area. No police or fire stations are located within the project area.

The proposed project would not create an additional demand for community facilities and services nor interfere with delivery of such services. The proposed project will add additional capacity and improve the safety of the existing WV 2, thus improving access to these community services and facilities in nearby towns located outside of the study area. The proposed project would improve the safety and accessibility of WV 2, thereby improving emergency response times for emergency vehicles as well as enhance access for emergency services to the study area and the surrounding communities.

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<sup>2</sup> West Virginia Department of Commerce, Marshall County Community Profile. Accessed: <http://www.wvcommerce.org/business/siteselector/communityprofiles/county/marshall/25/default.aspx>; West Virginia Department of Commerce, Wetzel County Community Profile. Accessed: <http://www.wvcommerce.org/business/siteselector/communityprofiles/county/wetzel/52/default.aspx>

### 3.1.5 Relocations and Displacements

All relocation activities would follow the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the Uniform Act), which ensures prompt and equitable relocation of residences, businesses, farms, and non-profit organizations. No resident shall be displaced until comparable replacement housing – determined to be decent, safe and sanitary – has been offered or provided.

The proposed realignment of WV 2 would result in the acquisition of new right-of-way and temporary easements. **Table 3-6** demonstrates the acreage required for right-of-way and easements for each alternative. Alternative 1A would require the least amount of right-of-way acquisition.

**Table 3-6: Right-of-way and Temporary Easement Acquisitions**

Alternative	Total Acreage	Total Acreage ROW	Total Acreage for Temporary Structure Removal Easements (TSRE)
No Build	0	0	0
Alternative 1	1,773	211	0
Alternative 2	1,485	292	0.20
Alternative 3	1,485	278	0
Alternative 1A Preferred Alternative	1,740	199	0.24

An effort to minimize required relocations was made during the development of each alternative. **Table 3-7** lists the number of potential relocations for each alternative. The right-of-way acquisition would result in the required relocation of two commercial properties for both Alternatives 1 and 2. Alternatives 1 and 3 would impact nine residences while Alternative 2 would impact five residences. Alternative 1A, the Preferred Alternative will impact five residences and one commercial property, the Bayer Heritage Credit Union.

**Table 3-7: Potential Relocations**

	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 1A Preferred Alternative
Commercial	0	2	2	1	1 – credit union
Residential	0	9	5	9	5

### 3.2 Land Use and Land Cover

Land cover describes the physical land type such as forest, water, farmland, or impervious surfaces. Land use describes how the land is used such as commercial, residential, and recreational uses. This section describes existing land cover and land use in the vicinity of the proposed project.

### 3.2.1 Land Cover

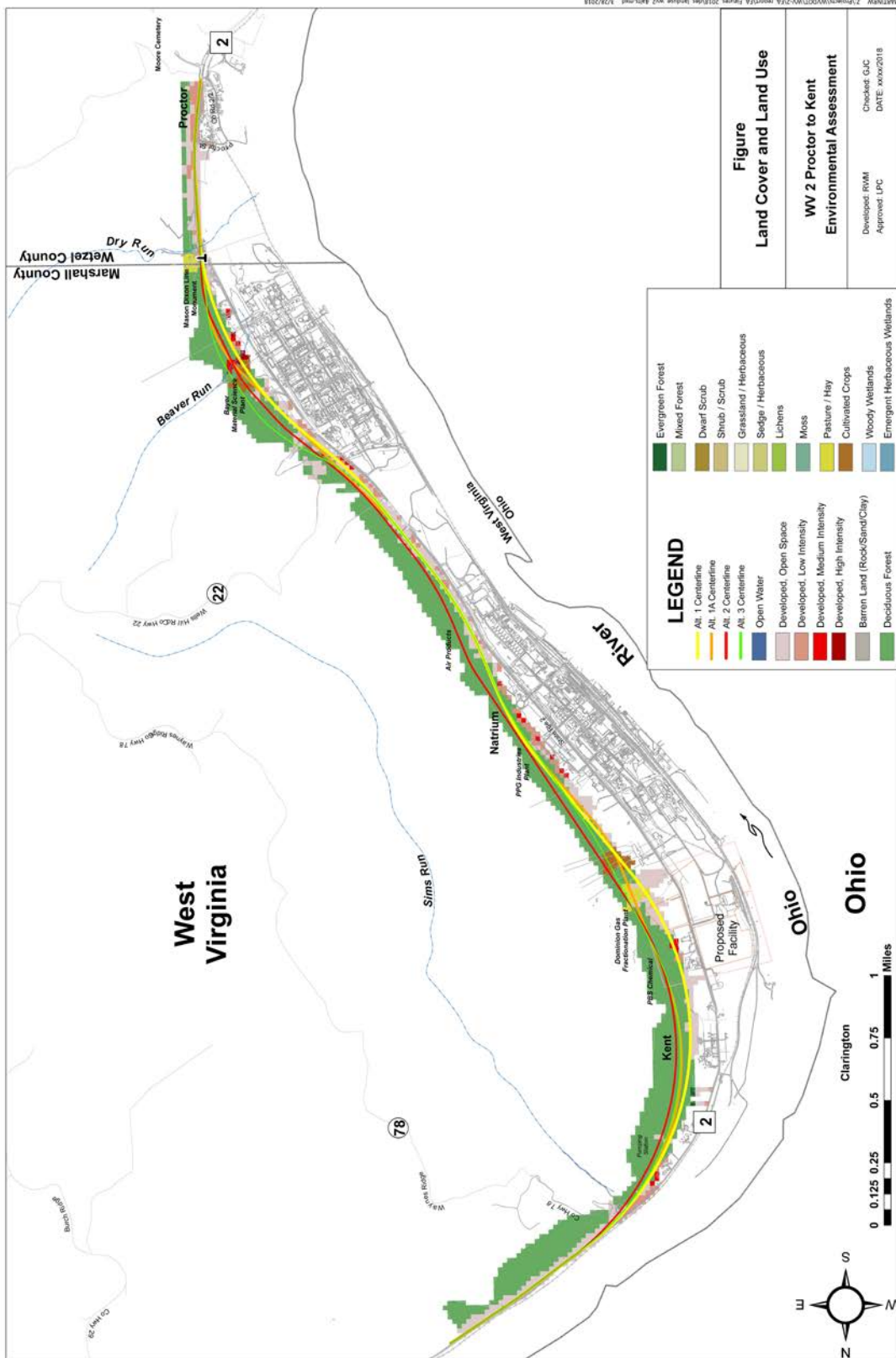
The project area parallels the east bank of the Ohio River, separated from the river primarily by CSX Railroad tracks and industrial uses. The land cover in the project area is dominated by deciduous forest land with some developed land. The developed land is a mix of developed open space and low and medium intensity land uses with some isolated pastures and cultivated crops. There are also two tributaries, Dry Run and Beaver Run, to the Ohio River located just north of Proctor.

### 3.2.2 Land Use

The developed area within the study area consists mostly of factory/industrial type buildings, parking lots, and undeveloped grass areas. The Mason Dixon Line is also located within the project area and is designated by a monument (MR-0037-0109) near the intersection of WV 2 and Dry Run. This monument is located at the southern end of the project and marks the county line between Wetzel and Marshall Counties. The sprawling Covestro Plant anchors the southern section of the project area. North of the Covestro plant is the Axiall Natrium Wildlife Management Area, maintained by Axiall Corporation. The Axiall Corporation Plant is located north of the wildlife management area. North of Axiall Corporation is the Blue Racer Midstream Gas Fractionation Plant. In addition to the factories and industry buildings within the three plant complexes, there are a few single-family residences at the southern end of the corridor in Proctor, as well as at the northern end of the corridor in Kent, most notably the Sims House (MR-0058).

**Figure 3-1** shows the general land cover and land use in the vicinity of the project. **Figure 3-2** shows some of the more prominent land uses in the corridor.

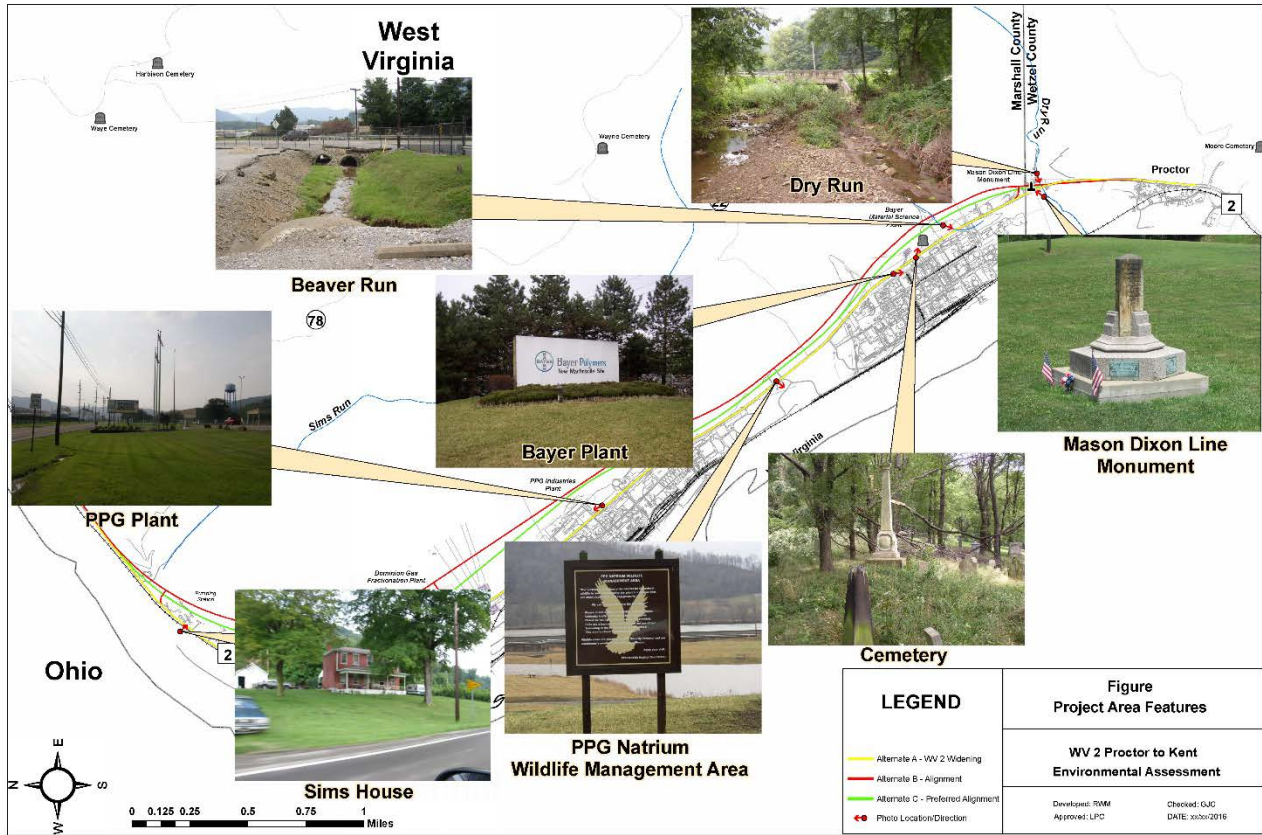
Figure 3-1: Land Cover and Land Use



Source: United States Geological Survey (USGS)



Figure 3-2: Project Area Features



### 3.3 Farmland and Soils

According to the NRCS Web Soil Survey, the proposed project would occur within the following soil map units:

- Brookside silt loam
- Chagrín-Melvin complex
- Culleoka-Dormont-Peabody complex
- Lakin-Urban land complex
- Sensabaugh silt loam
- Skidmore gravelly loam
- Udorthents-Urban land complex
- Huntington silt loam
- Vandalia silty clay loam

The majority (approximately 95 percent) of the project area has a low to moderate corrosion rating for concrete or is classified as Udorthents-Urban land, which describes previously disturbed urban areas linked to the development of the existing roadway.

The proposed project would not significantly or adversely impact soils within the project area beyond the construction footprint.

The Farmland Protection Policy Act is a public law that is intended to minimize the unnecessary and irreversible conversion of farmland to nonagricultural uses. The Act defines farmlands by soil types and characteristics, whether the area is currently being used as cropland or not. Prime farmlands are “lands that have the best combination of physical and chemical properties for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion” (Farmland Protection Policy Act, USC 4201). Farmlands of statewide importance are lands other than prime farmlands that are important for crop production at a state, regional, or local level, as determined by the state.

