



SKIFFES CREEK

# CONNECTOR STUDY

PRELIMINARY NOISE ANALYSIS

**TECHNICAL MEMORANDUM**

JUNE 2018



# COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION  
1401 EAST BROAD STREET  
RICHMOND, VIRGINIA 23219 2000

**Stephen Brich**  
Commissioner

June, 11 2018

To: File

From: T. Ross Hudnall

Subject: UPC 100200; Project Number: 0060-047-627, B619, B620, C501, P101, R201;  
Skiffes Creek Connector

The purpose of this memorandum is to summarize the results of the screening noise analysis for the above project. This analysis was completed in accordance with The State Noise Abatement Policy that was developed to implement the requirements of 23 Code of Federal Regulations (CFR) Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise (July 13, 2011), Federal Highway Administration's (FHWA's) Highway Traffic Noise Analysis and Abatement Policy and Guidance (December 2011), and the noise related requirements of The National Environmental Policy Act of 1969. The current VDOT State Noise Abatement Policy became effective on July 13, 2011 and was last updated on February 20, 2018.

As part of this screening noise analysis, one detailed existing case noise model as well as two detailed build alternative noise models were developed using the FHWA Traffic Noise Model (TNM 2.5).

Build Alternative 1 would provide an approximate one-mile two-lane roadway between US 60 and VA 143. This alternative would tie into US 60 at the existing US 60/Green Mount Parkway signalized intersection, bridge over Skiffes Creek, the CSXT railroad, and VA 143, then turn east to connect at a new intersection with VA 143.

Build Alternative 2 would provide an approximate one-mile two-lane roadway between US 60 and VA 143. This alternative would begin at a new intersection with US 60, approximately 1,000 feet west of the existing US 60/Green Mount Parkway intersection. Similar to Build Alternative 1, Build Alternative 2 would then bridge over Skiffes Creek, the CSXT railroad, and VA 143, then turn east to connect at a new intersection with VA 143. Build Alternatives 1 and 2 are shown in *Figure 1* and *Figure 2* of this memorandum.

AM and PM peak hour traffic volumes for the existing year (2017) and design year (2043) were developed for this study. The PM peak hour was selected as the worst-case hour as this hour had a higher volume of traffic with the same percentage of heavy and medium trucks as the AM peak

hour. Posted speeds were used in the noise model for each roadway in the study area since interrupted free-flow speeds were not available. The proposed posted speed for the Skiffes Creek Connector is 35 MPH.

For noise study purposes, the project area is defined as the area within 500 feet from the proposed edge of pavement of the roadway improvements as defined by the roadway construction limits. Since a highway traffic noise impact assessment is required for all receptors within the project area, three Common Noise Environments (CNEs A, B, and C) were evaluated as part of this highway traffic noise impact analysis using the FHWA Traffic Noise Model version 2.5. These three CNEs are shown in **Figure 3** at the end of this report and are described below. All three CNEs were evaluated under Build Alternative 2 while CNE C is the only CNE within the project area of Build Alternative 1.

### **CNE A**

This CNE is located north of US 60/ Pocahontas Trail just east of Blow Flats Road and west of the proposed alignment. This CNE contains two modeling sites representing a cemetery (A2) and the interior of the Morning Star Church (A1). The locations of the receptors are shown in **Figure 3** at the end of this memorandum. The existing year 2017 worst-case noise levels in this CNE are predicted to range from 40 – 66 dB(A). One existing year noise impact was identified at the cemetery. The design year 2043 worst-case noise levels in this CNE are predicted to range from 41 – 67 dB(A) with one noise impact identified at the cemetery.

