

# **Appendix C**

## **Noise Study**

Route 606 Widening Project



# COMMONWEALTH of VIRGINIA

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

Charles A. Kilpatrick, P.E.  
Commissioner

August 25, 2017

To: File

From: T. Ross Hudnall

Subject: Reconstruction of Mudd Tavern Road (Route 606 West)

UPC: 105464

Project No: 0606-088-654, C501, P101, R201

The purpose of this memorandum is to summarize the results of the Preliminary 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 updated on July 14, 2015.

VDOT is proposing to widen Mudd Tavern Road (Route 606) from a two-lane undivided to a four-lane divided road from I-95 to US Route 1. The raised median will restrict some left turn movements. Slotted left turns will be permitted into Dan Bell Lane and into the US Post Office. At other existing entrances along Route 606, vehicles will be required to make a right turn and utilize a roundabout to complete the desired left turn movement. The roundabout will be designed to accommodate large trucks. The east side of the US Route 1 & Route 606 intersection will be widened and improved to include separate left, through and right turn lanes. Finally, westbound 606 at Route 1 intersection will have two through lanes, dedicated right turn lanes and dedicated left turn lanes. Two through lanes will carry through the intersection and merge down to one lane approximately 0.1 miles west of the intersection. Eastbound Route 606 at the Route 1 intersection will have one dedicated left turn lane, one through lane, and one dedicated right turn lane.

Per the Federal noise regulations and State noise policy, due to the addition of through-traffic lanes, the project qualifies as a Type 1 project – a noise study is required. According to aerial

imagery and through coordination with the District the following noise sensitive sites were identified in the project corridor in the following Common Noise Environments (CNEs):

- **CNE A** - Two single family residences located north of Route 606 and west of Route 1 were studied under the Noise Abatement Criteria (NAC) B. Both residences have direct driveway access to either Route 606 or Route 1. The residences range 60' to 80' in distance from the project.
- **CNE B** - Five single family residences located north of Route 606 and east of Route 1 were studied under the NAC B. Every residence has direct driveway access to Route 1, Route 606, or Roxbury Mill Road. The residences range 40' to 400' in distance from Route 1 and Route 606.
- **CNE C** – Two receptors representing outdoor seating areas associated with restaurants and one receptor representing the outdoor use area associated with a hotel were studied under the NAC E. All three receptors in CNE C are located north of Route 606 and west of I-95. The residences range 25' to 380' in distance from Route 606.
- **CNE D** – This CNE is comprised of commercial/retail land uses which are considered NAC F and are not considered noise sensitive, therefore will not be evaluated for noise impacts.
- **CNE E** – Five single family residences located north of Route 606 and east of Route 1 were studied under the NAC B. Every residence has direct driveway access to Route 1, Route 606, or Roxbury Mill Road. The residences range 40' to 400' in distance from Route 1 and Route 606.

The locations of the Common Noise Environments and Noise modeling sites are shown in **Figure 1**.

An adjacent project has been submitted for inclusion in the FAMPO CLRP, Route 2092 – Secondary Access North of Route 606 (UPC 111456) was also evaluated as part of this study. The construction of Route 2092 (the new connector road north of Route 606) runs from Dan Bell Lane to South Roxbury Mills Road and ultimately connects to Route 1 including the connection off of the Route 606 roundabout to provide secondary access to parcels on north side of Route 606.

The noise analysis for the project was performed using a two dimensional Traffic Noise Model (TNM) due to the relatively flat terrain. **Table 1** summarizes the results from the analysis.

Since Environmental traffic Data (ENTRADA) was not developed for this project, the worst-case-hour traffic volumes were assumed to be 10% of the average daily traffic (ADT) volumes. **Table 2** summarizes the traffic used in the analysis.

The existing (2016) exterior noise levels in the project area are predicted to range from 50 to 68 dBA. The Build Year (2044) exterior noise levels in the project area are predicted to range from 56 to 71 dBA.

Two sites (A-2 and E-1) representing one residence and one restaurant outdoor seating area are predicted to have Design Year (2044) impacts due to noise levels exceeding the NAC. No receptors experience noise impacts due to a significant increase in noise levels greater or equal to 10 dBA between the Existing Year (2016) and the Design Year (2044)

Although a noise barriers for sites A-1 and E-2 are considered warranted for this project, it was determined that any potential barriers for these sites are not feasible due to property access constraints along the corridor, therefore a noise abatement is not recommended for this project.