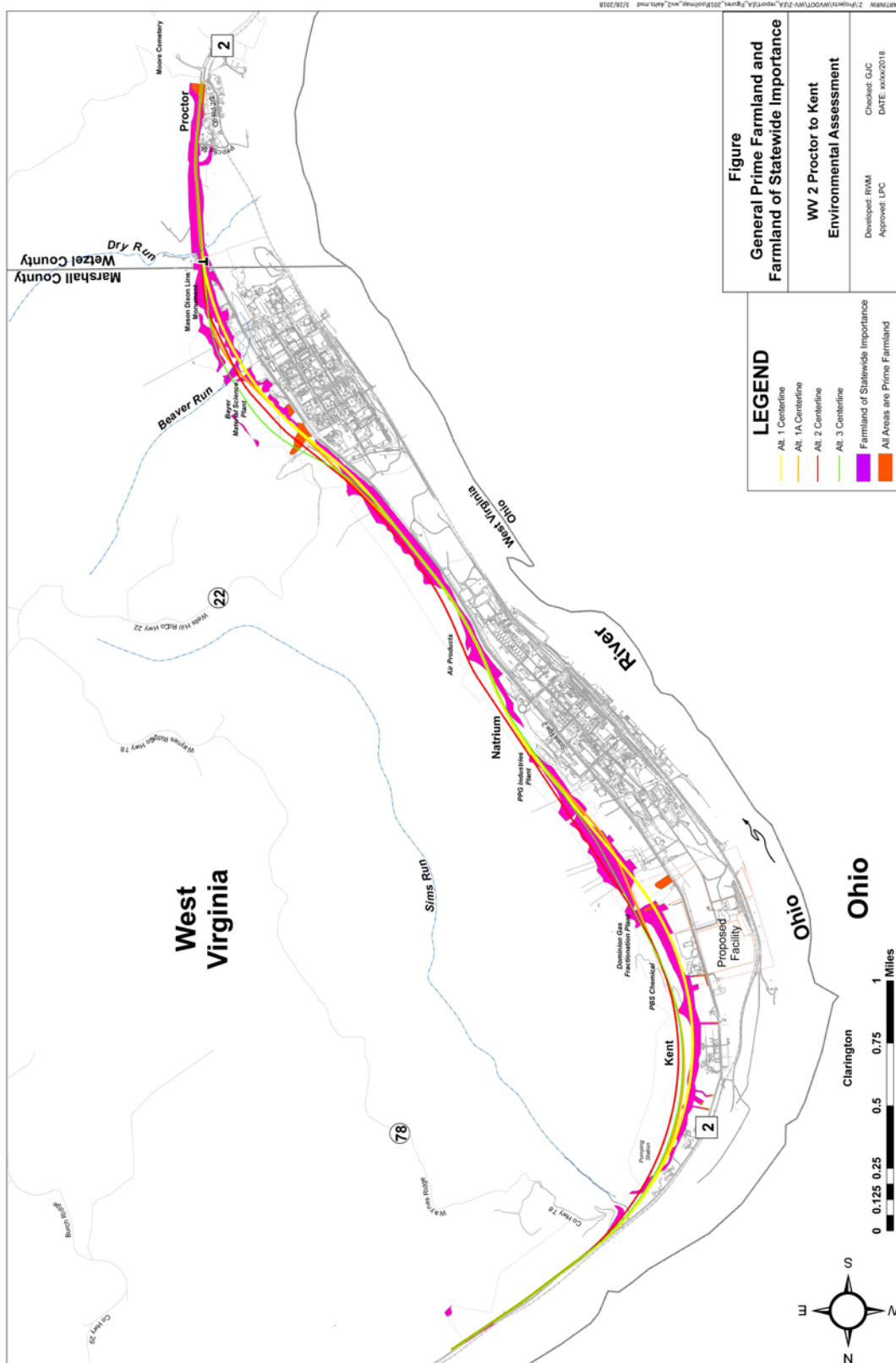
The Natural Resources Conservation Service (NRCS) Form AD 1006 was completed for the four build alternatives (**Appendix C**). The farmland assessment score for each alternative is 20 points (Part VI of Form) and would result in a total score less than 160 points. According to 7 CFR 658.4 (c)(2), sites that receive a score less than 160 points (Part VII of Form) receive minimal level of consideration for protection under the Act. Therefore, all the build alternatives would result in minimal impacts to prime farmland. **Table 3-8** lists the prime farmland and farmland of statewide importance by alternative. The general extent of the prime farmland and farmland of statewide importance is shown in **Figure 3-3**. Farmland of statewide importance exists along much of the proposed project corridor while prime farmland exists in a few isolated areas.

**Table 3-8: Prime Farmland and Farmland of Statewide Importance Impacts**

	Prime Farmland (acres)	Farmland of Statewide Importance (acres)
No Build	0	0
Alternative 1	6.21	121.38
Alternative 2	6.07	88.48
Alternative 3	4.41	102.22
Alternative 1A – Preferred Alternative	2.97	76.52

Source: NRCS

Figure 3-3: General Prime Farmland and Farmland of Statewide Importance



Source: Natural Resources Conservation Service (NRCS)

## 3.4 Cultural Resources

### 3.4.1 Historic Resources

This section describes the results of a cultural historic survey performed as part of the proposed project. The survey area is located in Wetzel and Marshall Counties, West Virginia. Documentation of coordination with the State Historic Preservation Office (SHPO) is provided in **Appendix D**.

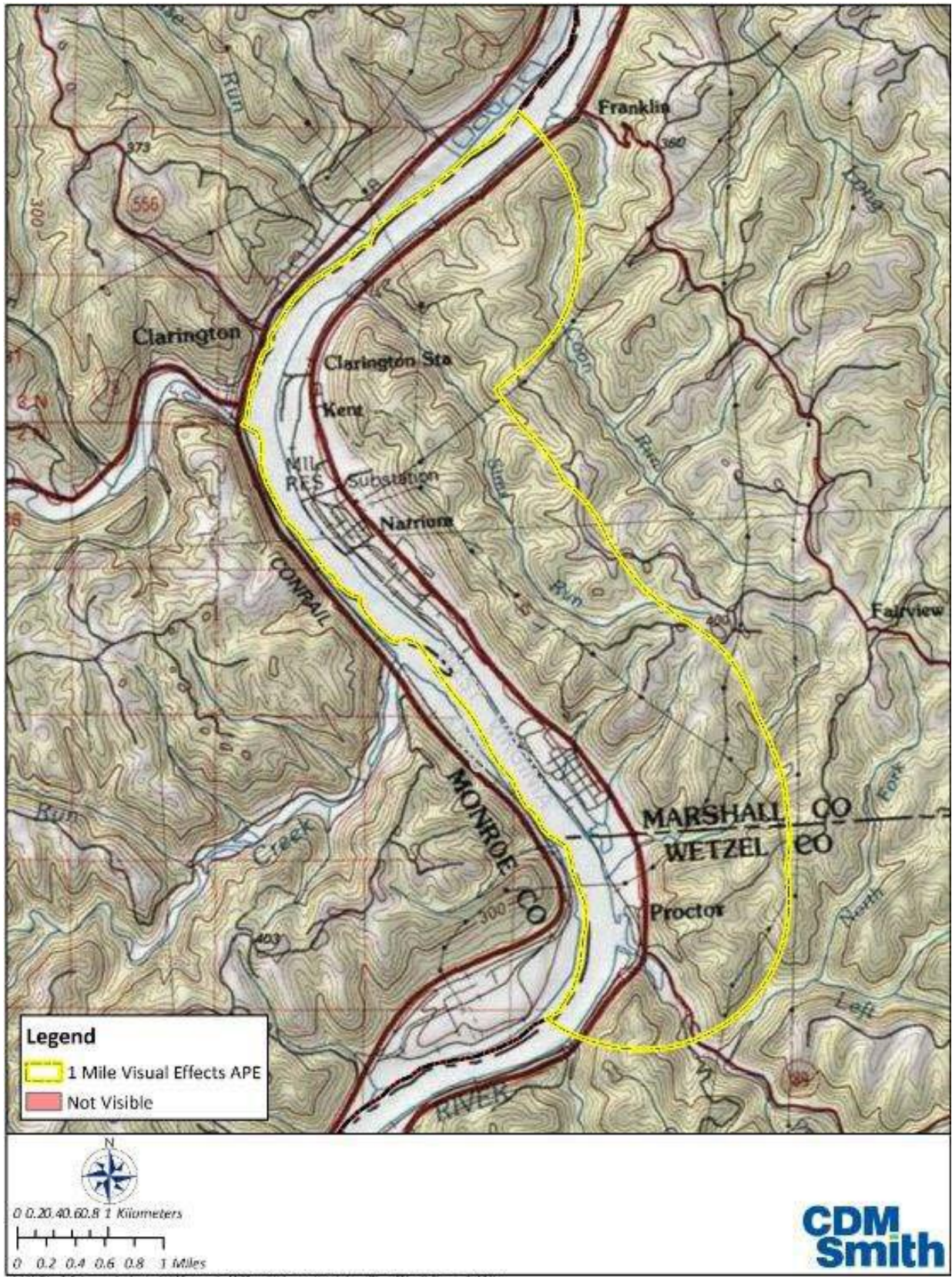
The cultural historic research was conducted in compliance with provisions of the National Historic Preservation Act of 1966 (P.L. 89-665; 80 Stat.915, 16 U.S.C. 470 et seq), NEPA (P.L. 910190; 83 Stat. 852, 42 U.S.C. 4321 et seq), Procedures of the Advisory Council on Historic Preservation (36CFR800), and EO 11593, Protection and Enhancement of the Cultural Environment (16 U.S.C. 470; Supp. 1, 1971). The survey methodology and the report format conform to the *Guidelines for Cultural Historic Surveys and Technical Reports*.

#### 3.4.1.1 Area of Potential Effects

The area of potential effects (APE) of the proposed road relocation project was designated pursuant to 36 CFR 800. 16 (d) which is defined as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

The APE for this project was established during discussions with environmental personnel from the WVDOH. The cultural historic APE was defined as those structures that fell within the proposed right of way for the proposed Alternatives and any resources that were visible from the project area which did not extend beyond the river. **Figure 3-4** illustrates the historic APE.

Figure 3-4: Historic Area of Potential Effect



3.4.1.2 Evaluation Criteria

Once identified, each historic resource was evaluated for significance under the historic context and the National Register of Historic Places (NRHP) criteria for evaluation. These criteria state that to be listed on the NRHP a property must possess “the quality of significance in American history, architecture, archaeology, engineering, and culture...” This quality can occur “...in districts, sites, buildings, structures, and objects” (NPS 1997 from CFR 36 Part 60). Also, a property typically must be at least 50 years of age for consideration. Each surveyed resource was evaluated for its individual eligibility.

A proposed project may have an effect (impact) on historic properties if it alters characteristics of the property that qualify the property for inclusion in the NRHP. These effects may be visual, audible, use, setting or atmospheric. The assessment of the effects of the proposed project, in coordination with the SHPO, on historic properties results in the following determination:

- No Effect – the proposed project will not affect historic properties;
- No Adverse Effect – the proposed project will have an effect on historic properties but the effect will not be harmful; or
- Adverse Effect – the proposed project will have a harmful effect on historic properties.

3.4.1.3 Summary of Survey

Sixty-eight (68) new sites were located during the survey: WZ-0106 – WZ-0146 and MR-0144 – MR-0170. Eleven (11) previously recorded sites were also visited during the survey: WZ-0007, MR-0037-0109, MR-0057, MR-0058, MR-0059, MR-0060, MR-0061, MR-0062, MR-0063, MR-0004, and WZ-0028. MR-0004 is no longer extant. No resources within the study area were determined as significant resources to qualify as a historic district.

Table 3-9 lists the recommended eligible properties and Figure 3-5 illustrates their locations. Following Table 3-9, each eligible property is reviewed in regard to the applicable criteria and a description of their proposed NRHP boundary. Historic properties can be determined eligible for listing on the NRHP under four separate criteria (Table 3-9).

Table 3-9: Recommended NRHP Eligible Properties

Field Number	Property Type	Status	Eligibility Criteria	Determination of Effects
WZ-0007	Residence	Fair	Yes C	No adverse effect
WZ-0028	Light	Good	Yes* A	No adverse effect
WZ-0136	Bridge	Good	Yes* A	No adverse effect
WZ-0140	Bridge	Good	Yes* A	No adverse effect
MR-0037-0109	Monument	Excellent	Yes C	No adverse effect <sup>1</sup>
MR-0058	Residence	Good	Yes C	No adverse effect
MR-0144	Outbuildings	Excellent	Yes A & C	Adverse effect – Visual (Alternative 1) No adverse effect (Alternatives 1A, 2 & 3)

Source: National Register of Historic Places (NRHP). Note: \* denotes recommended as a contributing resource, not individually eligible. The remaining documented resources are not recommended as eligible. <sup>1</sup>MR-0037-0109 is located adjacent to Alternatives 1 and 2 and will be noted on construction plans to not be disturbed.

Criterion Definitions (from NPS 1977, CFR 36 Part 60)

A = [Properties] that are associated with events that have made a significant contribution to the broad patterns of our history.

B = [Properties] that are associated with the lives of persons significant in our past.

*C = [Properties] that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.*

*D = [Properties] that have yielded, or may be likely to yield, information important in prehistory or history.*

**WZ-0007.** WZ-0007 is recommended eligible under Criterion C. WZ-0007 is a one and half story, three bay, log building topped with a side gable roof covered in new metal, located on the west side of WV 2. This structure also referred as the “Hanes House” is an excellent example of an early-nineteenth century log residence.

Proposed National Register Boundary Determinations – Based upon the criteria by which the property is recommended eligible for listing and its current surroundings, a boundary including the residence footprint and yard area is proposed. The boundary would extend east to the WV 2 right of way, north and south to the edge of the residential yard, and west to the railroad right-of-way. The total area within the National Register Boundary is 1,457 square feet.

**WZ-0028.** WZ-0028 is the Proctor Landing Light. It is located midway between Haynes Run and Proctor Creek and is the last upstream light under the United States Coast Guard’s Huntington District jurisdiction. As an integral part of the river navigation system, WZ-0028 is recommended as a contributing resource to a multiple resource listing that is recommended eligible under Criterion A for its association with river navigation.

Proposed National Register Boundary Determinations – Based upon the criteria by which the property is recommended eligible for listing and its current surroundings, a boundary including the structure footprint and extending out 15 feet in all directions is proposed.

**WZ-0136.** WZ-0136 is a railroad bridge. The resource is recommended as a contributing resource to the Baltimore & Ohio Railroad. It is eligible under Criterion A for its association with transportation.

Proposed National Register Boundary Determinations – Based upon the criteria by which the property is recommended eligible for listing and its current surroundings, a boundary including the structure footprint is proposed.

**WZ-0140.** WZ-0140 is a railroad bridge, retaining wall, and culvert system. The resource is recommended as a contributing resource to the Baltimore & Ohio Railroad. It is eligible under Criterion A for its association with transportation.