According to the VDOT Highway Traffic Noise Impact Analysis Guidance Manual, not all impacted noise sensitive receptors within 500 feet of the project area may qualify for noise abatement, as noise abatement is typically evaluated for noise impacts caused primarily by the proposed roadway improvements. For instance, when a Type I project is located within 500 feet of an Interstate, and no work is being proposed on the Interstate itself, then noise receptors impacted primarily by Interstate traffic noise may not qualify for noise abatement. While site A2 is considered to be impacted, the dominant noise source at this site has been determined to be US 60. Additional noise modeling determined that the predicted design year noise level at this site does not change when all traffic noise is removed from the proposed Skiffes Creek Connector. Since the proposed Build Alternative 2 does not contribute to the overall noise environment at this location therefore noise abatement for CNE A is considered not warranted. Modeled existing year and design year noise levels for CNE A are included in **Table 1** of this memorandum.

### **CNE B**

This CNE is located north of US 60 along Skiffes Creek Circle on the western side of the proposed alignment. This CNE contains 48 residences and one playground represented by 26 modeling sites as shown in **Figure 3** of this report. The existing year 2017 worst-case noise levels in this CNE are predicted to range from 45 – 52 dB(A) with no noise impacts identified. The design year 2043 worst-case noise levels in this CNE are predicted to range from 49 – 57 dB(A). No noise impacts due to an exceedance of the NAC or significant increase in noise levels (> 10dBA) from the existing year to the design year have predicted, therefore noise abatement for CNE B is considered not warranted. Modeled existing year and design year noise levels for CNE B are included in **Table 1** of this memorandum.

## CNE C

This CNE is located north of VA 143/ Merrimac Trail, south of I-64, and west of the proposed alignments. This CNE contains one modeling sites representing an outdoor seating area (C1) and the interior of the Virginia Peninsula Regional Jail (C2). The locations of the receptors are shown in *Figure 3* at the end of this memorandum.

The proposed alignments and typical sections of the Skiffes Creek Connector Design Alternatives 1 and 2 are similar in the vicinity of CNE C. Additionally, the traffic volumes, truck compositions, and predicted speeds are the same for both alternatives, as such, the predicted design year noise levels are predicted to be the same for CNE C under both alternatives. The existing year 2017 worst-case noise levels in this CNE are predicted to range from 40 – 65 dB(A) for Build Alternatives 1 and 2. No existing year noise impacts were identified in this CNE. The design year 2043 worst-case noise levels in this CNE are predicted to range from 42 – 67 dB(A) with one noise impact identified at the outdoor seating area for both Build Alternatives 1 and 2.

According to the VDOT Highway Traffic Noise Impact Analysis Guidance Manual, not all impacted noise sensitive receptors within 500 feet of the project area may qualify for noise abatement, as noise abatement is typically evaluated for noise impacts caused primarily by the proposed roadway improvements. While site C1 is considered to be impacted, the dominant noise source at this site has been determined to be I-64. Additional noise modeling determined that the predicted design year noise level at this site does not change when all traffic is removed from the proposed Skiffes Creek Connector. Since the proposed project alternatives do not contribute to the overall noise environment at this location therefore noise abatement for CNE A is considered not warranted. Modeled existing year and design year noise levels for CNE A are included in Table 1 of this memorandum.

The entire project corridor was evaluated for any potential noise sensitive landuses with approved building permits on undeveloped lands. Based on GIS parcel data and correspondence with James City County staff, no new noise sensitive sites were identified on undeveloped lands within the project corridor.

In conclusion, while noise impacts are present within the project study areas of both Alternative 1 and Alternative 2, no noise impacts are attributed to either of the evaluated alternative alignments therefore noise abatement is not recommended for this project

Feel free to contact the VDOT noise section with any questions.