In addition, through coordination with Spotsylvania County in July 21<sup>st</sup>, 2017, it has been confirmed that there are no permitted undeveloped lands within the project corridor.

Any construction noise impacts that do occur as a result of roadway construction measures are anticipated to be temporary in nature and will cease upon completion of the project construction phase. The contractor will be required to conform to construction noise specifications found in VDOT's 2016 Road and Bridge Specifications, Section 107.16(b.3), "Noise."

In conclusion, the proposed project is predicted to create future noise impacts, however noise abatement is not considered feasible and no barriers are recommended for construction at this time. In addition, there are no highway traffic noise-related public controversies or substantial construction noise impacts associated with this project. Therefore a detailed quantitative noise analysis is not required.

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

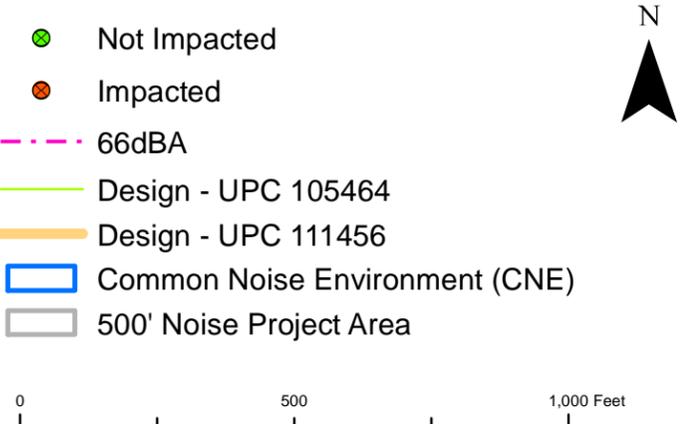
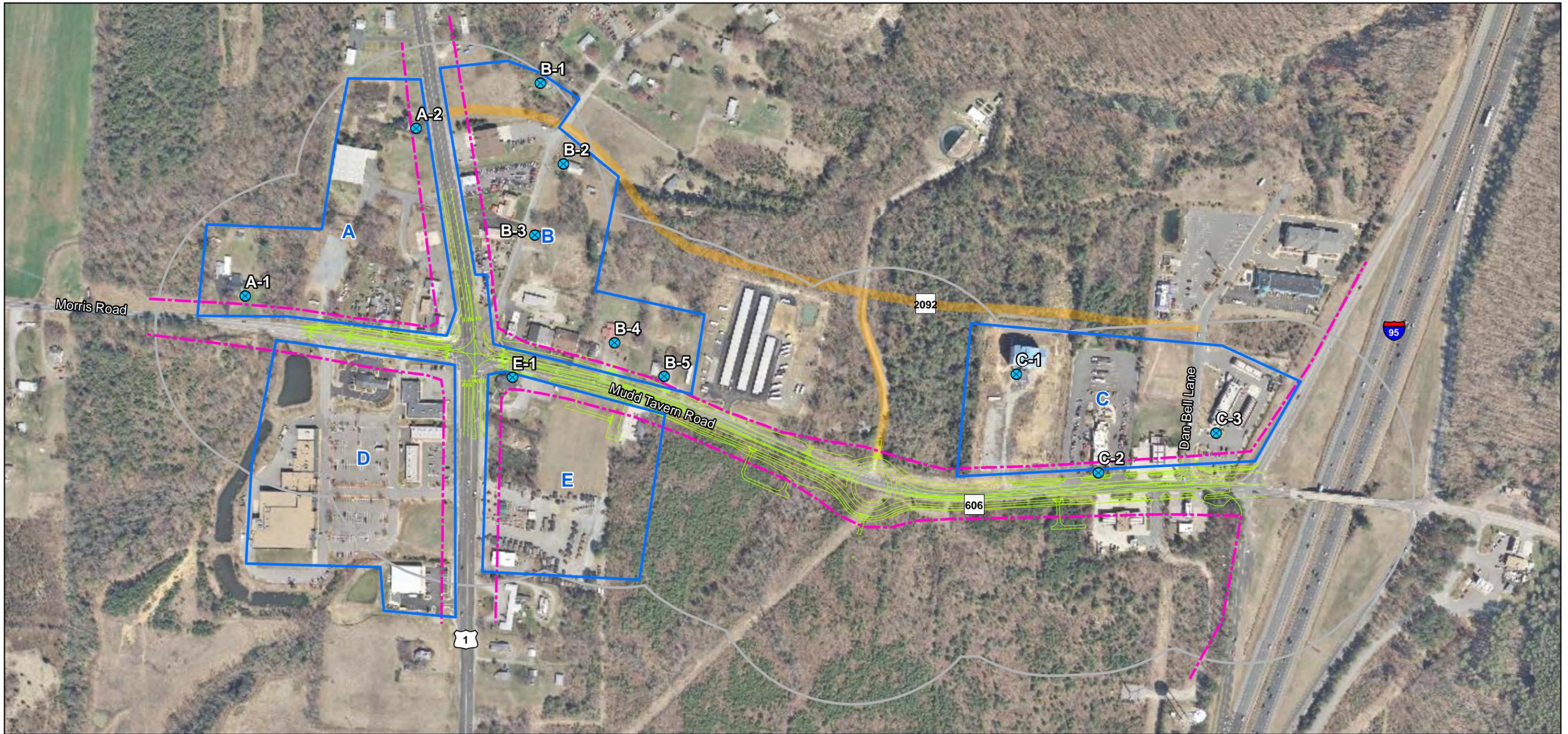
**Table 1: Sound Levels**