Proposed National Register Boundary Determinations – Based upon the criteria by which the property is recommended eligible for listing and its current surroundings, a boundary including the structure footprint is proposed.

**MR-0037-0109.** MR-0037-0109 is recommended eligible under Criterion C. MR-0037-0109 is an obelisk that was first erected in 1846 and moved in 1931 to make way for improvements to WV 2. The monument is located at the Wetzel and Marshall County line and is believed to mark the Mason Dixon Line due to a sign located to the side of the monument that describes the Mason Dixon Line. However, the Mason Dixon Line ends in the southwest corner of Pennsylvania, which is relatively far from the site. The Mason Dixon Line was surveyed between 1763 and 1767 by Charles Mason and Jeremiah Dixon in

the resolution of a border dispute involving Maryland, Pennsylvania, and Delaware in Colonial America. Later it became known as the border between the North and South during the Civil War. Lettering inscribed on the MR-0037-0109 monument describe the county names. This is an excellent example of a mid-nineteenth century commemorative resource.

Proposed National Register Boundary Determinations – Based upon the criteria by which the property is recommended eligible for listing and its current surroundings, a boundary including the monument footprint and extending out 15 feet in all directions is proposed.

**MR-0058.** MR-0058 is recommended eligible under Criterion C. Referred to as the “Sims House”, the two story, brick farmhouse, residence is an excellent example of a mid-nineteenth century, vernacular interpretation of the Greek Revival style residence in a rural setting in Marshall County. The site is located south of the Sims Run near the community of Kent. It retains a high level of integrity of materials, location, feeling, workmanship and design.

Proposed National Register Boundary Determinations – Based upon the criteria by which the property is determined eligible for listing and its current surroundings, a boundary including the residence footprint and yard area is proposed. The boundary would extend east to the WV 2 right of way, north to the shared driveway with an adjoining property, west and south to the edge of the residential yard. The total area within the National Register Boundary is 31,478 square feet.

**MR-0144.** MR-0144, referred to as the “green barn property”, consists of two barns, a silo, a bridge, and culvert system. MR-0144 is recommended eligible under Criterion A. The resource is an excellent example of agricultural outbuildings belonging to a farmstead related to the production of corn in rural Marshall County. It retains a high level of integrity of materials, location, feeling, workmanship and design.

Proposed National Register Boundary – Based upon the criteria by which the property is determined eligible for listing and its current surroundings, a boundary including the building footprint is proposed. The total area within the National Register Boundary is 4.0 acres.

**Table 3-10: Historic Impacts by Alternative**

	Historic Properties Impacted
No Build	None
Alternative 1	MR-0144
Alternative 2	None
Alternative 3	None
Alternative 1A – Preferred Alternative	None

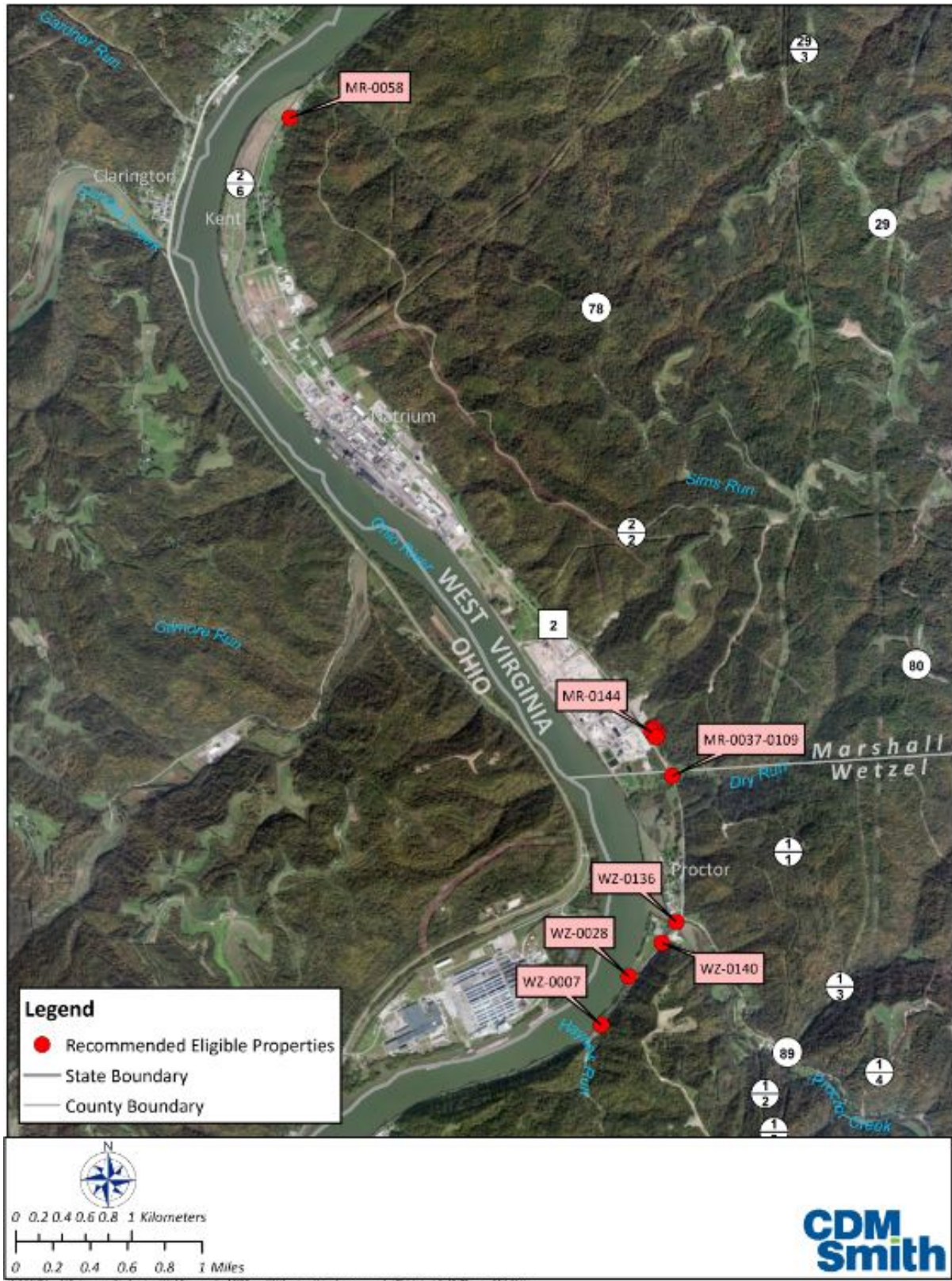
MR-0037-0109 is currently located along existing WV 2. The proposed new roadway would not introduce any new elements that would diminish the qualities that make the MR-0037-0109 significant. The viewshed would not be drastically altered from its current situation. The monument is not directly affected but does sit adjacent to the three of the four proposed: Alternatives 1, 2, and 1A. The location



of the resource will be noted on plans with instructions that it is not to be disturbed. This results in a determination of No Adverse Effect.

Alternative 1 would take a portion of the property that is recommended to be included within the national register boundary of MR-0144. There are no physical impacts to the resource, however the project would have a visual impact. Thus, it would have an adverse effect upon this resource.

Figure 3-5: Locations of Recommended Eligible Properties Per NHRP Criteria



Source: NHRP

### 3.4.2 Archaeological Resources

This section describes the results of a Phase I Archaeological Survey for the alignments of WV 2, from Proctor to Kent, in Wetzel and Marshall Counties, West Virginia. Documentation of coordination with the SHPO is provided in Appendix D.

The archaeological research was conducted in compliance with provisions of the National Historic Preservation Act of 1966 (P.L. 89-665; 80 Stat.915, 16 U.S.C. 470 et seq), the National Environmental Policy Act of 1969 (P.L. 910190; 83 Stat. 852, 42 U.S.C. 4321 et seq), Procedures of the Advisory Council on Historic Preservation (36CFR800), and Executive Order 11593, Protection and Enhancement of the Cultural Environment (16 U.S.C. 470; Supp. 1, 1971). The survey methodology and the report format conform to the *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Reports* (Trader 2001).

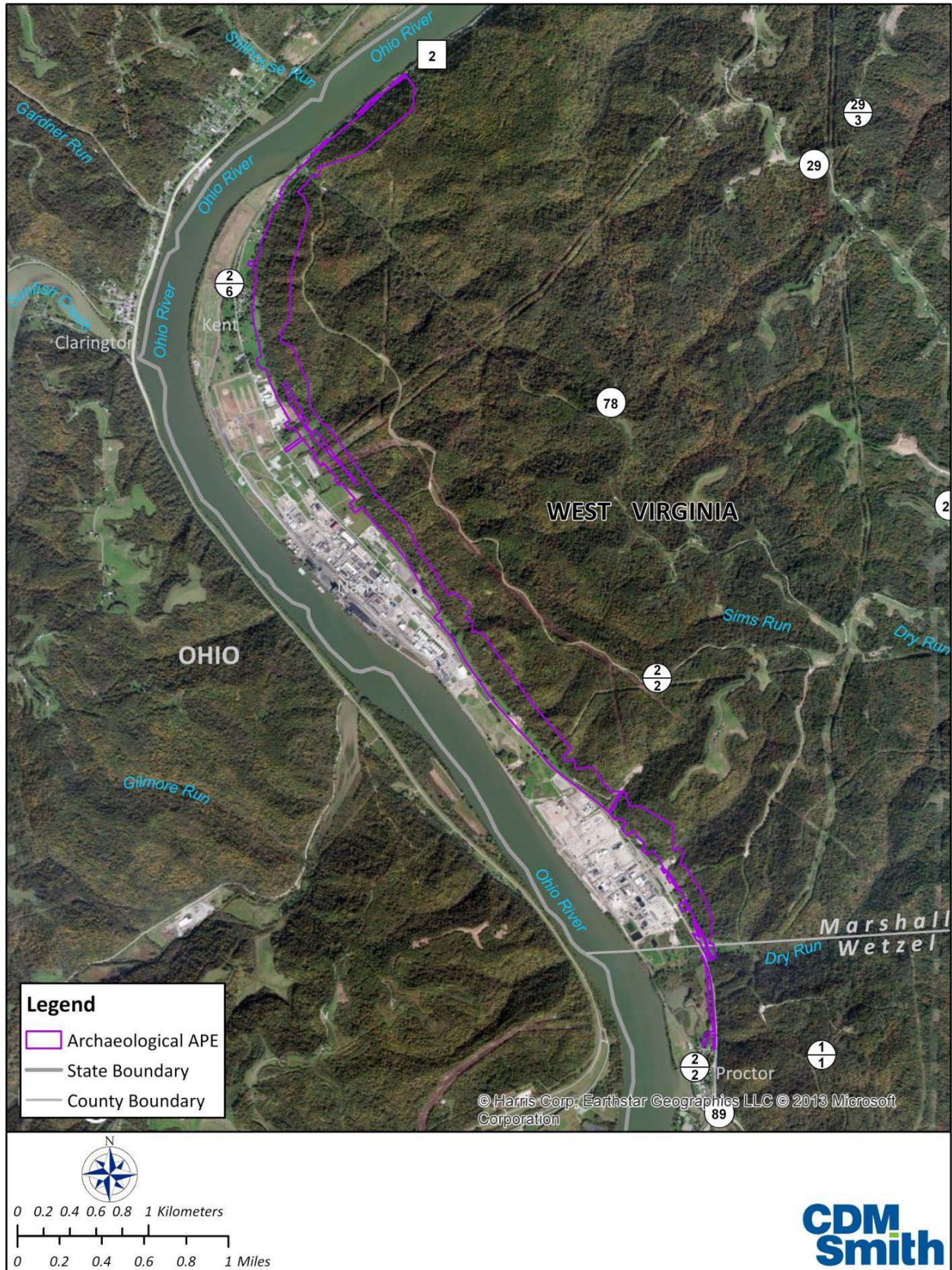
#### 3.4.2.1 Phase I Archaeological APE

The Phase I Archaeological APE is illustrated in **Figure 3-6**. It is defined as the combined proposed right of way, proposed temporary construction easement, and the proposed temporary structure removal easement of the Alternatives. All archaeological activity was limited to this area. The total area examined is 394.49 acres.

The Phase I investigations located four archaeological sites that are associated with above ground historic resources that date in occupation from the late 19<sup>th</sup> to the mid-20<sup>th</sup> century. No features or buried deposits were found at any of the four sites. Archaeologically, none of the sites yielded or are likely to yield information important in prehistory or history, thus none of the sites are considered potentially eligible for listing on the National Register of Historic Places (NRHP) according to Criterion D. None of the sites meet the applicable for Criteria A or B. One site had an associated structure (that meets Criterion C and may be eligible for nomination to the NRHP).

Construction of the Preferred Alternative, Alternative 1A would not impact any of the identified archaeological resources within the study area. Alternative 1 would destroy the archaeological portion of Site 46MR197.

Figure 3-6: Archaeological APE (aerial)



### 3.5 Section 4(f) Resources

In accordance with Section 4(f) of the United States Department of Transportation Act of 1966 (49 U.S. Code [U.S.C], Section 303) and the Federal Aid Highway Act of 1968 (23 U.S.C., Section 138), the Secretary of Transportation may not approve the use of land from any publicly owned park, recreation area, or wildlife and waterfowl refuge, or any historic site unless a determination is made that there is no feasible and prudent alternative to the use of land from the property and the action includes all possible planning to minimize harm to the property resulting from such use. There are no recreational Section 4(f) properties located within the study area.

As noted in Section 3.4, there are historic properties located within the study area. Impacts to historic properties were identified with Alternative 1. No historic Section 4(f) properties will be impacted by Alternative 1A, the Preferred Alternative.

Alternative 1A, the Preferred Alternative, does not impact any Section 4(f) resources.