**Table 1**  
*Modeled Sound Levels*

CNE	Site	Category	Land Use	Number of Dwelling Units	Criteria	Existing Leq (2017)	Build Alt 1 Leq (2043)	Build Alt 2 Leq (2043)
A	A1	D	Church Interior	1	51	40	-	41
	A2	C	Church Cemetery	1	66	66	-	67
B	B01	B	Residential	2	66	52	-	53
	B02	B	Residential	2	66	51	-	52
	B03	B	Residential	2	66	50	-	52
	B04	B	Residential	2	66	50	-	51
	B05	B	Residential	1	66	48	-	51
	B06	B	Residential	2	66	48	-	51
	B07	B	Residential	2	66	47	-	50
	B08	B	Residential	2	66	47	-	51
	B09	B	Residential	2	66	47	-	51
	B10	B	Residential	2	66	47	-	51
	B11	B	Residential	1	66	47	-	52
	B12	B	Residential	2	66	47	-	53
	B13	B	Residential	2	66	47	-	54
	B14	B	Residential	2	66	47	-	55
	B15	B	Residential	2	66	47	-	56
	B16	B	Residential	2	66	48	-	56
	B17	B	Residential	2	66	48	-	57
	B18	B	Residential	2	66	48	-	57
	B19	B	Residential	2	66	46	-	55
	B20	B	Residential	2	66	47	-	53
	B21	B	Residential	2	66	46	-	52
	B22	B	Residential	2	66	45	-	51
	B23	B	Residential	2	66	45	-	49
	B24	B	Residential	2	66	45	-	50
	B25	B	Residential	2	66	45	-	50
	B26	C	Playground	1	66	45	-	50
C	C01	C	Outdoor Seating Area	1	66	65	67	67
		D	Virginia Penninsula Regional Jail (Interior)	1	51	40	42	42