	Site	Land Use	Number of Dwellings	NAC Category	Criteria	Existing (2016) Leq	Design Year (2044) Leq
<b>CNE A</b>	A-1	Residence	1	B	66	59	61
	A-2	Residence	1	B	66	<b>67</b>	<b>68</b>
	B-1	Residence	1	B	66	52	60
	B-2	Residence	1	B	66	54	61
<b>CNE B</b>	B-3	Residence	1	B	66	58	59
	B-4	Residence	1	B	66	58	61
	B-5	Residence	1	B	66	61	65
<b>CNE C</b>	C-1	Hotel Exterior	-	E	71	50	56
	C-2	Restaurant Picnic Area	-	E	71	66	68
	C-3	Restaurant Picnic Area	-	E	71	57	61
<b>CNE E</b>	E-1	Restaurant Patio	-	E	71	68	<b>71</b>

 Impacted Site

Table 2: Traffic Summary

FACILITY	ADT		D Factor		TRUCK PERCENTAGE		SPEED	EXISTING NB/EB			EXISTING SB/WB			DESIGN YEAR NB/EB			DESIGN YEAR SB/WB		
	Existing Year (2016)	Design Year (2042)	NB/EB	SB/WB	Med.	Heavy	MPH	Auto	MT	HT	Auto	MT	HT	Auto	MT	HT	Auto	MT	HT
Rte 606 West of Rte 1	8670	12800	65%	35%	3.0%	3.0%	35	533	17	13	285	9	9	782	25	25	421	13	13
Rte 606 East of Rte 1	12276	28000	70%	30%	3.0%	3.0%	35	808	26	25	346	11	11	1842	59	59	790	25	25
Rte 1 North of Rte 606	13054	23300	60%	40%	2.5%	2.5%	45	740	20	23	496	13	13	1328	35	35	885	23	23
Rte 1 South of Rte 606	9970	17800	70%	30%	2.5%	2.5%	45	667	17	13	284	7	7	1184	31	31	507	13	13
Dan Bell	-	5200	50%	50%	3.0%	3.0%	35	-	-	-	-	-	-	244	8	8	244	8	8
Roundabout to Connector	-	11000	50%	50%	3.0%	3.0%	35	-	-	-	-	-	-	517	17	17	517	17	17
Connector East	-	6250	50%	50%	3.0%	3.0%	35	-	-	-	-	-	-	294	9	9	294	9	9
Connector West	-	10500	50%	50%	3.0%	3.0%	35	-	-	-	-	-	-	494	16	16	494	16	16



# RECONSTRUCTION OF MUDD TAVERN ROAD

Preliminary Noise Analysis  
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Figure 1 - Project Study Area