### 3.6 Section 6(f) Resources

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

### 3.7 Air Quality

#### 3.7.1 Attainment Status

The Clean Air Act (CAA) of 1970 requires the Environmental Protection Agency (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 Wetzel and Marshall Counties in West Virginia. 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>3</sup>.

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<sup>3</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).

### 3.7.2 Transportation Conformity

Approval, funding, or implementation of FHWA projects are subject to the transportation conformity regulations under the Clean Air Act (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, Belomar Regional Council, is responsible for transportation planning and determining regional conformity.

Transportation conformity applies to nonattainment and maintenance areas. Since the project 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>4</sup>.

This project was included in the 2040 Long Range Transportation Plan (2016) prepared by the Belomar Regional Council<sup>5</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 consultation process, fiscal constraints, latest planning assumptions, and public involvement, was satisfied for the 2040 Transportation Plan.

The proposed project involves widening and the relocation of 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. WV DOT estimated an AADT increase from 4,900 in 2012 to 6,300 in 2032, with approximately 13 percent of the AADT estimated to be trucks<sup>6</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, eight 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.

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<sup>4</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>5</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>.

<sup>6</sup> G. Graley. 2011. Memorandum to Dirar Ahmad on State Project U352-2-11.65 Protcor-Natrium Rd. Marshall & Wetzel Counties. October 19.

### 3.7.2.1 South Coast Air Quality Management District v. EPA, Case No. 15-1115

On February 16, 2018, the District of Columbia Circuit Court vacated portions of the *2008 Ozone NAAQS SIP Requirements Rule* concerning the ozone National Ambient Air Quality Standards (NAAQS). These portions of the *2008 Ozone NAAQS SIP Requirements Rule* addressed implementation requirements for the 2008 ozone NAAQS as well as the anti-backsliding requirements associated with the revocation of the 1997 ozone NAAQS.

In accordance with FHWA's April 23, 2018 memorandum "Interim Guidance on Conformity Requirements for the 1997 Ozone NAAQS", based on the information in EPA's Greenbook, all routine planning and project development actions may proceed throughout the country, except for the following actions within the identified areas should be considered "on-hold":

- New Metropolitan Long Range Plans and Transportation Improvement Programs (TIP), updates and amendments that include the addition of a project that is not exempt from transportation conformity may not proceed until transportation conformity with the 1997 ozone NAAQS is determined.
- Statewide Transportation Improvement Program (STIP) approvals and amendments that include TIPs or non-exempt projects from the 82 identified areas may not proceed, unless the TIP or project is determined to conform with the 1997 ozone NAAQS or is limited to projects that are exempt from transportation conformity.
- Within the 82 identified areas, NEPA approvals for FHWA/FTA projects (40 CFR 93.101) may not proceed unless the existing Metropolitan Plan and TIP include the project. For projects that already completed NEPA, there is no need to delay further action.

According to guidance from FHWA, NEPA approvals may proceed as normal for projects that are included in the applicable STIP/TIP documents prior to April 23, 2018. The WV 2 Proctor to Kent project is currently in the Belmont-Ohio Marshall Transportation Study (BOMTS) MPO's TIP FY 2018-2021 and WVDOH STIP FY 2016-2021 Amendment 15. Therefore, this project is not subject to approval of the required updated air quality analysis.

### 3.7.3 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 NEPA documents. The guidance was last updated in October 2016.

The proposed project involves widening and relocation of a state highway. The design year AADT 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 AADT by the project length. The AADT is anticipated to be the same between the No Build and the three Build Alternatives. The corridor length would be the same for No Build and the three Build Alternatives (5.28 miles), so the VMT for No Build and the three Build Alternatives would be similar. Because the estimated VMT under the three 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 any 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>7</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 project area are likely to be lower in the future in nearly all cases. Further discussion on MSAT emissions is included in **Appendix E**.

### 3.7.4 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.

## 3.8 Noise

The WV 2 Expansion Noise Study (CDM Smith, 2013) provided as **Appendix F**, documents the evaluation of existing ambient noise levels at six noise monitoring locations and predicts loudest-hour equivalent traffic noise levels at 48 noise sensitive receptors under the existing (2012 traffic conditions), no build (estimated 2032 traffic), and build (estimated 2032 traffic) scenarios. Detailed maps showing the location of the six monitoring locations and the 48 noise sensitive receptors are located in **Appendix F**.

A review of the original noise study (West Virginia 2 Expansion Noise Study; CDM Smith, 2013) was conducted to determine the potential for additional noise impacts associated with the introduction of Alternative 1A, the Preferred Alternative, which was developed to avoid impact to a historic resource. The Addendum to WV 2 Expansion Noise Study; CDM Smith 2013 (CDM Smith, 2018) supplies information to supplement the previous reports findings and is provided in Appendix F.

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<sup>7</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).



The noise levels for the proposed conditions were modeled using average daily traffic levels for 2012 and 2032 provided by WVDOH. The 48 noise receptors are 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 approach or exceed the NAC by 2032 traffic conditions in the No Build scenario. However, the impacted receptors were reduced to five impacts for the Build scenario. **Table 3-10** summarizes traffic noise impacts by scenario.

**Table 3-10: 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 3-7**). R7 exceeds the NAC and has a substantial increase from existing noise levels. **Table 3-11** summarizes traffic noise impacts for the proposed project.

**Table 3-11: Traffic Noise Impacts for the Build Scenario**

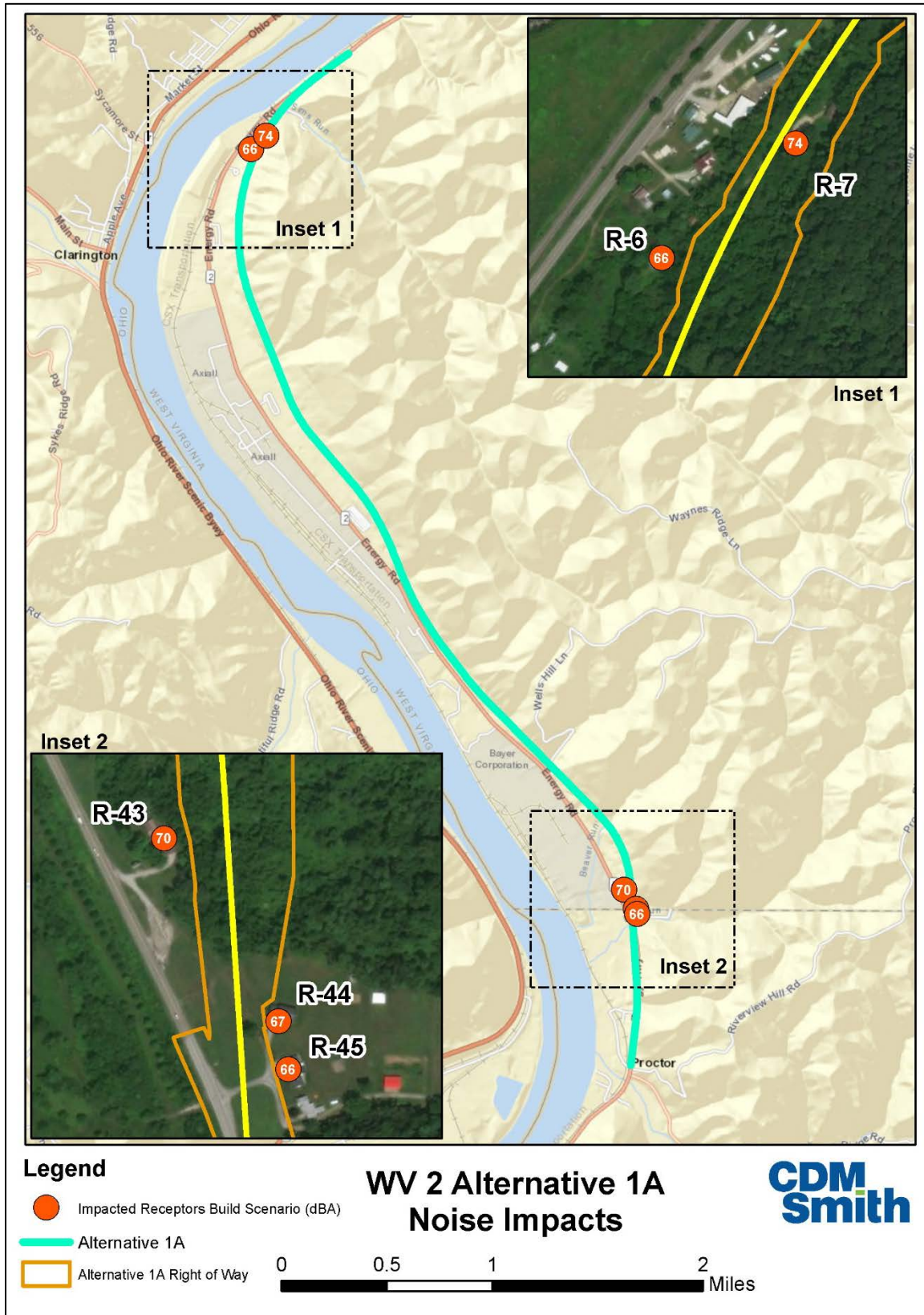
Receptor	Existing 2012 (dBA)	No Build 2032 (dBA)	Build 2032 (dBA)	Substantial Increase Build	Mitigation
R-6	57	58	66	9	Roadway has been moved approximately 40ft away from the receiver and will reduce noise levels in this area.
R-7	55	56	74	19	Receptor to be relocated due to ROW impacts.
R-43	60	61	70	10	Roadway has been moved approximately 85ft 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.

The project area is primarily industrial with a few scattered residential areas. Receptors R-7 will be considered a relocation and would not require any mitigation for noise. The proposed alignment has been relocated 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 relocated alignment. 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 the roadway facility would limit the effectiveness of a noise barrier. Due to these facts, no abatement measures have been recommended for the proposed project.

Construction noise impacts would occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. The noise study recommends that all reasonable efforts be made to minimize exposure of noise-sensitive areas to construction noise impacts.

Figure 3-7: Alternative 1A Noise Impacts



### 3.9 Geology

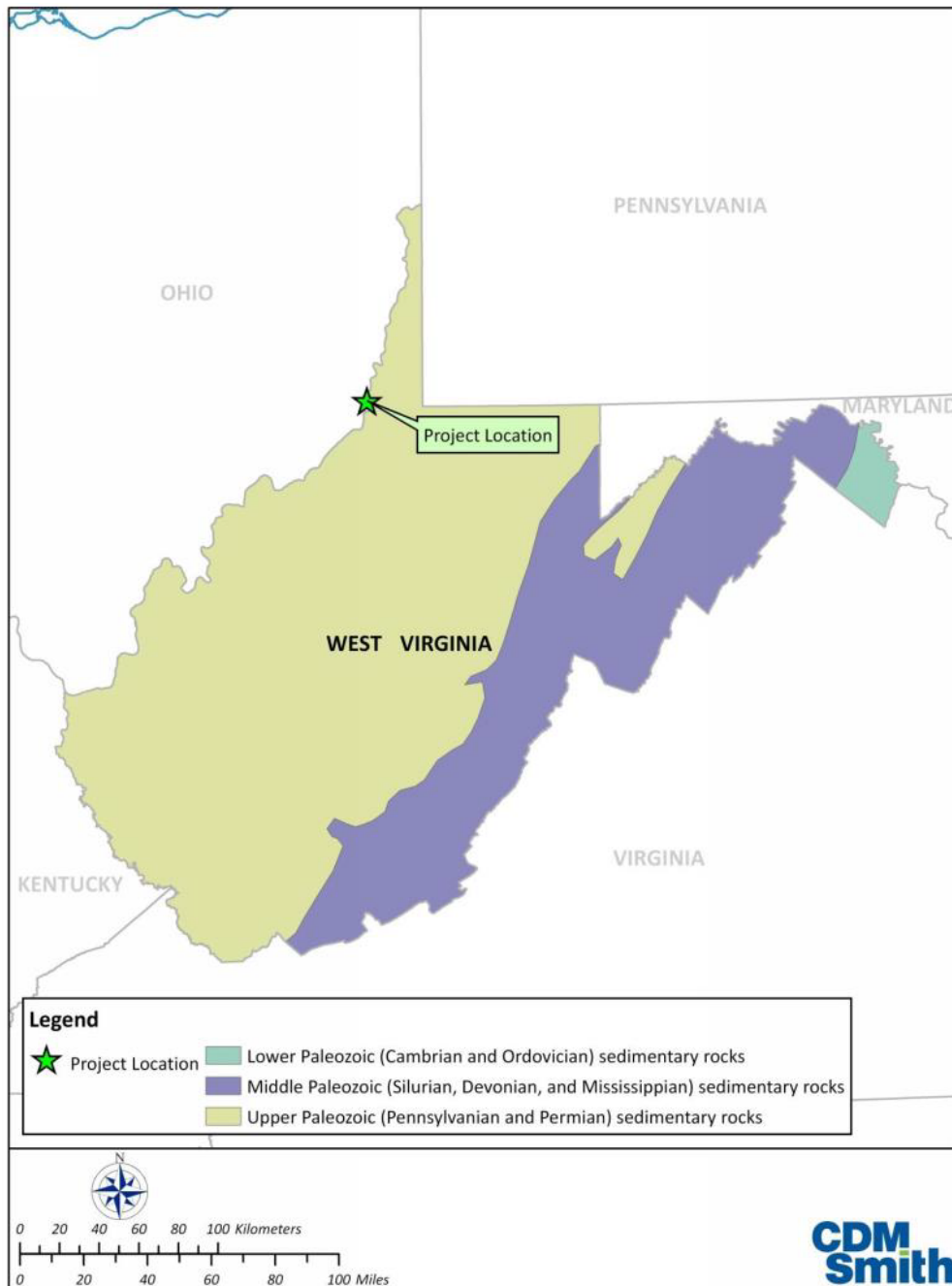
The geology of the proposed project area dates to the Upper Paleozoic – Pennsylvanian/Permian era, as shown in **Figure 3-8**, which is characterized by interbedded red clay and olive yellow shale; acid, gray and brown siltstone; sandstone; coal; and limestone. The exposed bedrock is part of the Dunkard Group and is sedimentary in origin. The United States Geological Survey’s (USGS) *Groundwater Quality in West Virginia, 1993-2008* report<sup>8</sup>, describes the rocks within the area as having been highly dissected by stream erosion.