# Impacted sites are highlighted in red

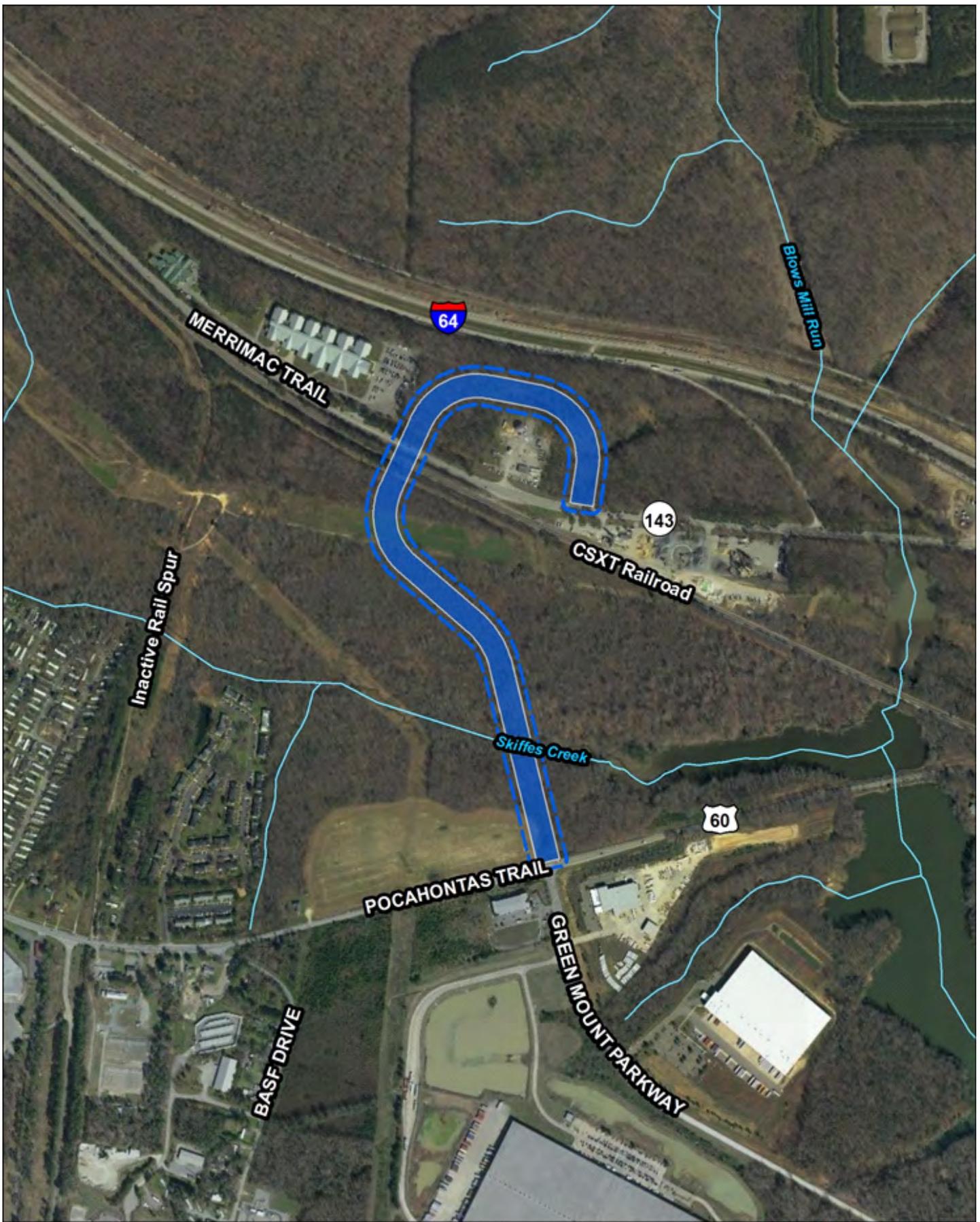


Figure 1  
Alternative 1

**VDOT** Virginia Department of Transportation  
 Skiffes Creek Connector Study  
 VDOT Project Number: 0060-047-627, P101, R201, C501;  
 UPC: 100200

0 200 400 800 Feet

Source: VGIN VBMP Imagery, NHD

Build Alternative 1 (140-foot LOD)  
 Build Alternative 1 (225-foot Inventory Corridor)



