

I-95 Express Lanes: Opitz Boulevard Connection

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**ATTACHMENT F Noise Screening Analysis**



## MEMORANDUM

**Date:** August 30, 2021

**To:** LJ Muchenje, P.E., PMP, VDOT

**From:** Megan Comer, WRA  
Josh Kozlowski, WRA

**Subject:** Noise Screening Analysis

**Federal Project Number:** Not yet assigned

**Project Number:** 0095-076-299, P101, C501; UPC 115198

**Project:** I-95 Express Lanes: Opitz Boulevard Connection

### Introduction

A Noise Screening Analysis for the I-95 Express Lanes: Opitz Boulevard Connection project was performed on behalf of the Virginia Department of Transportation (VDOT), in partnership with Transurban, and in coordination with the Federal Highway Administration (FHWA). The project proposes to construct a south-facing, reversible ramp connecting the existing I-95 Express Lanes to Opitz Boulevard (Route 2000) to improve access to and from the I-95 Express Lanes for central/southern Prince William County and points south including Potomac Mills and the Sentara Northern Virginia Medical Center. In addition, the existing slip ramp from the southbound I-95 general purpose lanes to the southbound I-95 Express Lanes, located south of Opitz Boulevard, will be relocated approximately one mile to the south since the new ramp will impact the existing slip ramp location. The purpose of the Opitz Boulevard Connection is to provide a new travel option and increase accessibility to the I-95 Express Lanes corridor in Prince William County. Per the Federal noise regulation and State noise policy, the above project qualifies as Type I Federal-aid project due to the improvements including interchange and ramp modifications on Opitz Boulevard.

### Methodology

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), 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.

A noise screening analysis was conducted, consistent with *Section 6.1.2 of the VDOT Highway Traffic Noise Impact Guidance Manual*, because although future design year noise impacts were anticipated, noise mitigation would not be reasonable (i.e., not desired). The only noise sensitive receptors within the noise project area are recreational sites located at the Dale City Cars Only Rest Area North and Dale City Car-Only Safety Rest Area South. Due to the distances of the receptors to the interstate, it is anticipated that future design year noise impacts would be identified. While it may be feasible to design feasible barriers at the rest areas, email coordination with NOVA District confirms that VDOT would not want to construct a noise barrier that would block visibility to and from the rest areas. Based on the conditions stated, this project qualifies for a noise screening analysis, and a detailed noise analysis is not warranted.

### Development of Traffic Volumes and the Traffic Noise Model (TNM) Runs

The traffic data that would originally be utilized in this noise screening analysis is in the initial stages of development. As a result, this traffic data would not be available and would not meet the current project schedule. Since these traffic volumes were not readily available, an alternate solution for the traffic volumes for the noise study was suggested.

The Traffic Noise Models (TNM) for the existing and the build alternative were adapted from the I-95 HOT Lanes Project (UPC 102711). Noise receptors were added to these models to represent the outdoor recreational areas at the rest areas. A review was conducted of the traffic volumes for the existing (2011) and build conditions (2035) and a comparison of the dominant source of noise, the I-95 general purpose lanes, for the I-95 HOT Lanes Project and the I-95 Express Lanes: Opitz Boulevard Connection Project. A comparison of the increases in peak hour volumes for the I-95 general purpose lanes between the existing (2011) and design year (2035) and determined that the projected increase in peak hour volumes for the general purpose lanes within the project area for the I-95 Express Lanes: Opitz

Boulevard Connection Project was approximately ten percent or less. Based on this, it was suggested that the utilization of these volumes for the purposes of completing the noise screening analysis would be sufficient. It should also be noted that the existing and design years are different for both projects; however, based on the previously mentioned marginal increases, it would not meaningfully change the results of the noise analysis. Even though the traffic that is currently in development for the proposed I-95 Express Lanes: Opitz Boulevard Connection would not be included as part of the screening, the peak hour volumes on the proposed ramp would not be significant, compared to the traffic volumes from the I-95 HOT Lanes Project models on the general purpose lanes of I-95. In addition, this traffic would be used in the Final Design Noise Analysis to confirm the results of the noise screening. This alternate traffic approach was developed internally, in coordination with the traffic section.