Per the West Virginia Geological and Economic Survey (WVGES) and West Virginia Bureau of Public Health, there are no known karst topography within or adjacent to the project area. According to the USGS and the WVGES, there are no known fault lines within or adjacent to the project area. Thus, the proposed project would not significantly or adversely impact the geology of the proposed project area beyond the immediate construction area.

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<sup>8</sup> Chambers, D.B., Kozar, M.D., White, J.S., and Paybins, K.S., 2012, Groundwater quality in West Virginia, 1993–2008: U.S. Geological Survey Scientific Investigations Report 2012–5186, p. 3

Figure 3-8: Project Area Geology



Source: NRCS

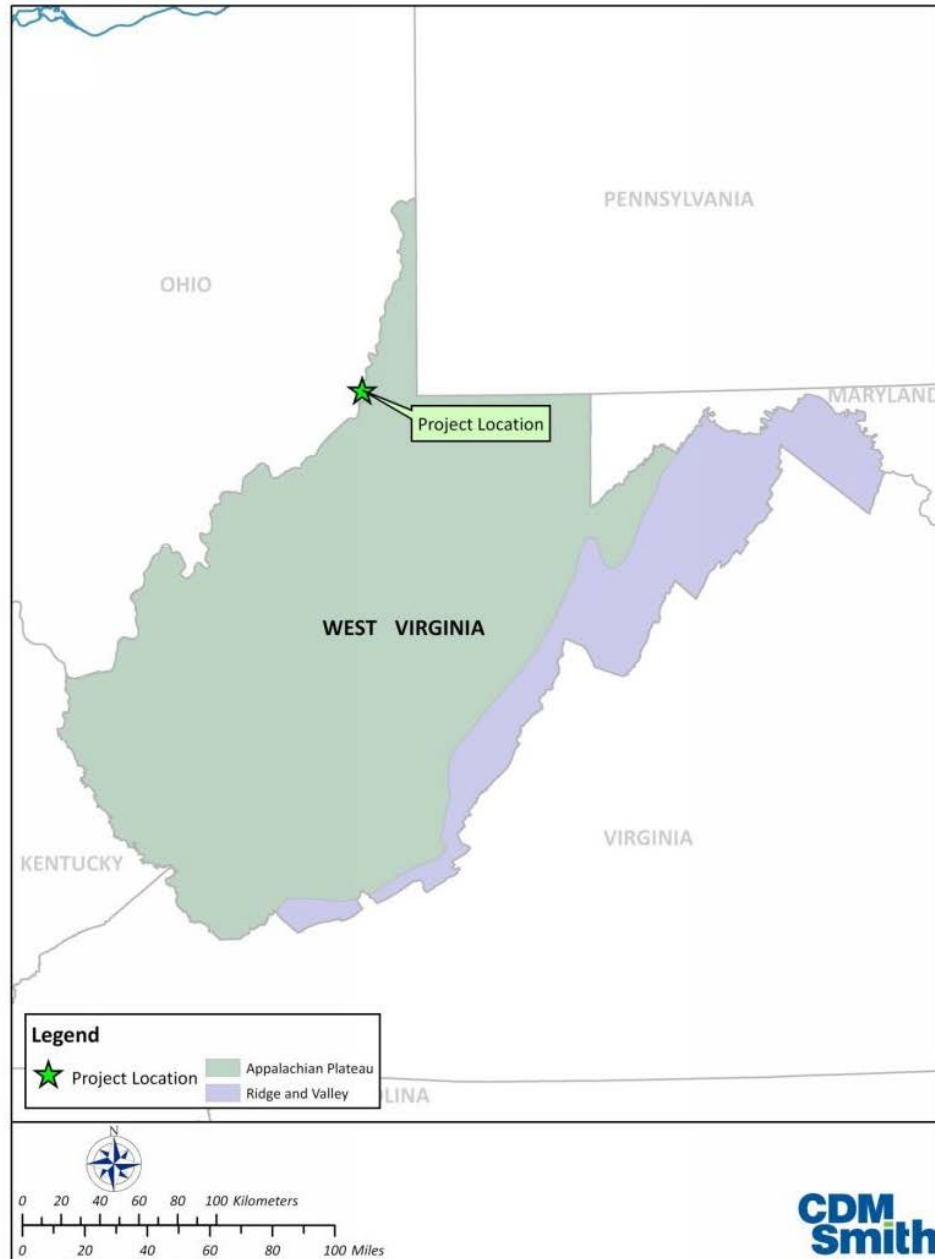
### 3.10 Groundwater

According to the EPA, there are no sole source aquifers within the state of West Virginia.<sup>9</sup> However, two aquifer types, unconsolidated alluvial deposits and sedimentary bedrock aquifers, underlie most of the

<sup>9</sup> U.S. EPA, National Sole Source Aquifer GIS Layer, Updated July 7, 2016, <http://catalog.data.gov/dataset/national-sole-source-aquifer-gis-layer>

state.<sup>10</sup> The project area is located above an alluvial aquifer, associated with the Ohio River, and is also located within the Appalachian Plateaus physiographic province, as shown in **Figure 3-9**. Groundwater flow within the region is controlled, in part, by the river valley, and is characterized by short flow paths.<sup>11</sup>

**Figure 3-9: Groundwater Availability**



Source: EPA

<sup>10</sup> Chambers, D.B., Kozar, M.D., White, J.S., and Paybins, K.S., 2012, Groundwater quality in West Virginia, 1993–2008: U.S. Geological Survey Scientific Investigations Report 2012–5186, p. 3

<sup>11</sup> USGS, 2014, Appalachian Plateaus Groundwater Availability, Info Sheet.

The project area consists of moderately well to excessively well drained soils, which indicates that internal free water occurrence is moderately deep to very deep below the surface. In fact, the depth-to-water table ranges from approximately 20 to more than 80 inches below the surface. As a result, the proposed project is not anticipated to significantly impact groundwater in the area. Best management practices regarding potential stormwater runoff and erosion would be employed during construction activities in order to minimize any potential temporary impacts.

### 3.11 Streams and Wetlands

A stream and wetland assessment and delineation were conducted for the project area in accordance with the West Virginia Stream and Wetland Valuation Metric (SWVM) and is summarized in the Stream and Wetland Technical Report, which is included in the project file and available for review upon request. Site visits were conducted in October 2012 and again in August/September 2016 due to a change in the proposed alignment. The proposed project site runs directly adjacent to the existing WV 2 along the Ohio River in the northern portion of West Virginia. The proposed alternatives are located adjacent to the existing WV 2 roadway, primarily in areas that have been previously disturbed by industrial or residential activities. In areas where WV 2 is proposed to be relocated, the proposed alignments are located up to 850 feet to the east of the existing roadway.

A total of two wetland systems, Riverine and Palustrine, and three wetland classes were observed within the project area during the site visits. In addition, several high-gradient ephemeral streams were identified. West Virginia requires the use of the SWVM for evaluating mitigation banks, in-lieu fee projects, as well as the U.S. Army Corps of Engineering (USACE) Section 404 applications proposing impacts to water resources of the United States. The proposed project is anticipated to impact streams and wetlands; therefore, use of the SWVM is applicable.

A desktop delineation identified 11 likely stream and wetland areas. Of these wetland areas, seven are associated with stream channels. Three of these, Dry Run, Beaver Run, and Sims Run, are named tributaries of the Ohio River; whereas the remaining four are un-named tributaries. The majority of these stream systems are slope wetlands consisting of channels that run down the slopes of hills to the east of WV 2 before becoming slow-moving, low-gradient systems within the Ohio River floodplain. In addition to the seven stream systems, the desktop delineation located a small man-made pond and three palustrine wetlands.

Field investigations conducted October 2012 and August/September 2016 were used to confirm the presence or absence of wetland areas or streams identified or missed by the desktop delineation. A total of 17 field delineated streams, wetlands, and one pond were identified and assessed. Of the 17 water features, three are perennial streams, two are intermittent streams, four are ephemeral streams, one is a man-made pond, and seven are vegetated wetlands. **Figures 3-10, 3-11, and 3-12** illustrate their locations in the study area. **Table 3-12** lists the stream, wetland, and pond classifications and potential impacts within the study area.

During field investigations in 2016, the project area was under drought conditions resulting in abnormal hydrologic conditions (e.g. some perennial streams running dry). In addition, signs of stress (e.g. defoliation) and mortality to vegetation was present in portions of the project corridor where a chlorine

leak occurred from a rail car at the Axiall Corporation plan in August 2016. Biological and water chemistry sampling could not take place for several streams where no flow was observed including one perennial stream Beaver Run (Stream 3), the four ephemeral streams (Streams 1, 5, 6, and 7) and the two intermittent streams (Streams 4 and 9). Chemical and biological indicator values for the streams are summarized in the **Table 3-12** below:

**Table 3-12: Chemical and Biological Indicators of Sampled Streams from 2016 Field Assessment**

Stream	Chemical Indicators				Biological Indicators	
	Specific Conductivity Value	pH Value	DO* Value	SWVM Chemical Indicator Subtotal	WVSCI* Score	SWVM Biological Indicator Subtotal
Dry Run (Stream 2), perennial	80	80	30	0.95	51.53	0.4153
Beaver Run (Stream 3), perennial	70 <sup>1</sup>	80 <sup>1</sup>	10 <sup>1</sup>	0.80 <sup>1</sup>	N/A – Dry	N/A – Dry
Sims Run (Stream 8), perennial	70	80	30	0.90	52.76	0.4276
Stream 4, intermittent	30 <sup>1</sup>	80 <sup>1</sup>	30 <sup>1</sup>	0.7	N/A – Dry	N/A – Dry
Stream 9, intermittent	85 <sup>1</sup>	45 <sup>1</sup>	30 <sup>1</sup>	0.8	N/A – Dry	N/A – Dry
Stream 1, ephemeral	85 <sup>2</sup>	45 <sup>2</sup>	30 <sup>2</sup>	0.8	N/A – Dry	N/A – Dry
Stream 5, ephemeral	85 <sup>2</sup>	45 <sup>2</sup>	30 <sup>2</sup>	0.8	N/A – Dry	N/A – Dry
Stream 6, ephemeral	85 <sup>2</sup>	45 <sup>2</sup>	30 <sup>2</sup>	0.8	N/A – Dry	N/A – Dry
Stream 7, ephemeral	85 <sup>2</sup>	45 <sup>2</sup>	30 <sup>2</sup>	0.8	N/A – Dry	N/A – Dry

\*Acronyms: Dissolved Oxygen (DO), West Virginia Stream Condition Index (WVSCI)

<sup>1</sup>As instructed by USACE – Huntington District, standard values were used for Chemical Indicators of ephemeral streams when no water was present.

<sup>2</sup>Obtained during the 2012 initial assessment when flow was present.

Overall, the quality of the habitat condition of the streams within the project area can be characterized as Poor to Marginal according to bank stability and vegetative projection. Characteristics of substrates and channel flow however, were in the range of Suboptimal. The SWVM chemical indicators were between 0.7 and 0.9 for the nine streams.

Of the seven vegetated wetlands found in the project area, four are palustrine emergent wetlands with persistent vegetation (PEM1), one is a palustrine scrub-shrub wetland with broad-leaved deciduous trees (PSS1), and two are primarily palustrine forested wetlands with broad-leaved deciduous trees (PFO1). A summary of each wetland follows:

- Wetland 1 is a small (0.014 acres) PEM1 wetland located near the southern limit of the project area and is supplied by runoff down the hillslopes to the east.
- Wetland 2 is a small (0.049 acres) PEM1 wetland similar to Wetland 1 that is supplied by runoff down the hillslopes to the east.
- Wetland 3 is a small (0.106 acres) PEM1 wetland located in a small depression within a larger landscape and collects water from Wetland 4 and hillslopes to the east.
- Wetland 4 is a small (0.199 acres) PSS1 wetland with a small ephemeral stream located within. Small portions of Wetland 4 are better characterized as emergent (PEM1), with small pockets of sparse woody vegetation located in the northern areas.



- Wetland 5 is a (0.395 acres) PEM1 wetland located to the west of and draining into ephemeral Stream 6. The wetland consists of a narrow depression that runs along the bottom of a steep hillside to the east.
- Wetland 6 is a 0.18 acres PFO1 wetland associated with the braided downstream portion of ephemeral Stream 7.
- Wetland 7 is a 4 acre PFO1/PEM1 wetland located in the Sims Run floodplain.