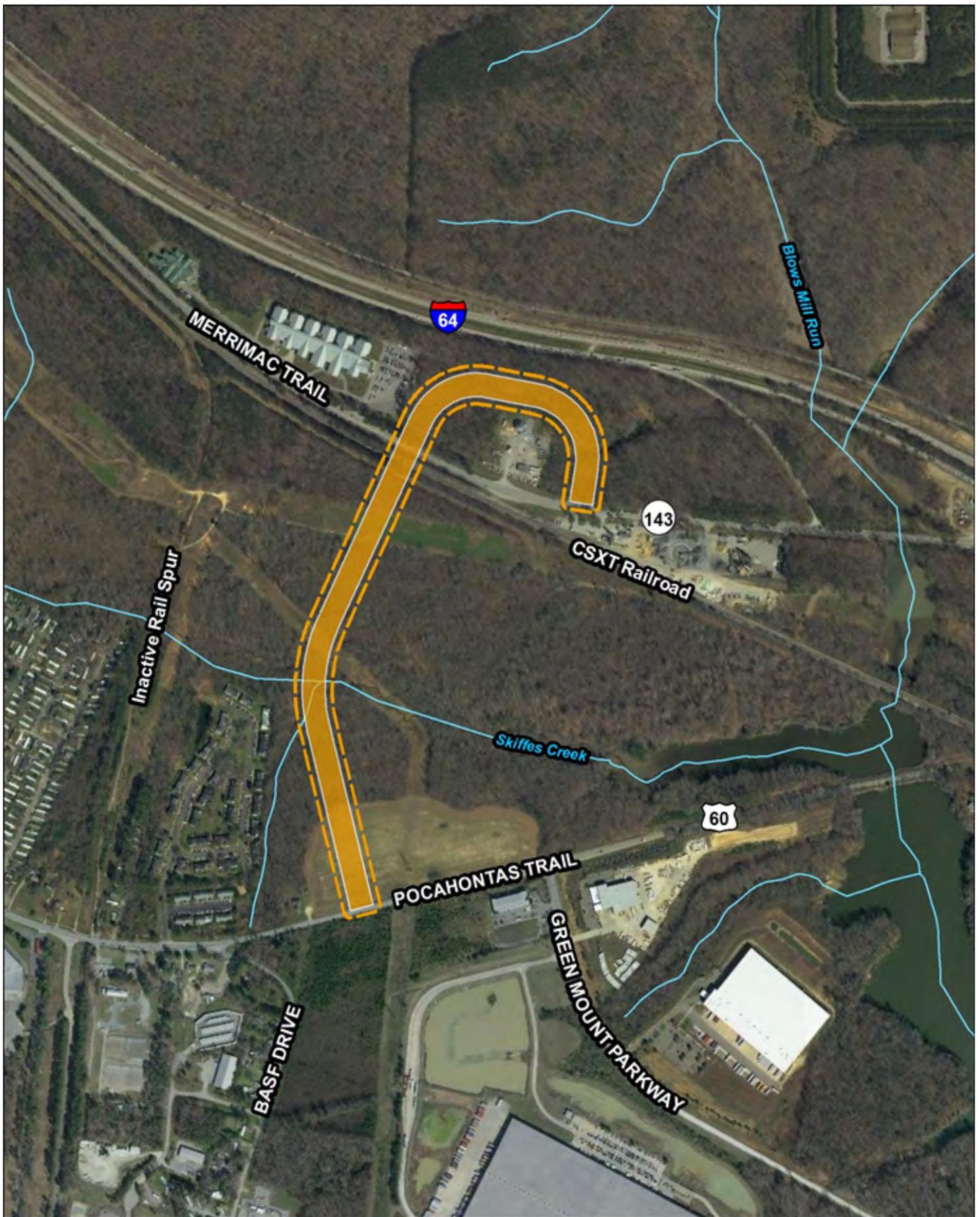


Figure 2  
Alternative 2

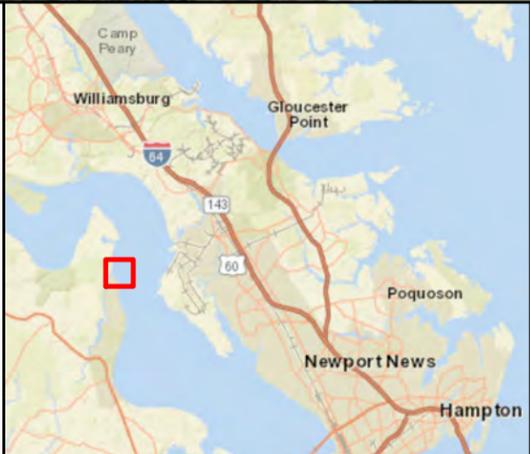
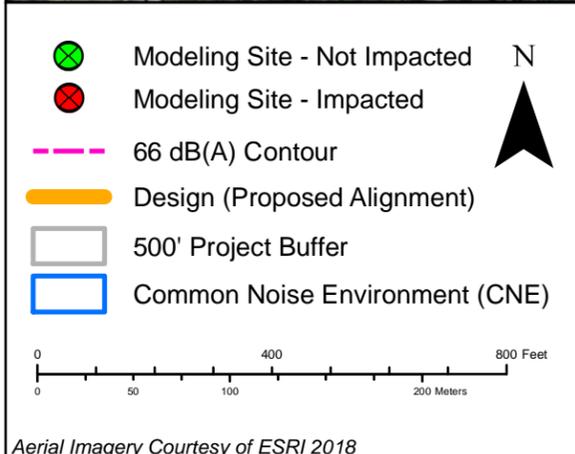
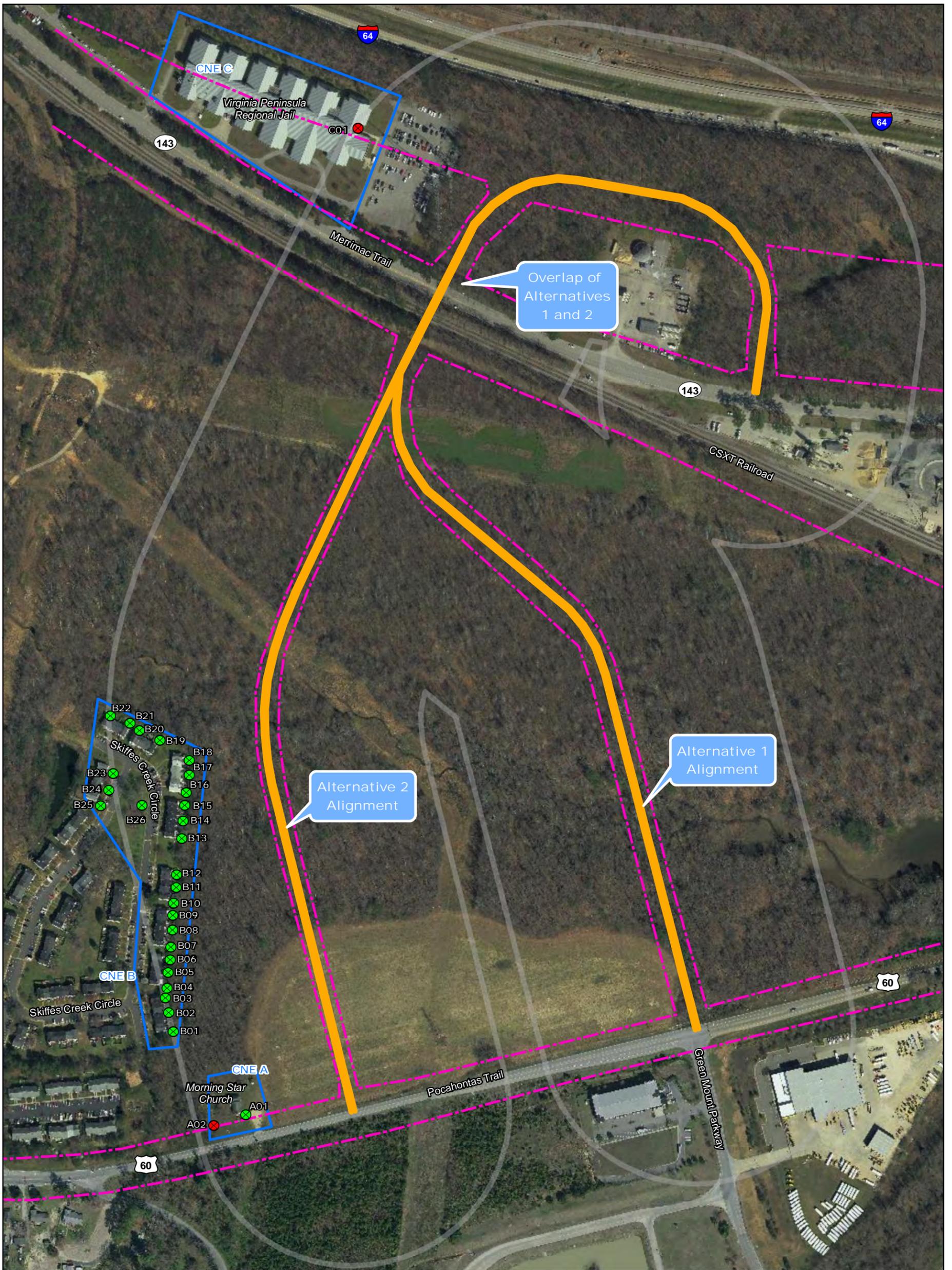
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0 200 400 800 Feet

Source: VGIN VBMP Imagery, NHD

Build Alternative 2 (140-foot LOD)  
 Build Alternative 2 (225-foot Inventory Corridor)





# SKIFFES CREEK CONNECTOR

Preliminary Noise Analysis  
**VIRGINIA DEPARTMENT OF TRANSPORTATION**  
 PROJECT: 0060-047-627, B619, B620, C501, P101, R201  
 UPC: 100200

From: US 60/Pocahontas Trail  
 To: VA 143/Merrimac Trail  
 Figure 3 - Project Study Area

Aerial Imagery Courtesy of ESRI 2018