Projected traffic volumes (from the I-95 HOT Lanes Project (UPC 102711)) are provided as peak hour volumes that represent the worst noise hour conditions and are summarized in **Table 1** below.

**Table 1 – Projected Traffic Volumes**

Roadway	Existing Year (2011) Peak Hour Volume (Autos)	Existing Year (2011) Peak Hour Volume (Medium / Heavy Trucks)	Design Year (2035) Build Peak Hour Volume (Autos)	Design Year 2035) Build Peak Hour Volume (Medium / Heavy Trucks)	Speed Limit (MPH)
I-95 Northbound General Purpose Lanes	3,953	8/253	4,168	9/267	65
I-95 Southbound General Purpose Lanes	4,762	51/302	4,777	51/303	65
I-95 Express Lanes	2,263	88/17	2,285	123/57	65
Opitz Boulevard Eastbound	758	79/15	1,159	121/23	40
Opitz Boulevard Westbound	821	86/17	1,256	131/25	40
Dale Boulevard Eastbound	619	18/22	761	23/28	45
Dale Boulevard Westbound	1,914	57/69	2,352	70/85	45

The acoustical environment is not expected to change as a result of the project. This is illustrated through the evaluation of noise models, using the FHWA's TNM, Version 2.5. Existing year and the future design year build condition sound levels were calculated for both rest areas.

Each rest area was identified as a common noise environment (CNE):

- **CNE A** - Outdoor recreational areas at the rest area accessed from the I-95 NB general purpose (GP) Lanes
- **CNE B** - Outdoor recreational areas at the rest area accessed from the I-95 SB auxiliary lane

Coordination with Prince William County has identified the planned Potomac/Neabsco Mills Commuter Garage located east of River Rock Way and I-95 and south of Opitz Boulevard; however, it did not affect shielding for the noise receptors and was not noise sensitive and subsequently, was not included in the models.

### **Presentation of Results**

Predicted sound levels for the existing and build conditions are included in the table below (**Table 2**), as well as the approximate distances from the nearest edge of roadway and impacted status.

Existing and future design year build condition sound levels are predicted to range from 69 to 78 decibels (dBA). All 25 recreational receptors at both rest areas are impacted. While it may be feasible to safely evaluate and design a noise barrier at both rest areas, the construction of noise barriers, or other forms of noise abatement would not be reasonable,

as VDOT will not approve of noise barriers constructed between the interstate and the rest areas that would block visibility to and from the rest areas.

**Table 2 – Predicted Sound Levels and Noise Impact Summary**

CNE	Land Use Description	Approximate Distance from Roadway	Existing Year (2021) Sound Levels (dBA)	Existing Year (2021) Noise Impact	Future Design Year (2043) Sound Levels (dBA)	Future Design Year (2043) Noise Impact	Abatement Feasible?
A	Fifteen recreational receptors located at the rest area (I-95 NB)	150-230 feet from I-95 NB GP Lanes	69-74	Yes (All 15 receptors are impacted)	69-74	Yes (All 15 receptors are impacted)	No
B	Ten recreational receptors located at the rest area (I-95 SB)	60-170 feet from I-95 SB auxiliary lane	75-78	Yes (All 10 receptors are impacted)	75-78	Yes (All 10 receptors are impacted)	No

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 2020 Road and Bridge Specifications, Section 107.16(b.3)*.

In conclusion, while this proposed project will result in overall noise levels approaching or exceeding the applicable noise abatement criteria (NAC) level(s), the overall acoustical environment is not expected to change as a result of the project. Noise abatement is clearly not desired and there is no highway traffic noise-related public controversy or substantial construction noise impacts. This noise screening analysis concludes that the project would not result in noise impacts that require consideration of abatement; therefore, no quantitative or formal noise analysis is required.




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