Figure 3-10: Stream and Wetland Locations, Sheet 1 of 3

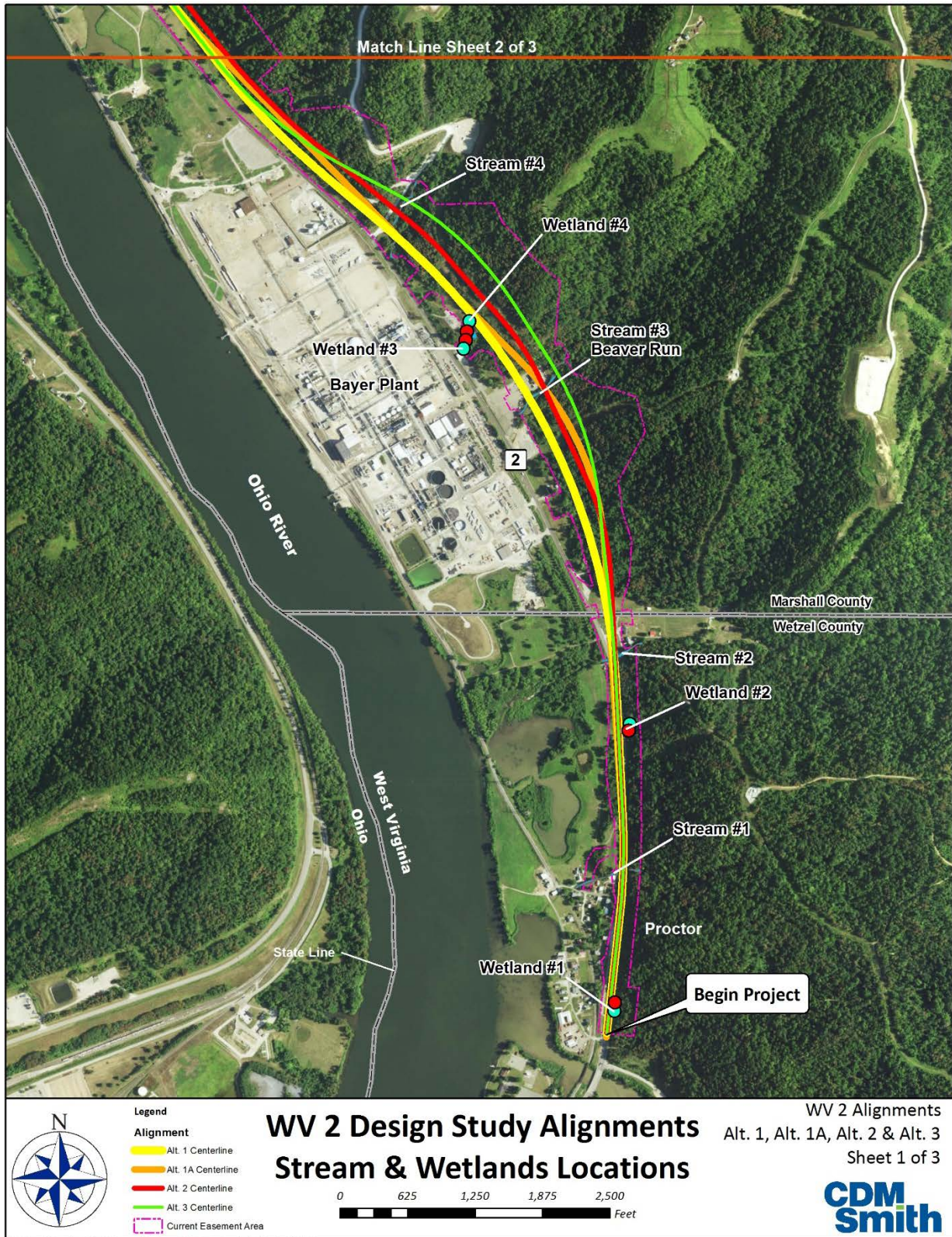


Figure 3-11: Stream and Wetland Locations, Sheet 2 of 3

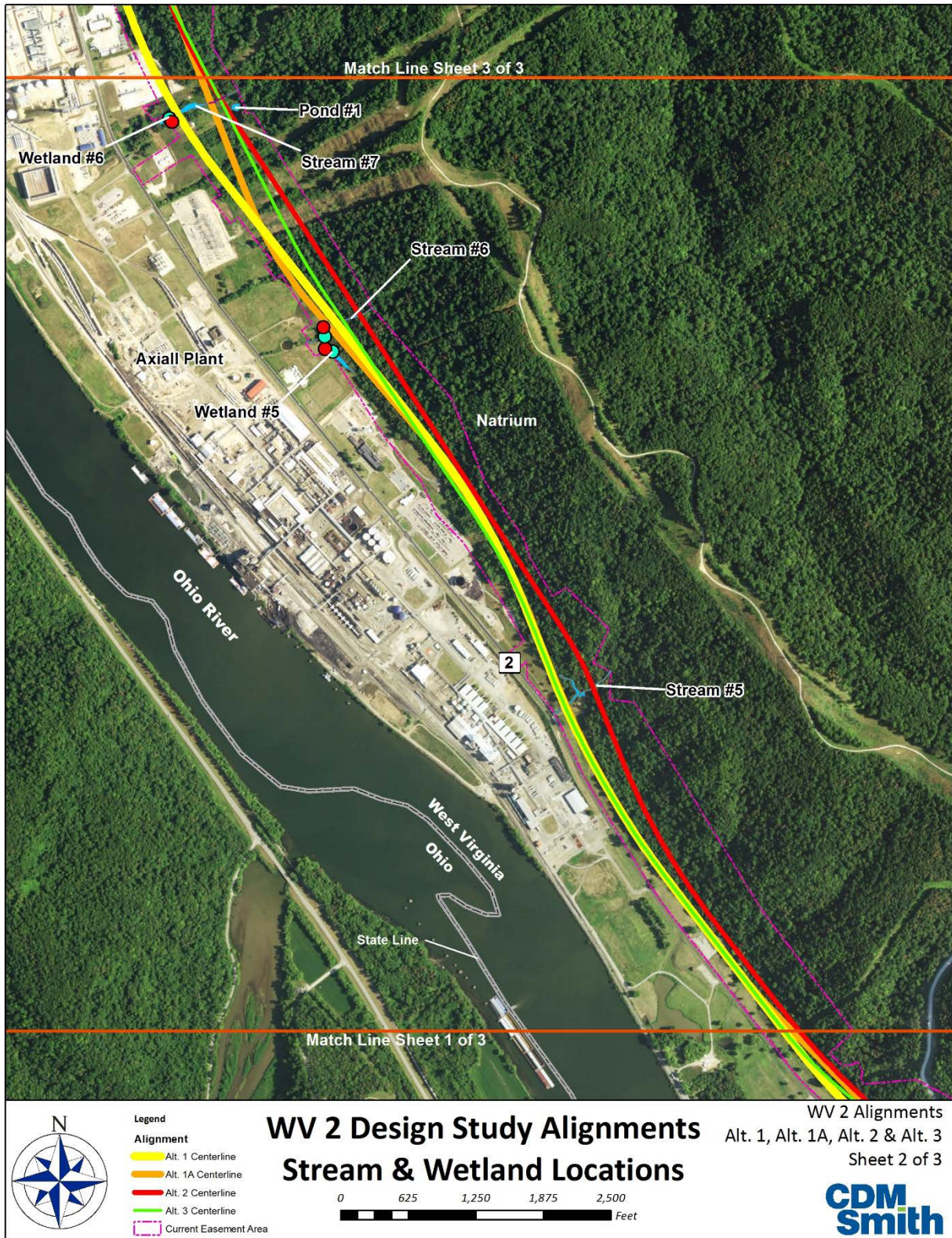
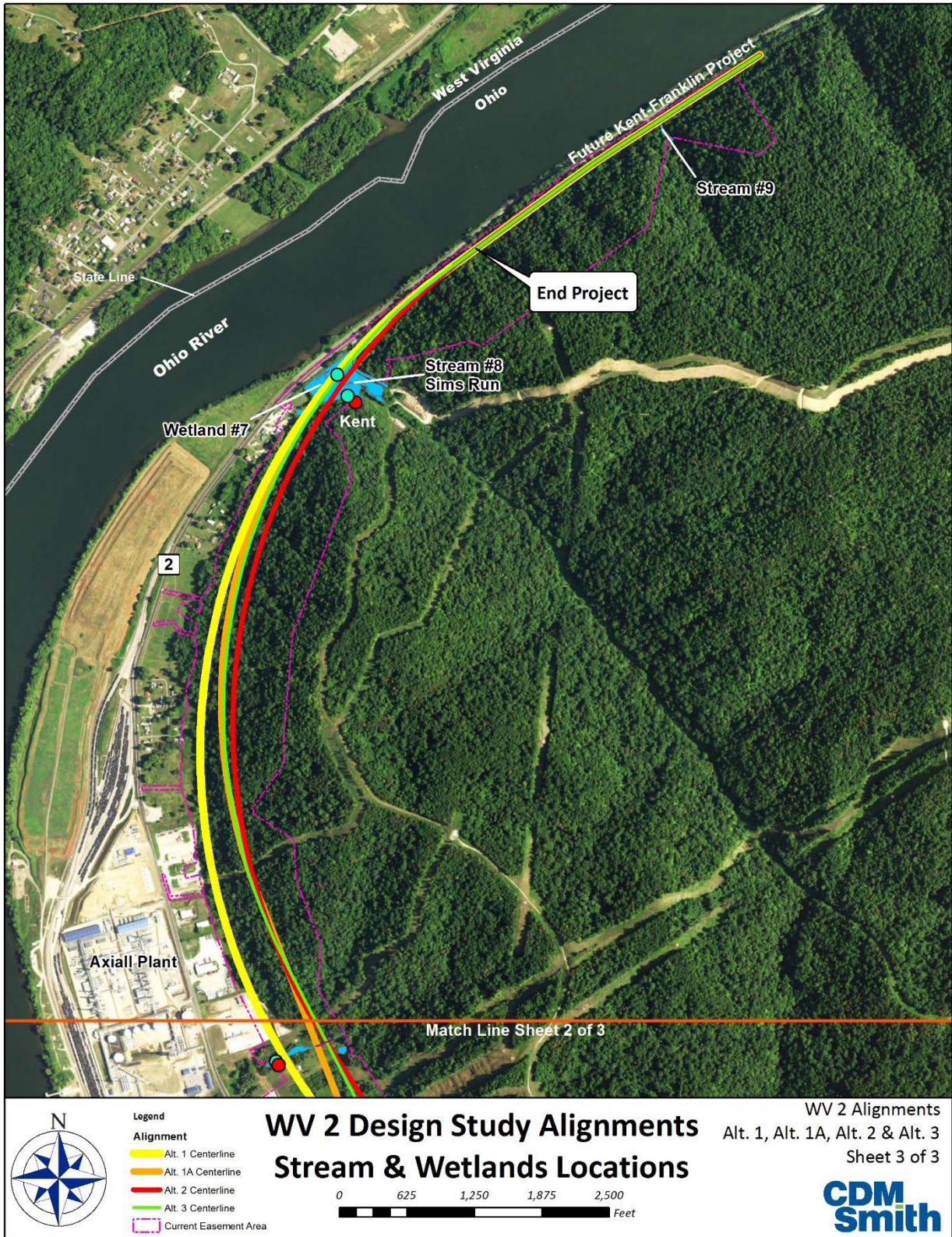


Figure 3-12: Stream and Wetland Locations, Sheet 3 of 3



Stream delineations included field identification of the stream channel, sufficient measurements of the stream channel, and photographs of the stream within the project area; this information is included in the project file and available for review upon request. As summarized in **Table 3-13**, four ephemeral streams, three perennial streams, and two intermittent streams were identified and delineated within the study area. Seven wetlands and one pond were also observed in the project area. Alternative 2 has the highest impacts to streams at 3,321 linear feet and Alternative 1A had the least at 1,994 linear feet. Wetland impacts are similar across the four Build alternatives from 3 to 4 acres. Mitigation for wetland and stream impacts will be handled by paying into the West Virginia Department of Environmental Protection In Lieu Fee program.

**Table 3-13: Potential Stream and Wetland Impacts**

	Classification	Alt. 1	Alt. 2	Alt. 3	Alt. 1A
<b>Stream Impacts (linear feet)</b>					
1	Ephemeral Stream	225	240	226	155
2 – Dry Run	Lower Perennial Stream	208	208	200	277
3 - Beaver Run	Lower Perennial Stream	394	525	341	302
4	Intermittent Stream	370	671	478	295
5	Ephemeral Stream	195	717	334	357
6	Ephemeral Stream	386	286	422	262
7	Ephemeral Stream	0	271	288	136
8 – Sims Run	Lower Perennial Stream	245	403	300	209
9	Intermittent Stream	0	0	170	0
	<b>Total</b>	<b>2,023</b>	<b>3,321</b>	<b>2,759</b>	<b>1,993</b>
<b>Wetland Impacts (acres)</b>					
1	PEM1	0.014	0.014	0.014	0.016
2	PEM1	0.049	0.049	0.049	0.049
3	PEM1	0.106	0.000	0.000	0
4	PSS1	0.199	0.000	0.000	0.197
5	PEM1	0.395	0.000	0.354	0.291
6	PFO1	0.179	0.000	0.043	0.016
7	PEM1/PFO1	3.243	3.958	3.454	2.464
	<b>Total</b>	<b>4.19</b>	<b>4.023</b>	<b>3.913</b>	<b>3.033</b>
<b>Other Waters</b>					
Pond 1	PUBHx	0.000	0.097	0.097	0.0
	<b>Total</b>	<b>0.000</b>	<b>0.097</b>	<b>0.097</b>	<b>0.0</b>

Note: PEM1 (Palustrine Emergent Wetland), PSS1 (Palustrine Scrub Wetland), and PFO1 (Palustrine Forested Wetland)

### 3.12 Floodplains

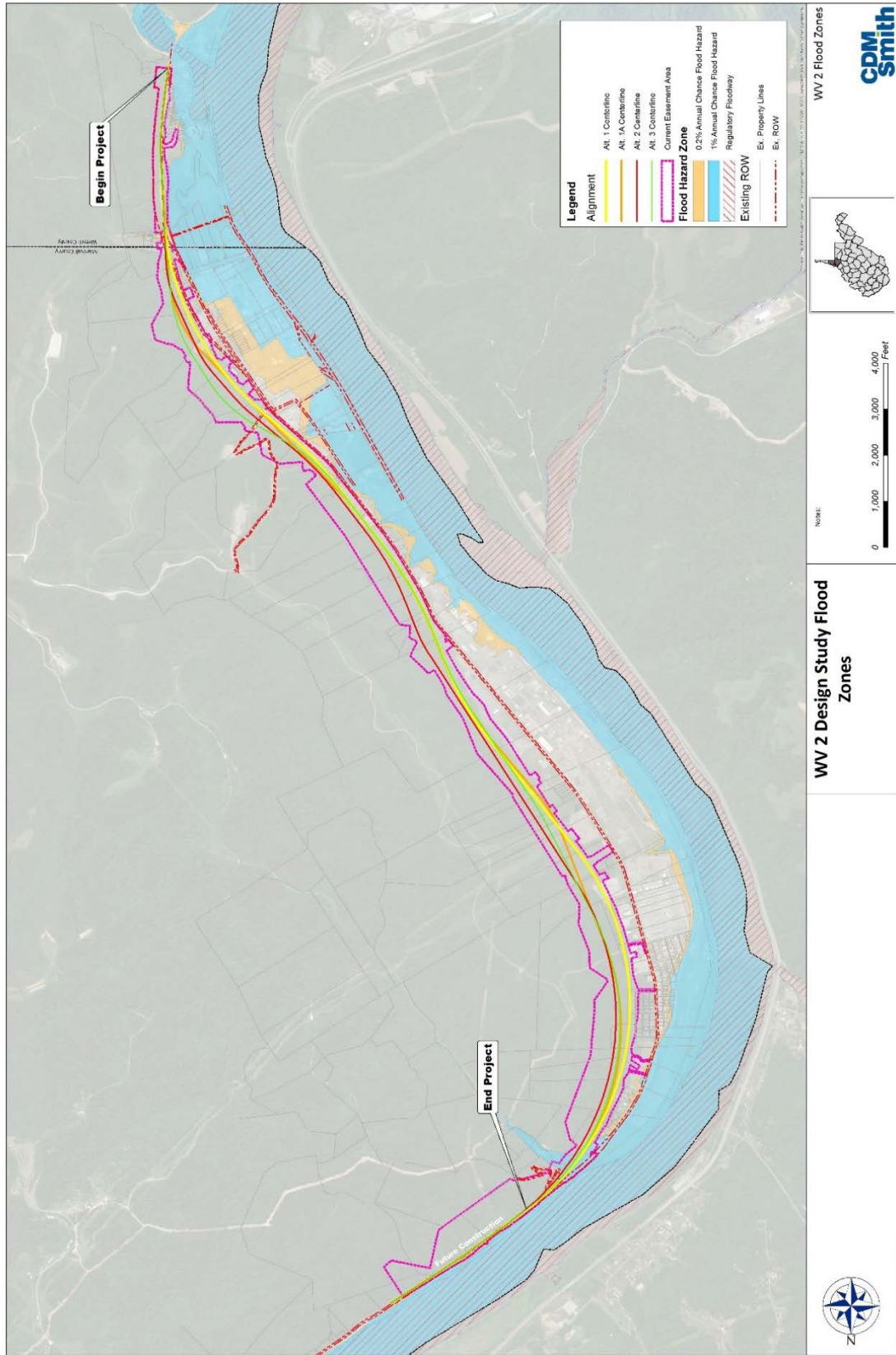
All Federal agencies are directed to avoid, to the extent possible, long-and short-term adverse impacts associated with the modification of floodplains. Federal agencies should also avoid direct or indirect support of floodplain development if a practicable alternative is feasible. The Federal Emergency Management Agency (FEMA) regulates development in and around FEMA-established floodplains for many areas of the country through Flood Insurance Studies (FIS) and their associated Flood Insurance Rate Maps (FIRMs). Special Flood Hazard Areas (SFHAs) are designated as high-risk flood zones, labeled

as A, AE, V, and VE, where the one-percent annual chance flood can occur, also known as the 100-year flood zone. Agencies must determine that there is no practicable alternative before taking any action that would encroach on a 100-year floodplain (7 CFR 650.25).

Floodplains in the project area generally follow the Ohio River, as shown in **Figure 3-13**. Although most of the project area is outside of the SFHA, there are three small sections that intersect the 100-year flood zone. The four Build alternatives were designed to minimize the impact to floodplains to the furthest extent possible; however, impacts to floodplains from relocating the highway are unavoidable. Impacts per alternative to the 100-year flood zone are: Alternative 1 – 10.07 acres, Alternative 2 – 10.02 acres, Alternative 3 – 10.91 acres, and Alternative 1A – 5.59 acres.

During final design and prior to construction, WVDOH will coordinate with the Wetzel and Marshall County Floodplain Coordinators, as appropriate. During construction, impacts to floodplains will be mitigated by using appropriate erosion and sedimentation control measures. Post-construction mitigation measures for base floodplain encroachments may include committing to special flood-related design criteria, elevating facilities above base flood level where feasible, and locating non-conforming structures and facilities out of the floodplain. In addition, appropriate stormwater controls will be installed. Design of these controls will occur during road widening design.

Figure 3-13: Flood Zones



### 3.13 Terrestrial Vegetation and Wildlife

The project area includes a variety of wildlife habitats. The majority of the area includes large industrial plants. The remaining areas are mostly residential and undeveloped. Habitats contain steep slopes surrounded by a mixed deciduous hardwood forest. Most of the forested habitat occurs on the eastern side of the project area and the existing WV 2. Generally, habitats in the project area consist of lawns, hardwood dominated woodlands, streams and drainages, perched wetlands, a few ponds, areas of fields and woodland edges, residential areas, industrial areas, and recently disturbed land. A summary of the terrestrial vegetation and wildlife in the project area is available in the *Wildlife Report*; this information is included in the project file and available for review upon request.

During the stream and wetland fieldwork, incidental observations of wildlife were recorded. These observations were made by identifying animals, signs of animals, and vocalizations of animals. In addition to these observations, mist netting of bats with emphasis on *Myotis sodalis* (Indiana bat) and *Myotis septentrionalis* (Northern long-eared bat) occurred along the same route from August 5-10, 2011 and again August 7-8, 2017.

The hardwood forests along WV 2 provide excellent habitat for a wide range of wildlife species. Nesting birds include downy woodpecker, eastern towhee, hermit thrush, red-eyed vireo, and tufted titmouse. Other common bird species include American crow, black-capped chickadee, blue jay, cardinal, northern flicker, red-tailed hawk, and white-eyed vireo. Along the edge habitat areas and grass maintained areas American kestrel, Carolina wren, eastern bluebird, eastern phoebe, mockingbird, mourning dove, and white-throated sparrow were observed. Birds common in the residential and commercial areas include American robin, blue jay, song sparrow, red-winged blackbird, and mourning dove. Belted kingfisher and common yellowthroat were identified in the Sims Run area. Mammals such as white tail deer, eastern cottontail, gray squirrel, Virginia opossum, and raccoon use hardwood forest and mixed pine and hardwood forest habitats. Mammals common to forest edge habitats including maintained areas include eastern cottontail rabbit and various species of mice, voles, and shrews. Sightings or evidence (e.g., tracks) were noted for the following species of mammals: eastern chipmunk, eastern cottontail, eastern gray squirrel, house mouse, northern raccoon, and Virginia opossum. Bats were also identified and are discussed later. Amphibians observed included frogs (i.e., American bullfrog, American toad, green frog, northern leopard frog, pickerel frog, and wood frog) in some of the habitats within the project area. Fish (i.e., bluegill, bluntnose minnow, central stoneroller, creek chub, and mosquitofish) were also observed in some of the creeks within the project area. One reptile, an eastern box turtle, was observed in the wetlands area referred to as Wetland 5 discussed previously in the Streams and Wetlands section of this EA.

The U.S. Fish and Wildlife Service (USFWS) identifies Birds of Conservation Concern (BCC) by county. For Wetzel County there are 9 BCC and for Marshall County there are 5 BCC. None of these 14 BCC species were identified in the project area.

**Table 3-14** includes the Federally listed species for Marshall County and Wetzel County. No listed species were identified within the project area during the stream and wetland assessment fieldwork of October 2012 or in August/September 2016.



**Table 3-14: Federally listed species for Wetzel and Marshall County, West Virginia<sup>1</sup>**

Common Name	Scientific Name	Federal Protected Status <sup>2</sup>	County
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Marshall, Wetzel
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Marshall, Wetzel
Clubshell	<i>Pleurobema clava</i>	Endangered	Wetzel
Fanshell	<i>Cyprogenia stegaria</i>	Endangered	Marshall, Wetzel
Pink Mucket	<i>Lampsilis abrupta</i>	Endangered	Marshall, Wetzel
Sheepnose Mussel	<i>Plethobasus cyphus</i>	Endangered	Marshall, Wetzel
Snuffbox Mussel	<i>Epioblasma triquetra</i>	Endangered	Marshall, Wetzel

<sup>1</sup> It should be noted that a very small portion and percentage of this project is in Wetzel County.

<sup>2</sup> USFWS, IPaC for Wetzel and Marshall Counties, WV, December 8, 2017.

The snuffbox mussel is listed for Fish Creek for Marshall County, which is located over three miles north of the project area. The clubshell, fanshell, pink mucket, and sheepnose mussel are listed for the Ohio River, and are also located outside the project area (WVDNR 2013). Non federally-listed mussels may be present in the study area.

Five northern long-eared bats (not federally listed at the time of this survey) were captured at three locations during the federally protected bat surveys conducted in August of 2011. According to the USFWS, there are no known northern long-eared bat hibernacula on or near the project area (email correspondence from Liz Stout, USFWS to Murray Wade, CDM Smith, December 15, 2016). If a known, occupied roost tree was located within the project area, limitations would be placed on clearing trees within a fourth-mile of the known, occupied roost tree.

In 2017, summer bat mist netting surveys for the project area following the “2017 Range-wide Indiana Bat Summer Survey Guidelines” (USFWS, 2017). Mist net surveys were conducted at nine sites, three nets per site for two nights each for a total of 54 net nights of survey effort. Captures for the survey yielded a total of 11 bats comprised of two species. Bat species captured included six eastern red bats and five big brown bats. No threatened or endangered bat species were captured during the survey efforts. The results of the mist net surveys are consistent with the previous findings in 2011, in that it is not likely that the proposed project will adversely affect the Indiana bat or northern long-eared bat populations in the area. The results of the mist net surveys have been coordinated with USFWS. The USFWS Concurrence Form dated April 6, 2018 is included in **Appendix G**.

## 3.14 Hazardous Materials

### 3.14.1 Registered Hazardous Waste Sites

There are a number of EPA registered hazardous waste sites that generate and store various quantities of waste in the project area. These are listed below in **Table 3-15** and shown on **Figure 3-14**. None of the listed hazardous waste sites will be impacted by the build alternatives.

**Table 3-15: Hazardous Waste Generators, Proctor, West Virginia**

Site Name	City
Blue Racer Natrium LLC	Proctor, WV
Covestro LLC	Proctor, WV
CSX Transportation Inc.	Proctor, WV
Eagle Natrium LLC	Proctor, WV
Elementis Specialties – New Martinsville Plant	Proctor, WV
Grandview Doolin PSD – Doolin Tank	Proctor, WV
Trans Tech Logistics	Proctor, WV

Source: <https://rcrainfo.epa.gov/rcrainfoweb/action/modules/hd> (accessed 12-20-2017)

### 3.14.2 Nearest Superfund Site

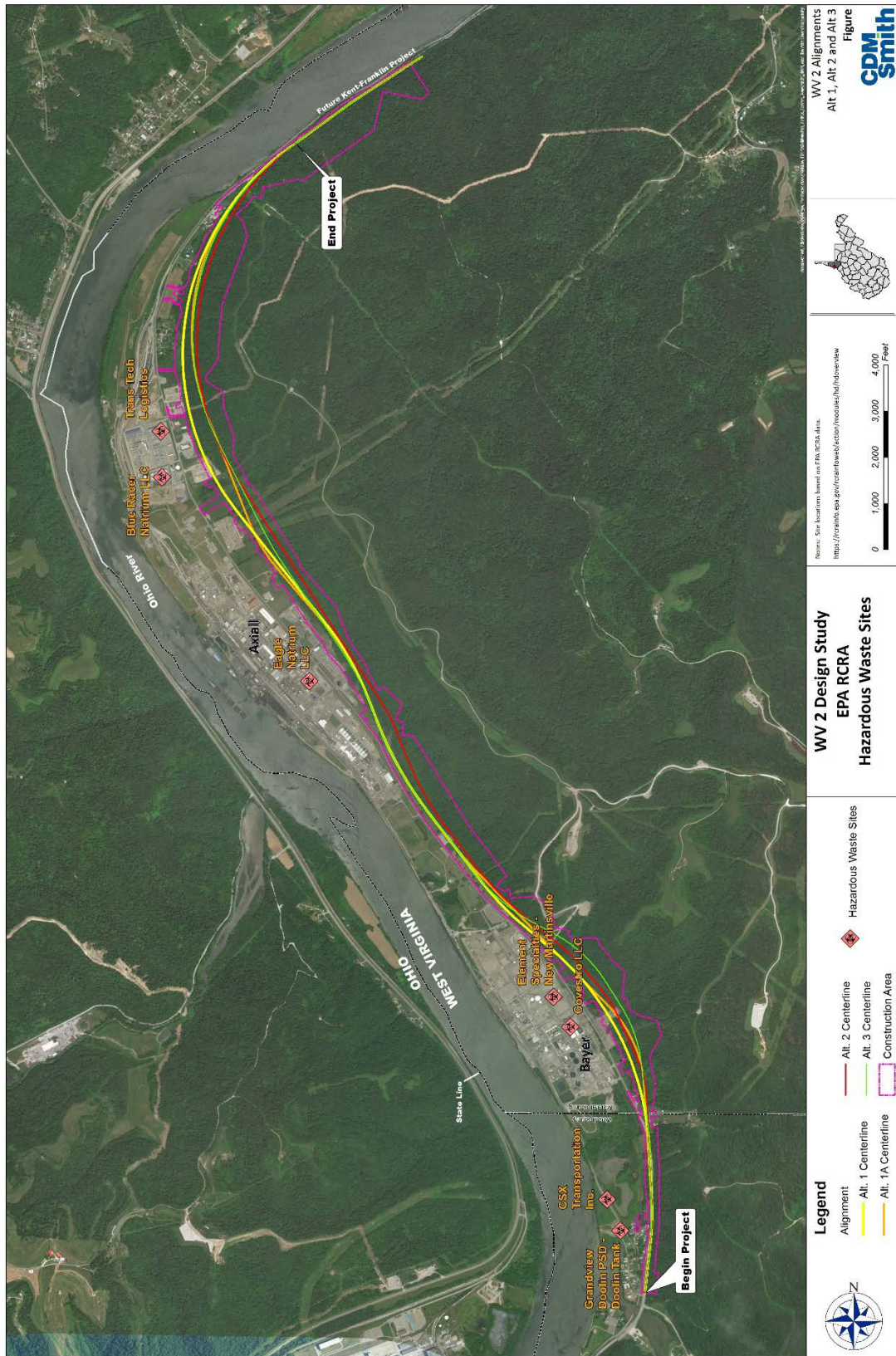
According to the EPA website, the Hanlin-Allied-Olin Site is the nearest Superfund site to the project area is located over 10 miles to the north, just south of Moundville, West Virginia.

### 3.14.3 Implementation of Hazardous Materials Contingency Plan

The Contractor shall develop a Hazardous Materials Contingency Plan (HMCP) to include standard construction measures required by federal, state, and local policies for hazardous materials, removal of onsite debris, and confirmation of presence of pipelines on-site. At a minimum, this plan would include the following:

- If contaminated soils or other hazardous materials are encountered during any soil moving operation during construction (e.g., trenching, excavation, grading), construction shall be halted and the HMCP implemented.
- Instruct workers on recognition and reporting of materials that may be hazardous.
- Minimize delays by continuing performance of the work in areas not affected by hazardous materials operations.
- Identify and contact subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, laws and regulations.
- Forward to engineer, copies of reports, permits, receipts, and other documentation related to remedial work.
- Notify such agencies as are required to be notified by laws and regulations within the time stipulated by such laws and regulations.
- File requests for adjustments to contract time and contract price due to the finding of hazardous materials in the work site in accordance with conditions of contract.

Figure 3-14: Hazardous Waste Sites



Source: USEPA

### 3.15 Energy

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

The no build Alternative may increase fuel consumption over the 20 year analysis period due to increased traffic delay; energy use would be slightly higher than current levels. It is anticipated that the proposed project may actually decrease the amount of energy used since it would reduce traffic congestion and travel times. This is considered a positive impact and no mitigation is proposed. Tangentially, the project completes the last segment of WV 2 to be upgraded from a two to four-lane highway, providing a continuous four-lane highway from the Marcellus Shale Gas region, a new energy source, to a planned fractionation plant and a potential ethane cracking facility south of I-70.

During construction, energy use would increase due to the use of fossil fuels to power construction equipment. This short term increase would be offset by the improved movement of traffic after the project is constructed.

### 3.16 Secondary and Cumulative Impacts

This section examines secondary and cumulative impacts. Secondary impacts are caused by an action but occur later in time or further removed in distance. Cumulative impacts are evaluated by considering how the consequences of an action affect the environment in light of other past, present, and reasonably foreseeable future actions.

#### 3.16.1 Secondary Impacts

Overall, WV 2 is an important resource that impacts the regional economy and its future. While relocating and widening this stretch WV 2 would improve traffic operations, it is not anticipated to induce additional development beyond background growth already expected to occur in the region. The proposed relocation of WV 2 in Alternative 1A, the Preferred Alternative, will consolidate access for two of the three chemical plants in the study area into a single intersection. This will allow for improved security for each of these plants. The Preferred Alternative will also maximize the developable land available to the three chemical plants allowing for expansion adjacent to their existing facilities.

#### 3.16.2 Cumulative Impacts

##### 3.16.2.1 Defining Cumulative Impacts

Cumulative effects analyses are an important element of the environmental documentation and approval process and are required by NEPA. The CEQ defines cumulative effects as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7). Cumulative effects are defined under NEPA as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR Section 1508.7).

Cumulative impact analysis is defined temporally and geographically and these definitions differ based on the specifics of each project. For the three build alternatives, the timeframe for cumulative projects aligns with the 20-year horizon design year. Given the role that WV 2 plays in regional mobility, and thus the economic development and prosperity of the region, the geographic scope of the cumulative analysis considers regional plans for development.

### 3.16.2.2 Cumulative Projects Considered

The project area falls within the boundaries of the Belomar Regional Council, an interstate regional planning and development council of governments whose service area includes Ohio, Marshall, and Wetzel Counties in West Virginia and Belmont County in Ohio. The U.S. Economic Development Administration has also designated Belomar as an Economic Development District (EDD) for economic development planning. Belomar develops and administers the Comprehensive Economic Development Strategy (CEDS) for the EDD. The CEDS identifies the economic and development needs of the region and guides its economic development strategy.

Belomar's EDD is located in the northern panhandle of West Virginia and is bordered by Pennsylvania to the east and Ohio to the west. The District's close proximity to Wheeling and Pittsburgh, and regional proximity to the cities of New York, Philadelphia, Washington, D.C, Cleveland, and Columbus, connects it to many markets. In 2015, the Belomar Regional Council updated its regional CEDS. The plan notes, "in the major manufacturing counties of Belmont, Marshall, and Ohio, loss of jobs in the manufacturing sector has been substantial in the last decade, with declines of 39 percent, 38 percent, and 23 percent respectively. Wetzel County sector employment declined by two percent... [Manufacturing] sector employment in the Belomar region has decreased from 5,026 to 3,392 jobs, a decline of 33 percent [in the last 10 years]." However, some accomplishments in the manufacturing sector have occurred, including the Axiall Natrium chemical plant in Marshall County, which manufactures caustic soda, calcium hypochlorite, and muriatic acid and employs about 500 people. The company was formed in 2013 through the merger of the Georgia Gulf Corporation and the chemical commodities business of PPG Industries.

However, as manufacturing has fallen, the CEDS plan update notes, "Much of the recent job growth in the region has been in one sector, natural resources and mining, primarily due to increases in the oil and gas industries. In September 2013 (the most recent data available), there were 5,264 workers in the natural resources and mining sector in the Belomar counties, an increase of nearly 1,300 from September 2012. With Belomar as a leading coal producing area and a significant and rapidly expanding source of oil and gas, all counties have shown significant growth in the last several years. The West Virginia University – Bureau of Business and Economic Research (WVU BBER) reports that while coal production is generally down throughout West Virginia, the decrease has been much more modest in the Belomar region than in the southern part of the state, partly from increased exports of the type of coal produced here. Dominion Resources developed a nearly \$500 million natural gas processing facility along WV 2 and the Ohio River near Natrium, located in southern Marshall County within the proposed project corridor. Blue Racer Midstream (a partnership between Dominion and Caiman Energy) now owns the plant, which began operating in 2013. In 2014, additional construction doubled the processing capacity at the plant. In addition, other regional accomplishments in the natural resources and mining sector include:

- **AES Drilling Fluids.** In 2012, Fluids Management, a division of Texas-based AES Drilling Fluids opened a \$2 million facility in the North Benwood Industrial Park in Marshall County. The new facility employs about 17 full-time workers to make and recondition a synthetic oil-based fluid used by companies drilling for natural gas.
- **Chevron.** In the last few years, Chevron has acquired lease rights and active natural gas operations in Marshall and Ohio counties. Its drilling and fracking operations in Marshall County currently includes 52 oil and natural gas wells.
- **CNX Gas Corporation.** CNX Gas Corporation, a subsidiary of Consol Energy, drilled nine wells in northern West Virginia in 2011, representing an estimated \$45 million investment.
- **Consol Energy.** Consol invested \$200 million for capital improvements at the Shoemaker and McElroy Mines. An underground conveyor system replaced the old rail system. In the last few years, the company estimates it invested over \$1 billion in its five West Virginia mines prior to selling them to Murray Energy in 2013. Consol is now focusing on natural gas and plans to invest about \$14 billion in West Virginia over the next ten years.
- **Dominion Transmission.** In 2012, Dominion Transmission, the natural gas transportation subsidiary of Dominion Resources completed its Appalachian Gateway Project, which included 44 miles of pipeline in Marshall County, West Virginia and Greene County, Pennsylvania. The company will transport natural gas to markets in the eastern United States. The project also included two new gas compressor stations in Wetzel and Marshall Counties.
- **Gastar Exploration.** Gastar Exploration continues to put natural gas wells into production. In April 2014, the company stated they had 50 wells producing, with most of the activity in northern West Virginia. By the end of the third quarter, Gastar had ten Marcellus wells in Marshall County in various stages of drilling. In 2015, Gastar also brought its second Utica well drilled in Marshall County online.
- **MarkWest Energy Partners.** Denver-based MarkWest expanded its Majorsville gas processing plant in eastern Marshall County by adding a new cryogenic processing facility in 2013. MarkWest also brought its second large scale de-ethanizer online at the Majorsville complex and has plans to increase its refining capacity. At its Mobley complex in Wetzel County, in early 2015, the company increased its natural gas processing capacity to 720 million cubic feet per day.
- **Rice Energy.** In early 2014, Rice Energy estimated it would invest about \$300 million in Belmont County, with a goal of drilling 700 gas wells. Ohio Department of Natural Resources records for the first quarter of 2015 show that Rice Energy's Blue Thunder operation in Belmont County included several of the most productive wells in the state over that three-month period. Through mid-2015, Rice Energy and other producers continue to acquire land in the region.
- **Williams Energy.** A subsidiary of Oklahoma-based Williams Partners, Williams Energy is developing a site in Marshall County which will be the location of the Williams Energy Oak Grove natural gas processing plant, part of a nearly \$4.5 billion investment in the county by the company. Williams also added a second fractionator to the Moundsville fractionation plant and

will be expanding operations at the Fort Beeler processing plant, both in Marshall County. The company estimates it will create 100 new permanent jobs in Marshall County and will eventually have 250 full-time workers at the facilities.

The Belomar Regional Council also serves as the area's designated metropolitan planning organization (MPO) for the Wheeling urbanized area and as such is responsible for maintaining a continuing, comprehensive and cooperative transportation planning process for Ohio, Marshall and Belmont Counties. The long range transportation plan is prepared with input from stakeholders and citizens and in cooperation with the FHWA, Federal Transit Administration, West Virginia Department of Transportation, West Virginia Division of Public Transit, Ohio Department of Transportation, and local jurisdictions.

The previous long range transportation plan, the *Transportation Plan for 2035*, identified six major projects in close proximity to the proposed project corridor. They include:

- Add a center turn lane on WV 2 from the intersection of 6th Street to US 250.
- Upgrade WV 2 to four-lanes from 0.12 miles south of CR 29 to 0.35 miles south of CR 27.
- Upgrade WV 2 to four-lanes from 0.18 miles south of CR 78 to 0.12 miles south of CR 29.
- Intersection improvements at US 250 and Jefferson Avenue Intersection.
- Upgrade County Line Bridge (CR 5) to two lanes.
- Upgrade Rude Bridge (CR 5) to two lanes.

Recent growth in natural resources and mining, driven by deep well drilling to recover natural gas in the Marcellus and Utica Shale, presents tremendous opportunities for economic expansion in the region. However, this economic opportunity must be balanced with the need to minimize the negative impacts of hydraulic fracturing. The current transportation plan, the *Transportation Plan for 2040*, notes, "the fracking process has created many roadway maintenance and safety concerns. In addition, there are concerns regarding well fires, ground water contamination, fracking waste disposal and potential for earthquakes." From a transportation perspective, the safe and efficient movement of goods through, into and out of the region is critical in sustaining and attracting economic activity. Towards that end, the *Transportation Plan for 2040* identified a number of goals and objectives for the region related to land use, freight, and highway safety with the overarching goal of improving the region's economic competitiveness. Some of the more relevant strategies are listed below:

- Identify the existing and future development areas and address transportation needs.
- Develop transportation projects that enhance existing developments and promote future growth
- Optimize the use of existing networks to accommodate both existing and new developments.
- Identify projects that facilitate efficient freight movement to, from and through the area.

### 3.16.2.3 Cumulative Impact Analysis

The proposed project would lead to minor additional right-of-way acquisition and conversion of undeveloped lands to a transportation use.

The preferred alternative is expected to contribute to incremental impacts when considered alongside overall cumulative effects of past and future actions. While it may result in conversion of land use, the proposed project would have an overall positive impact on the regional economy by improving

connectivity and safety. Considered alongside other planned developments and transportation projects, impacts should be limited. The preferred alternative is consistent with the MPO's long range transportation plan for the area.

As with any project that involves change, the proposed project would have the potential to contribute to positive and negative environmental effects within the study corridor. However, this project would provide benefits in terms of regional mobility, which in turn would help support economic growth.



## CHAPTER 4. REFERENCES

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The following Technical Reports were prepared for this project and have been used in the development of this EA:

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- Custom Soil Resource Report for Marshall County, West Virginia, and Wetzel County, West Virginia, January 2012
- Cultural Historic Survey for the Proposed Upgrade to WV Route 2 from Proctor to Kent in Wetzel and Marshall Counties, West Virginia, October 2013, updated September 2014
- West Virginia 2 Expansion Noise Study, 2013
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